



Universidade de Aveiro
2022

**Bernardo Nuno de
Henriques Lebre de
Campos Pereira**

**Como as coligações ciclistas modificam a cultura
da bicicleta: análise da mudança na política de
mobilidade em Lisboa 2009-2021**

**(How cyclists' coalitions shape cycling: An analysis of policy
change in Lisbon's mobility paradigm from 2009 to 2021)**



Universidade de Aveiro
2022

**Bernardo Nuno de
Henriques Lebre de
Campos Pereira**

**Como as coligações ciclistas modificam a cultura da
bicicleta: análise da mudança na política de
mobilidade em Lisboa 2009-2021**

**(How cyclists' coalitions shape cycling: An analysis of policy
change in Lisbon's mobility paradigm from 2009 to 2021)**

Tese apresentada à Universidade de Aveiro para cumprimento dos requisitos necessários à obtenção do grau de Doutor em Políticas Públicas, realizada sob a orientação científica do Professor Doutor José Carlos Mota, do Departamento do Departamento de Ciências Sociais, Políticas e do Território (DCSPT) da Universidade de Aveiro, e da Professora Doutora Ruth Oldenziel do Departamento de Engenharia Industrial e Ciências da Inovação da Universidade Tecnológica de Eindhoven (TU/e).

This thesis presented to the University of Aveiro for fulfilment of the requirements necessary to obtain the degree of Doctor in Public Policy, realised under the scientific supervision of Professor José Carlos Mota from the Department of Social, Political and Territorial Sciences (DCSPT) of the University of Aveiro, and Professor Ruth Oldenziel from the Department of Industrial Engineering and Innovation Sciences of the Eindhoven University of Technology (TU/e).

Dedication:

To Xurdana Peña and our children, Xavier, Maria, Luís, Vera, and Pedro.

o júri

Presidente

Doutor José Luís Guimarães Oliveira, Professor Catedrático, Universidade de Aveiro

Vogais

Doutor Peter Cox, Full Professor, University of Chester

Doutora Meredith Glaser, Assistant Professor, University of Amsterdam

Doutora Cecília do Carmo Ferreira da Silva, Professora Auxiliar, Universidade do Porto

Doutor José Carlos Baptista da Mota, Professor Auxiliar, Universidade de Aveiro (orientador)

Doutor Frederico Amado de Moura e Sá, Professor Auxiliar Convidado, Universidade de Aveiro

Acknowledgements

I dearly thank everyone who has contributed to making this thesis possible: my wife Xurdana Peña for her tireless support and also count validation, our five children who were always understanding of the challenge this endeavour represents.

Also Father José Rafael Espirito Santo for his spiritual guidance. Supervisor Professor José Carlos Mota at the University of Aveiro (UA) for the depth of critical perspectives, stimulus, and determined involvement advancing my research and scholarly participation. Co-supervisor Professor Ruth Oldenziel at the Eindhoven University of Technology (TU/e) for the inspiration of looking at cycling cultures from diverse perspectives, the valuable insights provided, time, dedication, support in making the Eindhoven visit possible, and the thorough review and perceptions she contributed with. Also for the assistance given by Professor José Manuel Martins who helped with new insights on quantitative analysis, PSPP application, and the idea for validating moving counts. Miguel Barroso, colleague architect in cycling infrastructure planning, who helped several times with the moving counts and accompanied the process. Lisbon's great cycling scholar Rosa Felix for inputs including the Lisbon, Oeiras, and Cascais street-slope maps and route diagrams, the numerous insights provided by University of Aveiro professors Teresa Carvalho, Carlos Jalali, and Filipe Teles, and the administrative support from Sandra Bastos at the secretariat of the Department of Social, Political and Territorial Sciences (DCSPT). Peter Norton, Leticia Lindenber Lemos, and George Liu during the TU/e SUM visit to Eindhoven. Cecília Silva, Isabel Cunha, and João Teixeira with the BooST PhD workshop, also Pedro Malpica and Peter Cox. M. Luísa Sousa, João Machado, David Vale for their work in the Lisbon cycling history book and the entire Hi-BicLab team, which shares some parallels to this thesis research.

I'm also grateful to everyone who assisted in many ways making this thesis possible, especially my mother Maria Madalena Lebre, step-father Carlos Roncon, mother in-law Fabiola Pascual Irriberi, sisters in law Iranzu Peña and Uxué Peña, sister Sofia who taught me to cycle when I was 8, friends Sofia and Manuel Quintana, Marta and António Oliveira Anão, Graça and Vasco de Sousa Pinto, Joana and Francisco Pólvora, Inês and Manuel Schmidt, Madalena and Francisco Raposo, Matilde and João Vinagre, Astrid and Rodrigo Simões de Almeida, Vera and Duarte Nobre Guedes, Father Miguel Pereira, Ricardo Albuquerque, Jesús Velasco, and so many other friends.

Also the outstanding team with whom I worked with at Lisbon Municipality, led by Inês Castro Henriques, and the Deputy Mayors' advisors Duarte Mata and João Camolas, from whom I learned a great deal about the practicalities of policy change in complex governance mechanisms and getting outputs done. Also António Pedro Figueredo, João Bernardino, Miguel Atanásio Carvalho, Ricardo Ferreira, Rita Castel' Branco, Sandro Araújo, Catarina Freitas, Carlos Contente Sousa, Miguel Castro Neto, Filipa Cabral Sacadura, Eduardo Silva and the entire team at Lisboa E-Nova, and many other cyclists and citizens who in so many ways were helpful.

I would also like to thank each one of the eleven anonymous interviewees for their remarkable patience, generosity with time, openness, and the extremely valuable and varied insights they provided to this research.

palavras-chave

Advocacy Coalition Framework; Políticas Públicas; Mudança; Coligação Ciclista; Bicicleta; Cidades; Lisboa

Resumo

A utilização da bicicleta é atualmente reconhecida como parte vital do sistema de mobilidade urbana sustentável das cidades mais desenvolvidas, contribuindo para ganhos na mitigação das alterações climáticas, benefícios de saúde, sociais, económicos, ambientais, e na velocidade das deslocações, explicando em parte o recente ressurgimento deste modo em cidades por todo o mundo. Apesar destes benefícios, as políticas públicas não se têm desenvolvido facilmente nesta matéria. Muitas cidades continuam a atrasar ou a excluir a implementação de medidas efetivas para promover a bicicleta como modo de mobilidade legítimo. A maioria das investigações e políticas remetem para soluções infraestruturais para fomentar a transição. Esta investigação, por outro lado, emprega uma abordagem inovadora para o avanço do conhecimento, designadamente, como as coligações de utilizadores de bicicleta transformam o processo de decisão e colocam a bicicleta na agenda política onde antes este modo de mobilidade era ignorado ou marginalizado. A dissertação adota a base teórica do *'advocacy coalition framework'* (ACF) para analisar os mecanismos que ativam e sustentam a mudança de políticas. Esta tese analisa a cidade de Lisboa em Portugal como caso de estudo, considerando a conurbação, para analisar como a mudança foi realizada durante o período de treze anos entre 2009 e 2021, empregando análises comparativas detalhadas para avançar no conhecimento sobre a utilização da bicicleta em geral. A análise qualitativa analisou a literatura científica, documentos, notas provenientes da experiência pessoal e profissional na formulação e implementação de políticas, e onze entrevistas anónimas com variados atores políticos, envolvidos no processo durante o período do estudo de diferentes formas. Os resultados quantitativos são analisados através de dados disponíveis provenientes de diferentes pesquisas e contagens para fundamentar a relação entre as medidas implementadas e os resultados alcançados, complementados com dados pormenorizados de contagens de tráfego ciclável realizados desde 2009. A estrutura desta investigação foi projetada para aprofundar o conhecimento sobre a ampla coligação de utilizadores de bicicleta e como esta transformou a formulação e implementação de políticas, numa cidade onde o *status* cultural e as taxas de utilização da bicicleta eram reduzidos, para gerar *'novo conhecimento'* sobre o subsistema em Portugal e outros contextos comparáveis.

keywords

Advocacy Coalition Framework; Policy Process; Change; Cyclists' Coalition; Cycling; Cities; Lisbon

abstract

Cycling is currently recognised as a vital part of most developed sustainable urban mobility systems, contributing to acknowledged gains in climate change mitigation, health, social, economic, environmental, and travel speed issues, explaining in part its recent resurgence in cities worldwide. Despite the benefits, public policy on cycling has not developed smoothly. Many cities continue to stall or ignore effective output implementation to promote cycling as a legitimate mobility mode. Most research and policy focus on infrastructure solutions to implement change. This research, by contrast, focuses on an innovative approach to advance scholarship, namely how cyclists' advocacy coalitions shape decision-making and place cycling on the political agenda where it was previously ignored or side-lined. The dissertation applies the concept of the advocacy coalition framework (ACF) to analyse the mechanisms which activate and sustain policy change. This thesis analyses the city of Lisbon in Portugal as a case-study of conurbation to analyse how change has been leveraged during the thirteen-year time frame between 2009 and 2021, using both detailed comparative analysis and advancing scholarship on cycling more generally. The qualitative analysis employs the scholarship, documents, notes taken from personal professional experience in policy formulation and implementation, and eleven anonymous interviews with policy actors involved to different extents in the process during the study period. These quantitative outcomes are gauged using available data from several surveys and counts to substantiate the relation between the outputs produced and outcomes achieved in combination with detailed data from cycle traffic moving counts I have carried out since 2009. The research structure is designed to provide insights on how the broad-based cyclists' coalition has shaped policy formulation and implementation in a city where cycling had a low cultural status and low rates to generate '*new knowledge*' regarding the subsystem in Portugal and other comparable contexts.

I. Table of Contents

I. Table of Contents	4
II. Figures	9
III. Tables	12
IV. Abbreviations, acronyms, and symbols	13
1. Introduction	19
1.1 General view of research	19
1.2 Research objectives	22
1.3 State of the art	23
1.4 Starting point and how to respond to it	24
1.5 Originality of the work	25
1.6 Contribution to developing public policy expertise	27
1.7 Academic and personal motivations for the thesis topic	28
1.8 This thesis' simplified design	28
2. Conceptual framework - Advocacy coalitions	30
2.1 Introduction to the conceptual approach	30
2.2 What are advocacy coalitions?	33
2.2.1 Networks and subsystems	40
2.2.2 Temporality	42
2.2.3 Conceptualising advocacy coalitions and policy process	42
2.2.4 Influence upon policy development	43
2.3 Advocacy coalition actors	45
2.3.1 Principal coalition actors	47
2.3.2 Policy brokers	48
2.3.3 Policy entrepreneurs	54
2.4 Policy actor interactions	56
2.4.1 Links between individuals, communities of interaction, and organising	56
2.4.2 Policy networks	59

2.4.3 Citizens' spark	61
2.4.4 Policy organisations and political associations	63
2.5 Policy formulation and implementation	72
2.5.1 Context and policy settings	74
2.5.2 Conviviality	77
2.5.3 Bottom-up policy action	79
2.5.4 Policy beliefs and biases	81
2.5.5 Clarifying beliefs in weak influence settings	83
2.5.6 Ideological shifts	85
2.5.7 Sparking advocacy group action in face of emerging issues	86
2.5.8 Agenda setting and policy-issue framing	89
2.5.9 Events	92
2.5.10 Learning	94
2.5.11 Policy conflict	109
2.5.12 Tipping points	111
2.6 Conceptual conclusion: omitted factors and research overlaps	117
3. The cyclists' coalition	119
3.1 Comparable cities and regions	119
3.1.1 City indicators	122
3.1.2 Cycling and policy outputs	126
3.2 Overarching factors	142
3.2.1 Mobility poverty	142
3.2.2 Cycling rates	145
3.2.3 Spatial and social variables	146
3.2.4 Operationalising contextual factors within coalition analysis of policy process	149
3.3 Landscape	153
3.3.1 Topography and geographical particularities	153
3.3.2 Land use	155
3.3.3 Morphology	157
3.3.4 Housing and cycling	158
3.3.5 Mobility policy and the landscape	161
3.4 The mobility system's relation to cycling	162

3.4.1	Automobility	162
3.4.2	Modal integration	164
3.5	Policymakers' relation with cycling	167
3.5.1	Meta issues	167
3.5.2	Meta issue networks	170
3.5.3	Policy transfer mechanisms	172
3.5.4	Integrating cycling in urban mobility policy	192
3.5.5	Public policy measures for cycling in adverse settings	197
3.6	Citizens, associations, advocacy coalition building, and social movements	205
3.6.1	Cycling citizens	208
3.6.2	Cycling associations	209
3.6.3	Epistemic cyclists' communities	215
3.6.4	Social movements and cycling	219
3.7	Cycling's cultural status	224
3.7.1	Explanatory variables of cycling's social status	224
3.7.2	Conviviality, coexistence, and cycling's status	229
3.7.3	Urban-suburban divide	230
3.7.4	Automobility' dominance and cyclists' persistence	231
3.7.5	Transitions theory	232
3.7.6	Lessons from cycling's collapse, survival, and revival	233
3.7.7	The COVID-19 pandemic	233
3.7.8	Cycling's cultural uptake	234
3.8	Conclusion and limitations of cyclists' coalition analysis	235
4.	The Lisbon cyclists' coalition: a case study for policy change, 2009-2021	237
4.1	Case-study methodology	237
4.2	Qualitative and quantitative features of cycling in Lisbon	239
4.2.1	Qualitative approach: personal notes, documents, and interviews	239
4.2.2	Qualitative approach: interviews	241
4.2.3	Quantitative approach: outcomes – data sources on cycling and moving counts	248
4.3	Context	249
4.3.1	Lisbon's topography and geographical features: epistemic demystification	251
4.3.2	Lisbon's land use, morphology, and housing	253

4.3.3	Lisbon's mobility policy setting	256
4.4	Lisbon's mobility system and cycling	259
4.4.1	Modal integration in AML	261
4.5	Policymakers' relation with cycling in Lisbon	264
4.5.1	Meta issue integration in Lisbon	267
4.5.2	Policy brokerage and cycling in Lisbon's difficult setting	270
4.5.3	Policy measures and the AML's adverse setting	281
4.6	Cycling's social status in Lisbon	287
4.6.1	Lessons from bicycle use-collapse, survival, and revival in Lisbon	290
4.6.2	Cycling's cultural uptake in Lisbon: how about AML?	292
4.7	Policy process and cycling in Lisbon: quantitative analysis	293
4.8	Outputs	294
4.8.1	Cycling-specific infrastructure policy developments	299
4.8.2	Lisbon and AML's cycling network policy	306
4.8.3	Policy recommendations	314
4.9	Outcomes	317
4.9.1	Cycle traffic moving counts	317
4.9.2	Other cycle traffic data in Lisbon	323
4.9.3	Linear regression analysis of cycle traffic moving counts	328
4.10	Coalescing citizens, associations, and social movements	330
4.10.1	Lisbon's cycling citizens: resistance and revival	331
4.10.2	Lisbon's cycling associations and grassroots movements, boosted by internet	334
4.10.3	Cyclist organisations' dynamics	337
4.10.4	Lisbon's epistemic cyclists' communities	340
4.10.5	Lisbon's cyclists' coalition: from citizens to collective action	342
4.10.6	Status of Lisbon's cyclists' coalition in 2022	347
5.	Conclusion	349
5.1	Final observations	349
5.2	Research gaps and limitations	351
5.3	Epilogue	352
6.	Indicator Table Sources	356
6.1	Table 6 sources	356

6.2 Table 10 sources	358
7. References	360
8. Appendices	410
Appendix I – Qualitative research: interview transcript (partial)	411
Appendix II – Quantitative research: moving count data	466

II. Figures

Figure 1 - Simplified research design	29
Figure 2 - Carlsson's (2017) conceptual 'Relation between frameworks and other intellectual constructs used in research' (p. 158) adapted to this ACF research	32
Figure 3 - Advocacy coalition elements within the policy process for change	40
Figure 4 - Sabatier & Weible's (2007) general updated model of policy change focusing on competing advocacy coalitions within the urban mobility subsystem.	44
Figures 5, 6 - Velo-City conference shortlisted city evaluation by ECF delegations	58
Figures 7, 8 – The same avenue during open streets during EMW and on a normal weekday	62
Figures 9, 10 – Epistemic interaction	66
Figure 11 - Oeiras Critical Mass at the Fort São Bruno Caxias meeting point, June 2020	81
Figure 12 - Simplified conceptualisation for framing the policy issue at the 'nexus'	90
Figure 13 and 14 - Stevenage	96
Figure 15 – Expert group site visit to Lisbon	100
Figure 16 - Discursive policy learning process	105
Figure 17 - Policy conflict framework flow diagram	110
Figure 18 - 1905 road map of continental Portugal by the cyclists' union	114
Figure 19 - PRESTO Cycling policy guide - starter, climber, and champion cycling cities	120
Figure 20 – Core municipality cycling modal share in European cities with large metropolitan areas	125
Figure 21 – Core municipality cycleway networks in European cities with large metropolitan areas	125
Figure 22 - Map of automobile access regulations in urban areas in Europe in 2021	128
Figures 23, 24 - Greenways in Lisbon and Cascais	129
Figures 25, 26 - Off-season cycle tourism in Trafaria (Almada) and Lisbon	131
Figure 27 - EuroVelo schematic diagram	132
Figure 28 - Pop-up cycleway implemented in Quarteira (Loulé municipality, Portugal) in February 2019	136
Figure 29 - Bicycle parking at a hospital in Pamplona, Navarre	138
Figure 30 - Bicycle parking at Guincho Norte beach, Cascais	140
Figure 31 - Rotterdam regional accessibility reference map - bicycle, public transport, and automobile	144
Figure 32 - Spatial, social, and individual determinants of travel behaviour	147
Figure 33 - Silva, Teixeira, & Proença's (2019) potential for cycling assessment method	148
Figure 34 – Operationalising Oldenziel & Albert de la Bruhèze's (2016b) contextual factors into a coalition analysis of policy process	149

Figure 35, 36 - Lisbon's 1933 Expansion Plan and Copenhagen's 1947 'Finger Plan	156
Figure 37 - 'Scofflaws' on main street, Oeiras town centre 2021	164
Figure 38 - United Nations Sustainable Development Goals (USDG)	176
Figure 39 - Barbed wire EU flag installation art-piece at Praça Europa, Lisbon (March 2020)	181
Figure 40 – Indicative cycling modal share in EU countries and the UK	206
Figures 41, 42 - Decentralised CM dissemination on bicycles and on-line	212
Figure 43 - COVID-19 'bike boom' at the Algés – Cruz Quebrada cycleway, Oeiras May 2020	213
Figure 44 - Adolescent cycling in São Pedro do Estoril, Cascais (June 2021)	226
Figure 45 – Av. Marginal between Lisbon and Cascais (Paço de Arcos, Oeiras, October 2021)	229
Figures 46, 47 – Excluded persistencies in the AML	231
Figure 48 - Simplified case-study chapter design	238
Figure 49 - Methodological sequence for the case study's qualitative and quantitative data collection	238
Figure 50 - Interviewee's political positioning on a simplified Nolan (1971) chart	247
Figure 51 - The Lisbon Metropolitan Area (AML)	250
Figure 52 - Rosa Félix's (2013) map of Lisbon's street network slopes and cyclability effort	252
Figure 53, 54 - Cascais street network slopes and cyclability effort map, developed by Rosa Felix (2021)	253
Figure 55 – Sprawl and the closed cycle of automobile dependence (Litman, 2004)	256
Figure 56 – Rupprecht et al.'s (2019) SUMP policy cycle	258
Figure 57 – Bicycle parking location at Paço de Arcos train station (2019)	262
Figures 58, 59, 60 - Proposals for cycleways in Oeiras municipality which have consecutively won public participatory budgets (PPBs) in 2014, 2019, and 2021	268
Figures 61, 62 – Portugal's modal share statistics and projections in 1960 and 1965	277
Figure 63 - Cycling modal share in Portugal and the Lisbon-Cascais artery overlaying Oldenziel et al.'s (2016); Veraart's (2016) 14 European Cities cycling data graph	288
Figure 64 - Beach snack vendor at Tamariz Beach, Estoril, Cascais (July 2017)	293
Figure 65 - Lisbon's first aspirational 'LEZ'	296
Figure 66 - Lisbon Mayor Fernando Medina presenting the ZER ABC low emissions zone (31 Jan 2020)	297
Figure 67 - Greenway implementation in the AML in 2021	298
Figure 68 - The Cascais-Guincho cycleway (2019)	300
Figure 69 - Lisbon Municipality's first cycleway inaugurated in 2001	303
Figure 70 –AML cycleway network	307
Figure 71 – Municipal cycleway networks in AML, February 2022 (km)	312

Figure 72, 73 - Cyclists in Lisbon during rush hour	313
Figure 74 - AML with 6km (20 minute) bicycle catchment area coverage around train, metro and ferry boat stations	316
Figure 75 - Cycle traffic arteries analysed in Lisbon	317
Figures 76, 77 - Validation method for cycle traffic moving counts	320
Figure 78 - Cycle traffic on two Lisbon case-study traffic arteries	322
Figure 79 - Cycle traffic tendency on two Lisbon case-study traffic arteries	323
Figure 80 - Cycle traffic tendency 19 locations in Lisbon municipality, 2017-2021	324
Figure 81 - Cycle traffic tendency at Duque d'Avila cycleway in Lisbon municipality, 2016-2021	324
Figure 82 - Cycle traffic tendency at two cycleway counters in Cascais municipality 2019-2021	325
Figure 83 - Data from one of 34 fixed radar cycle traffic counters in Lisbon municipality	326
Figure 84 - Cycling modal share evolution in the AML municipalities between 2011 and 2021	327
Figure 85 - Cycling heatmap of Lisbon Metropolitan Area	328
Figure 86, 87 - Senior cyclists in AML	343
Figure 88 - Almirante Reis cycleway protest flyer, October 2021	344
Figure 89, 90 – Almirante Reis cycleway protest, October 2021	344
Figure 91 - Diagram of Lisbon's cyclist's coalition operationalisation within policy process for change (Status in February 2022)	348
Figure 92 - DIY bicycle sign on sidewalk cobblestones at Av. Miguel Bombarda, Lisbon	352

III. Tables

Table 1 - Categories of actors and their advocacy coalition attributes	21
Table 2 - Advocacy Coalition Elements in Policy Formulation	36
Table 3 - Advocacy Coalition Elements in Policy Implementation	38
Table 4 - Policy actor types involved in the policy process	46
Table 5 - Comparing advocacy coalitions to other forms of political associations	64
Table 6 - Cycling policy change indicators in European cities with large metropolitan areas	126
Table 7 - Cycling policy developments in ‘comparable cities’, from Oldenziel & Albert de la Bruhèze’s (2016b) 5 factors for cycling intensity	152
Table 8 - ECO XXI Sustainable Mobility Sub-Indicator	188
Table 9 - Lisbon Policy actors interviewed	240
Table 10 - Cycling policy outputs and outcomes in AML municipalities	310
Table 11 - Fixed counts (validation)	321
Table 12 - Moving counts (validation)	321
Table 13 - Linear Regression of Cycle traffic Variables	329

IV. Abbreviations, acronyms, and symbols

ABAE	<i>Associação Bandeira Azul Europeia</i> (European Blue Flag Association Portugal)
ABIMOTA	<i>Associação Nacional das Indústrias das Duas Rodas, Ferragens, Mobiliário e Afins</i> (Portuguese Association of Two-Wheel, Hardware, Furniture and Related Industries)
ACA-M	<i>Associação de Cidadãos Auto-Mobilizados</i> (Portuguese Pedestrian Association)
ACF	Advocacy Coalition Framework
ACL	<i>Associação de Ciclismo de Lisboa</i> (Lisbon Cycling Association)
ACP	<i>Automóvel Clube de Portugal</i> (Portuguese Automobile Club)
ADENE	<i>Agência para a Energia</i> (Portuguese National Energy Agency)
AG	<i>Algés</i>
AGENEAL	<i>Agência Municipal de Energia de Almada</i> (Almada Municipal Energy Agency)
AHP	<i>Aldeias Históricas de Portugal</i> (Historical Villages of Portugal)
AML	<i>Área Metropolitana de Lisboa</i> (Lisbon Metropolitan Area)
AMP	<i>Área Metropolitana do Porto</i> (Porto Metropolitan Area)
AMNP	<i>Associação Nacional de Municípios Portugueses</i> (Portuguese National Association of Municipalities)
ANSR	<i>Autoridade Nacional de Segurança Rodoviária</i> (National Road Safety Authority)
APA	<i>Agência Portuguesa do Ambiente</i> (Portuguese Environmental Agency)
APFN	<i>Associação Portuguesa de Famílias Numerosas</i> (Portuguese Large Families Association)
APSI	<i>Associação Portuguesa de Segurança Infantil</i> (Portuguese Child Safety Association)
ASL	Advanced Stop Line, or ‘bike box’
ATML	<i>Autoridade Metropolitana de Transportes de Lisboa</i> (Lisbon Metropolitan Transport Authority)
BE	<i>Bloco de Esquerda</i> (Left Block political party)
BFC	Bike-Friendly Campus (or Bicycle-Friendly Campus)
BFI	Bike Friendly Index
BNG	<i>Bloco Nacionalista Galego</i> (Galician Nationalist Block political party)
BooST	Boosting Starter Cycling Cities programme
c.	circa
C40	C40 Cities Climate Leadership Group Inc.
CADA	Portuguese Government Access to Administrative Documents Commission
CBA	Cost Benefit Analysis
CCDR	<i>Comissão de Coordenação e Desenvolvimento Regional</i> (Regional Development and Coordination Commission)
CDS	<i>Centro Democrático e Social</i> (Portuguese right wing party)
CDU	<i>Coligação Democrática Unitária</i> (Portuguese communist party and eco-socialist party coalition)
CEAP	<i>Centro de Estudos de Arquitetura Paisagista</i> (Centre for Landscape Architecture Studies)
CEiA	<i>Centro de Engenharia e Desenvolvimento</i> (Centre of Engineering and Product Development)
CERIS	Civil Engineering Research and Innovation for Sustainability, UL IST research unit
CESUR	<i>Centro de Sistemas Urbanos e Regionais</i> (Urban and Regional Studies Centre, former research unit at UL IST, currently integrated in CERIS)
CIAUD	<i>Centro de Investigação em Arquitetura, Urbanismo e Design</i> (UL’s Faculty of Architecture’s Research Centre for Architecture, Urbanism, and Design)
CIE	Cycling Industries of Europe
CIUHCT	<i>Centro Interuniversitário de História das Ciências e da Tecnologia</i> (UL FCUL and UNL FCT Interuniversity Research Centre for the History of Sciences and Technology)

CM	Critical Mass bicycle protest and celebration rides
CMA	<i>Câmara Municipal de Almada</i> (Almada Municipality)
CMAm	<i>Câmara Municipal de Amadora</i> (Amadora Municipality)
CMC	<i>Câmara Municipal de Cascais</i> (Cascais Municipality)
CMM	<i>Câmara Municipal da Murtosa</i> (Murtosa Municipality)
CMO	<i>Câmara Municipal de Oeiras</i> (Oeiras Municipality)
CMP	<i>Câmara Municipal de Pombal</i> (Pombal Municipality)
CML	<i>Câmara Municipal de Lisboa</i> (Lisbon Municipality)
CMLI	<i>Câmara Municipal de Loulé</i> (Loulé Municipality)
CMLr	<i>Câmara Municipal de Loures</i> (Loures Municipality)
CMS	Cycling Measures Selector - from the BooST – Boosting Starter Cycling Cities programme
CMTV	<i>Câmara Municipal de Torres Vedras</i> (Torres Vedras Municipality)
CDNJ	<i>Centro Desportivo Nacional no Jamor</i> (National Sports Centre at Jamor)
CNV	Current Net Value
CO ₂	Carbon Dioxide
CoM	Covenant of Mayors
CoM-C&E	Covenant of Mayors for Climate and Energy
CONEBI	European Bicycle Industry
COP21	Paris Climate Conference (November 2015), Paris Agreement
COP26	Glasgow Climate Conference (November 2021)
CoR	European Committee of Regions
COVID-19	Coronavirus disease 2019
CP	<i>Comboios de Portugal</i> (Portuguese Trains)
CPLP	<i>Comunidade dos Países de Língua Portuguesa</i> (Community of Portuguese Speaking Countries)
CQ	<i>Cruz Quebrada</i>
CROW	Dutch non-profit technology platform for transport, infrastructure and public space
CRR	Belgian Road Research Centre
CS	Cycling Secretariate
CSHS	Cycling Superhighways Secretariate (City of Copenhagen)
CTC	Cyclists' Touring Club (UK)
DCE	Dutch Cycling Embassy
DEP	<i>Departamento de Espaço Público</i> (Public Space Department, under Lisbon's Municipal Directorate for Urbanism)
DEPM	<i>Divisão de Estudos e Planeamento da Mobilidade</i> (Mobility Studies and Planning Division, under Lisbon's Municipal Directorate for Mobility)
DG	Directorate General
DG ENER	Directorate-General for Energy (EC)
DG MOVE	Directorate-General for Mobility and Transport (EC)
DEGAS	<i>Departamento de Estratégia e Gestão Ambiental Sustentável</i> (Almada Municipality Department of Sustainable Environmental Strategy and Management)
DIY	Do it yourself
DMEVAE	<i>Direção Municipal da Estrutura Verde, do Ambiente e Energia</i> (Lisbon's Municipal Directorate for Green Infrastructure, Environment and Energy)
DMPGU	<i>Direcção Municipal de Planeamento e Gestão Urbanística</i> (Lisbon's extinct Municipal Directorate for Planning and Urban Management)
DMM	<i>Direção Municipal da Mobilidade</i> (Lisbon's Municipal Directorate for Mobility)
DMU	<i>Direção Municipal de Urbanismo</i> (Lisbon's Municipal Directorate for Urbanism)
EC	European Commission

EC JRC	European Commission's Joint Research Centre
ECC	European Cycling Challenge
ECF	European Cyclists' Federation
ECO92	UN Rio de Janeiro Earth Summit, 1992
ECOXXI	European Blue Flag Association Portugal municipal sustainability audit program
EEA	European Environmental Agency
EEC	European Economic Community
EFTA	European Free Trade Association
e.g.	example given
EGCA	European Green Capital Award
EGLA	European Green Leaf Award
EMEL	<i>Empresa Municipal de Estacionamento de Lisboa</i> - Lisbon Municipal Parking Company
EMSA	European Maritime Safety Agency
EMW	European Mobility Week
EN	English
ENA	Energy and Environment Agency of Arrábida
ENMAC	<i>Estratégia Nacional para a Mobilidade Ativa Ciclável 2020-2030</i> (National Strategy for Active Cycling Mobility 2020-2030 (Portugal))
Eq.	Equation
EP	<i>Estradas de Portugal</i> (Roads of Portugal management organism, from 2004 to 2015)
EPOMM	European Platform on Mobility Management
ECR	European Committee of Regions
EU	European Union
EV	EuroVelo
EVA	<i>Eixo Verde e Azul</i> (Green and Blue Axis, greenway)
Eva	Electric Vehicles (automobiles)
EVva	<i>Estrada Viva</i> (Vulnerable Road Users Umbrella Association)
EVC	Economic Value of Cycling - from the BooST – Boosting Starter Cycling Cities programme
FEE	Foundation for Environmental Education
FCCO	Focal Catalytic Coalition Organisation
FIA	<i>Federation Internationale de l'Automobile</i>
FLOW	EU Horizon 2020 funded CIVITAS programme 'Furthering Less Congestion by Creating Opportunities For More Walking and Cycling'
FMH	<i>Faculdade de Motricidade Humana</i> (University of Lisbon Faculty of Human Kinetics)
	FPCUB <i>Federação Portuguesa de Cicloturismo e Utilizadores de Bicicleta</i> (Portuguese Cycle Tourism and Bicycle Users' Federation)
UVP-FPC	<i>União Velocipédica Portuguesa - Federação Portuguesa de Ciclismo/</i> (Velocipedic Union - Portuguese Cycling Federation)
FUA	Functional Urban Area
GCoM-C&E	Global Covenant of Mayors for Climate and Energy
GHG	Greenhouse Gases
GIS	Geographic Information System
GNR	<i>Guarda Nacional Republicana</i> (Portuguese National Guard police force)
GPC	Gross Potential for Cycling (BooST – Boosting Starter Cycling Cities programme)
GRACQ	<i>Groupe de Recherche et d'Action des Cyclistes Quotidiens</i> (Belgian Daily Cyclists Research and Action Group)
HEAT	Health economic assessment tool for walking and cycling (WHO)
HIA	Health Impact Assessment

ICLEI	Local Governments for Sustainability (former International Council for Local Environmental Initiatives)
i.e.	<i>id est</i> (that is)
IEP	Instituto de Estradas de Portugal (Institute of the Roads of Portugal management organism, from 1999 to 2004)
IFP	International Federation of Pedestrians
IMT	<i>Instituto de Mobilidade e Transportes</i> (Institute of Mobility and Transport)
IMTT	<i>Instituto de Mobilidade Terrestre e Transportes</i> (Institute of Mobility and Terrestrial Transport; renamed IMT in 2012, according to law-decree <i>Decreto-Lei n.º 236/2012, de 31 de outubro</i>)
INE	<i>Instituto Nacional de Estatística</i> (Statistics Portugal)
IP	<i>Infraestruturas de Portugal</i> (Portuguese Infrastructures management organism, since 2015)
IRR	Internal Rate of Return on investments
ISA	<i>Instituto Superior de Agronomia</i> (Agronomy Institute of the University of Lisbon)
ISEG	<i>Instituto Superior de Economia e Gestão</i> ([University of] Lisbon School of Economics & Management)
ISEG/REM	(UL) ISEG Research Unit in Economics and Management
IST	<i>Instituto Superior Técnico</i> (Technical Institute of the University of Lisbon)
ITDP	Institute for Transportation and Development Policy
ITF	International Transport Forum (at the OECD)
IULA	International Union of Local Authorities
JAE	<i>Junta Autónoma de Estradas</i> (Portuguese Roads Administration Board, from 1927-1999)
L	<i>Livre</i> (Left-Leaning Green Portuguese political party)
L3P	<i>Laboratório de Planeamento e Políticas Públicas</i> (UA's Laboratory for [Spatial] Planning and Public Policies)
LA21	Local Agenda 21
LA2030	Localised Agenda 2030
LEZ	Low Emissions Zone
LIFE	LIFE Programme -European Union funding instrument for the environment and climate action
LS	Laudato Sí -Papal Encyclical
LTN	Low Traffic Neighbourhood
LVT	<i>Lisboa e Vale do Tejo</i> (Lisbon and Tagus Valley Region)
MaaS	Mobility as a Service
MAMIL	Middle Aged Man in Lycra
MOBI.E	Portugal's Electric Mobility Network Managing Entity
MP	Member of Parliament
MTS	<i>Metro Transportes do Sul</i>
MUBi	<i>Associação pela Mobilidade em Bicicleta</i> (Association for Urban Cycling Mobility)
n.a.	not available, not applicable
NACTO	National Association of City Transportation Officials
NECC/Cs	National EuroVelo Coordination Centres and Coordinators
NGO	Non-Governmental Organisation
NOx	Nitrous oxide (NOx)
n.r.	not researched
NRRP	National Recovery and Resilience Plan
NUTS	Nomenclature of Territorial Units for Statistics
OECD	Organisation for Economic Co-operation and Development
OPEC	Organization of the Petroleum Exporting Countries
OSM	OpenStreetMap
PAAB	<i>Programa de Apoio à Aquisição de Bicicleta</i> (CML's bicycle purchase assistance programme)
PAMUS	<i>Plano de Ação de Mobilidade Urbana Sustentável</i> (Sustainable Urban Mobility Action Plan)

PAMUS-AML	<i>Plano de Ação de Mobilidade Urbana Sustentável da Área Metropolitana de Lisboa</i> (Lisbon Metropolitan Area Sustainable Urban Mobility Action Plan)
PAN	<i>Partido das Pessoas, dos Animais e da Natureza</i> (The party of people, animals, and nature)
PART	<i>Programa de Apoio à Redução Tarifária nos Transportes Públicos</i> (Public Transport Tariff Reduction Support Program [Portuguese national government budget allocation for metropolitan area or intermunicipal community public transport systems])
PATH	Partnership for Active Travel and Health
PCF	Policy Conflict Framework
PCP	<i>Partido Comunista Português</i> (Portuguese communist party)
PDM	<i>Plano Diretor Municipal</i> (Municipal Master Plan)
PDRL	<i>Plano Director da Região de Lisboa</i> (Lisbon Region Master Plan, from 1964)
PEV	<i>Partido Ecologista “Os Verdes”</i> (Portuguese ecologist party “The Greens”)
PM	<i>Polícia Municipal</i> (Municipal Police)
PM2.5	Fine particulate matter
PM10	Particulate matter
PMS&EP-VG	Vitoria-Gesteiz (Basque Country, Spain) Sustainable Mobility and Public Space Plan
PNAC	National Climate Action Plan (Portugal)
PNAF	National Physical Activity Plan (Portugal)
PP	Detail Urban Plan (Portugal)
PPB	Public Participatory Budget (from the Portuguese <i>Orçamento Participativo</i> , or <i>OP</i>)
PPM	Partido Popular Monárquico (popular monarchist party)
PROT	<i>Plano Regional de Ordenamento do Território</i> (Regional Land Use Plan)
PROTAML	<i>Plano Regional de Ordenamento do Território da Área Metropolitana de Lisboa</i> (Lisbon Metropolitan Area Regional Land Use Plan)
PROTAML10	<i>Plano Regional de Ordenamento do Território da Área Metropolitana de Lisboa de 2010</i> (Lisbon Metropolitan Area Regional Land Use Plan of 2010.)
PRP	Prevenção Rodoviária Portuguesa (Road safety interest group)
PS	<i>Partido Socialista</i> (Portuguese Socialist Party)
PSD	<i>Partido Social Democrata</i> (Portuguese centre-right party)
PSP	Polícia de Segurança Pública (Portuguese police, in cities)
PSR	Pressure–State–Response
PT	Portugal, Portuguese
PUCS	<i>Plano de Urbanização da Costa do Sol</i> (<i>Costa do Sol</i> [Oeiras and Cascais coast] Urbanisation Plan)
PvdA	Partij van de Arbeid (Dutch Labour Party)
R&D	Research and Development
REM	<i>Rede Ecologica Metropolitana</i> (Metropolitan Ecological Network)
SD	Sustainable Development
SDG	Sustainable Development Goals (also UNSDG)
sic	<i>sic erat scriptum</i> , from Latin, meaning as written, <i>i.e.</i> , text quoted <i>verbatim</i> , error as it appears in the source
SM	sustainable mobility
SME	small and medium-sized enterprises
SEAP	Sustainable Energy Action Plan
SEF	<i>Serviço de Estrangeiros e Fronteiras</i> (Portuguese Customs and Border Service)
SUMP	Sustainable Urban Mobility Plan
TCB	<i>Transportes Coletivos do Barreiro</i> (Barreiro Public Transport)
TCP	Traffic Circulation Plan
TfL	Transport for London

TIS	<i>Consultores em Transportes, Inovação e Sistemas, S.A.</i> (Lisbon-based mobility and transport systems consultancy firm)
TML	<i>Transportes Metropolitanos de Lisboa</i> (Lisbon Metropolitan Transport)
TOD	(Public Transport) Transit Oriented Development
TU/e	<i>Technische Universiteit Eindhoven</i> (Eindhoven University of Technology)
UA	<i>Universidade de Aveiro</i> (University of Aveiro)
UC	<i>Universidade de Coimbra</i> (University of Coimbra)
UCCLA	<i>União das Cidades Capitais de Língua Portuguesa</i> (Union of Portuguese Language Capital Cities)
UECE	UL ISEG Research Unit on Complexity and Economics
UK	United Kingdom
UL	<i>Universidade de Lisboa</i> (University of Lisbon)
ULEZ	Ultra Low Emission Zone
UM	<i>Universidade do Minho</i> (University of Minho)
UN	United Nations
UNL	<i>Universidade Nova de Lisboa</i> (Lisbon NOVA University)
UNEP	United Nations Environment Programme
UNSMGD	United Nations Millennium Development Goals
UNSDG	United Nations Sustainable Development Goals
UP	<i>Universidade do Porto</i> (University of Porto)
US	United States (also USA – United States of America)
USD	United States Dollar
UTO	World Federation of United Cities
VC	Vehicular Cycling
VCC	Velo-city conference
VCC21	Velo-city conference 2021 Lisbon
VoCA	Volunteers of Cycling Academy
SUSCOM	Sustainable Communities in Europe
VP	Volt Portugal (Federalist European political party)
VLN	<i>Via Longitudinal Norte</i> (traffic artery partially built and proposed in Cascais and Oeiras municipalities)
VLS	<i>Via Longitudinal Sul</i> (traffic artery partially built and proposed in Cascais and Oeiras municipalities)
VNG	Vereniging van Nederlandse Gemeenten (Netherlands Association of Local Authorities)
WCA	World Cycling Alliance
WEF	World Economic Forum
WHO	World Health Organisation
WWII	World War II
ZER	<i>Zona de Emissões Reduzidas</i> (Low Emissions Zone (LEZ))
ZEZ	Zero Emissions Zones

Note Translations included in the thesis text, except if otherwise mentioned, are my own.

1. Introduction

1.1 General view of research

“The big problem with the history of mobility are the transitions.” (Interviewee #9 – Former Policy broker)

Cycling is currently recognised as a vital part of sustainable urban mobility in cities around the world. It is considered the most effective mobility mode for climate change mitigation in daily city travel patterns (Brand et al., 2021), highly beneficial to personal and public health (Garrard, Rissel, Bauman, & Giles-Corti, 2021; Gerike et al., 2016; Pucher & Buehler, 2010), a contributor to traffic safety (Elvik, 2021), social justice (Golub, Hoffmann, Lugo, & Sandoval, 2016; Karner, Golub, Martens, & Robinson, 2018; Martens, Golub, & Hamre, 2021), and economically beneficial (Blondiau, Van Zeebroeck, & Haubold, 2016; Blue, 2014; M. Neun & Haubold, 2016). It is also associated with sustainable land-use patterns when integrated in urban development (Litman, 1995), providing environmental gains (Macmillan et al., 2014), highly competitive speeds for travel in built-up areas (Dekoster & Schollaert, 1999; Tranter, 2012; Tranter, 2004), and resurging as a key travel mode in numerous cities around the world over the last two decades (Buehler & Pucher, 2012, p. 17; Buehler & Pucher, 2021, pp. 1-3; Oldenziel, Emanuel, de la Bruhèze, & Veraart, 2016, pp. 7, 13, 203-204; Pucher & Buehler, 2012, p. 361; Pucher & Buehler, 2021, pp. 425-427).

Furthermore, cycling is also offered as an answer to numerous challenges in how cities can avoid a dystopian future (Moreno, 2020, pp. 14-15, 51, 109-110) in its capacity of providing a highly resilient, self-reliant mobility mode and solution for logistics even in the most challenging situations (Headrick, 1994, pp. 7-8; Kohn, 1965; Pereira, 2010; Tréglodé, 2021, pp. 14-15). Despite this immense array of acknowledged benefits, policy change to prioritise cycling hasn't developed smoothly. Many cities continue to have very low rates of cycling, stall effective output implementation, ignore pathways for change, impede its inclusion in the policy agenda, or simply ignore bicycle-use as a viable or legitimate transport mode, let alone prioritising it as an effective solution to local problems (Buehler & Pucher, 2012a; Furth, 2012; Ogilvie, Mitchell, Mutrie, Petticrew, & Platt, 2008; Pucher, Dill, & Handy, 2010; Song, Preston, & Ogilvie, 2017).

Balkmar (2020) suggests that although cycling is considered one of the key answers to urgent environmental and public health issues, reducing the dominant role of automobility in urban systems poses major challenges because of the lack of political ambition to confront the current unsustainable arrangement (p. 324). Furthermore, as pointed out by Mota, Sá, Isidoro, & Pereira (2019), at the infra-local scale, policies haven't effectively engaged in cycling as a mainstream mode of urban transport. Research on several university campuses, for instance, points to built-environment barriers and unhelpful policies hindering the promotion of healthy lifestyles, including cycling as an effective means for urban travel (Horacek et al., 2014, p. 2). Effective cycling strategies are directly interrelated to coherent policies and planning for mobility (Mota et al., 2019, p. 5). That is why the significance of policy change is central to this thesis. In particular, the current thesis seeks to understand how policy change for cycling enters the scope of policy formulation and implementation and how it influences or is omitted by outputs produced and the relation with outcomes.

This thesis strives to gain greater insights in how cyclists' advocacy coalitions shape urban cycling. It seeks to understand the instruments that help to facilitate this active transport mode to enter and work within the local policy-

making agenda as a viable means of urban travel, and how it can shape outputs and results. The core research question is:

How do cyclists' advocacy coalitions influence policy change and development related to decision-making involving a city's mobility system?

The term '*policy subsystem*' is employed for those policy actors involved in a policy issue in a geographically defined location and specific time-period, as postulated in the scholarship on the role of advocacy coalitions in shaping policy change (Nohrstedt & Olofsson, 2016; Wagner & Ylä-Anttila, 2018, p. 876; Weible & Heikkila, 2017, p. 25; Weible & Ingold, 2018, p. 330). The theoretical basis of Sabatier's advocacy coalition framework (ACF) in its seminal version (Sabatier, 1988), later data-collection evaluations (Jenkins-Smith & Sabatier, 1994), the specific revision for Europe (Sabatier, 1998), and later model refinements and clarifications (Sabatier & Weible, 2007) relate to the knowledge gained by researching policy process and change in urban mobility systems from different cities. The ACF is applied specifically regarding each city's local cyclists' coalition to assess their existence, intensity of action and scale, and relationship with society, public participation, and influence on the policy-making process in different cities, *i.e.*, policies striving for a more significant role for cycling as a means of urban mobility, placement of these policies on the political agenda, and resulting outputs and outcomes. These differences are analysed in Chapter 3 – The Cyclists' Coalition and the Lisbon case study in Chapter 4.

Considering cities with low cycling rates, this thesis posits that the emergence of the topic into the policy realm requires influences which are external to conventional institutional policy when the political agenda is still closed or unaware of bicycle-use as specific policy issue within a city's mobility system. In this respect, Weible and Heikkila (2017) refer to '*outside strategies*' influencing government decisions "*often through mobilising the general public, building and maintaining advocacy coalitions, litigating, orchestrating social media campaigns, engaging in framing and narrative debates, electoral campaigns, and organising and participating in protests and demonstrations*" (p. 31). Chapter 2 – The Conceptual Framework of Advocacy Coalitions, addresses the conceptual underpinnings of an ACF in greater detail, followed by the specifics of policy change where cyclists' advocacy coalitions (henceforth, cyclists' coalitions) are involved in the policy process in Chapters 3 and in the low cycling-rate case study in Chapter 4, with a diversity of policy outputs and outcomes.

Sabatier's (1988) seminal ACF work examines the role of actors involved in policy change and how they operate in this process. The interactions at the national, regional, local, and infra-local public policy levels involve actors who seek to achieve their goals in their functional policy setting—in the case of the cyclists' coalition in a specific city—their work for a better cycling city. These policy actors include both individual people and different organisations who seek to accomplish the coalitions' goals by involving large segments of the population, including both cyclist citizens as well as people who are most averse to cycling. In this respect, Weible and Ingold (2018) and Weible and Cairney (2018) provide valuable typological classifications for different political associations and policy actors, framing clearly the typologies influencing public policy (Weible & Ingold, 2018, pp. 327-328), and their specific roles in the policy process (Weible & Cairney, 2018). Understanding these policy actors and their organisational structures uncovers the political resources at play within the ACF (Sabatier, 2007; Weible & Ingold, 2018). Their frame guides my thesis research methodology and structure in conducting the qualitative research. The case study in Chapter 4 advances new knowledge from numerous sources on the policy issue based on written documents and interviews in combination with available quantitative analysis researched in Lisbon and with my experience as a practitioner

in the case-study context.¹ A general background on comparable settings of cyclists' coalitions that have succeeded achieving change is presented in Chapter 3.

A definition of the various actors in the coalition provides the essential structure to examine the actors' roles in policy change, the sources of information used, and the appropriate methods in doing so. Weible and Ingold's (2018) "*Typology of actors in advocacy coalitions*" provides a useful approach to preparing the qualitative methodological approach regarding the "*Categories of actors and their attributes related to advocacy coalitions*" (Weible & Ingold, 2018, pp. 330-333), as illustrated in Table 1 complemented with knowledge from the cyclists' coalition in the last column.

Table 1 - Categories of actors and their advocacy coalition attributes (from Weible & Ingold, 2018, p. 332 Table 3)				
Policy actors	Description	Position in the advocacy coalition network being studied	Constancy of association with coalition	Cyclists' Coalition Actors
Principal coalition actors	Steady individual or organisational coalition affiliates	Central	Most likely constant coalition affiliate over time	Urban cyclists' associations, member activists, activists who have entered the academic, consultancy and political realm
Auxiliary coalition actors	Individuals or organisations who share with but are not steady in their coalition affiliation	Periphery	Most likely a sporadic affiliate, per episode of conflict	Sports and tourism cycling associations, scholars researching issues related with urban cycling
Policy brokers	One or more individuals or organisations who seek consensus and mitigation of conflict	Central between coalitions or peripheral to one coalition	Most likely a constant affiliate in the subsystem	Politicians in power and opposition dealing with the mobility system and public space. High level public officials in the mobility subsystem.
Policy entrepreneurs	One or more individuals or organisations who champion a specific policy idea	Central	Can be both, constant or sporadic affiliate of a coalition	Actors engaged in policy influence, working with all levels of policy actors, including with policy brokers.
General citizens	People interested in and/or affected by subsystem affairs but not regularly participating in politics or policy issues	Not members of coalitions but better viewed as a resource or supporter of coalitions	Mobilised occasionally for conventional and unconventional forms of political action	Concerned citizens and population general, with varying levels of participation.
Principal counter-coalition actors	Steady individual or organisational coalition affiliates, advocating views which conflict with the examined coalition.	Central	Most likely a constant affiliate of a coalition over time	Central actors who seek to thwart policy-change developed by the cyclists' coalition.

¹ Practitioner as a cyclist, but also as an architect developing projects, plans and working as project, planning and policy consultant with Lisbon Municipality and two key organisms in the city's mobility system (Carris and EMEL), and other cycle infrastructure plans and projects in Portugal; Almada Municipality and the IPDJ sports complex (Jamor Oeiras) in the Lisbon Metropolitan Area (AML), Loulé Municipality and the resort town of Vilamoura, work for FPCUB and EuroVelo network, as a citizen involved in several cyclists' and political associations at the local and national level.

1.2 Research objectives

Carlsson's (2017) work on clarifying the concepts of policy science points to Popper's (1963) textbooks on methodology highlighting "*that hypotheses serve as preliminary answers to our research questions. The task of the researcher is to determine whether these hypotheses are accurate*" (Carlsson, 2017, p. 159). In this thesis, I test the hypothesis of whether a city's policy change (Lisbon) was shaped by coalition action in a delimited time period (2009-2021), with specific actors and their relations and influence playing a key role. Sabatier's (1988) advocacy coalition framework, refined by Weible and Cairney's (2018) advancements on political participation, provides a general framework applicable to this thesis. Research objectives will focus on:

How cyclists' coalitions influence, shape and/or transform (or not) policy for cycling.

Research focuses foremost on political interactions -including outputs and outcomes- linking citizens and governments, specifically beyond the traditional '*policy cycle*' and party politics, due to the complexity of policy development (Weible & Cairney, 2018, p. 192). The different levels of political participation and policy actor involvement are analysed in this thesis. I also examine the policy actor interactions (formulation and implementation), policy outputs produced, and outcomes achieved based upon quantifiable results, employed using site- and time-specific data. From this approach it can be posited that:

At its basis, the research subject translates the ACF, thus providing greater understanding of the broad-level cyclists' coalition. It considers two premises: First, as a specific phenomenon, and second, how it has (but also how it has not) shaped city policy in the urban system.

Chapter 4 focuses on analysis of the specific geographical area and bounded study time frame – Lisbon, Portugal, during the thirteen years between 2009 and 2021 - contributing towards the production of new knowledge in the advocacy coalition and political framework regarding cycling, and its role in policy change in this large city and its metropolitan area (AML), with the following key contributions:

1. Provide valuable insights on cyclists' coalitions, their actions and achievements, and offer a recent case-study of policy change in a city, which can be compared to other cities in different contexts with different rates of cycling.
- and
2. Advance practical knowledge from an ACF perspective (Weible & Cairney, 2018, p. 192) for effective engagement of cyclists' coalitions seeking greater influence in similar settings with low rates of cycling, or '*lagging*' cycling policies, also referred to as '*starter cities*' (Dufour, 2010), or localities with '*low cycling maturity*' (Félix, Moura, & Clifton, 2019, pp. 1-2), and where bicycle-use is still dealt with as an '*outside policy issue*' by policymakers.

The conceptualisation of this thesis and its potential for replicability is sought as a tool for introducing cycling in cities where this active travel mode has either been ignored or addressed reluctantly by local policy mechanisms

that disregard its legitimacy, viability, and/or advantages. It also seeks to address different factors related to cycling within the public policy formulation and implementation process.

1.3 State of the art

The '*state of the art*' is what this thesis wants to advance in scholarship. Innovative insights furthering knowledge through research and analysis. The thesis will advance greater knowledge of how cyclists' coalitions operate in public policy making, the definition of what is exactly an advocacy coalition and who are its actors, a background evaluation of city cycling indicators and the applicability of factors influencing it in comparable cities and with a specific analysis in the case study city and its metropolitan area.

Research on the specific policy actors in cyclists' coalitions and their interactions within the policy subsystem hasn't been sufficiently explored to date, and this is one of the gaps which this thesis will answer. This will be accomplished by examining the specific role of '*policy actors*' and their actions and how the cyclists' coalition interacts and relates within the policy process in specific episodes in producing outputs, which have led to and are motivating change in policy perspectives related to the urban system (an urban system composed of mobility, public space, and other related issues), and how this system evolves with the inclusion of cycling. The ACF mechanisms help structure and understand this area of research at the conceptual level, employing an adequate thirteen-year time frame in the real-world situation of the large case-study city: Lisbon, Portugal.

Considering the broad base of actors involved in different degrees of collective action within the coalition, methods employed for research range from event analysis researched by relatively recent historical accounts and data on documented events and different outcomes in comparable cities (Oldenziel et al., 2016), operationalising this research by employing Oldenziel & Albert de la Bruhèze's (2016b) five factor analysis. The five factor analysis provides an effective structure from the sociohistorical perspective, delivering an investigative approach to advance new insights upon the policy issue (increased cycling), but also to distinguish from '*usable pasts*', as coined by Brooks (1918), and effective social and historical events which lead to change. The case-study dwells into the specifics of the cyclists' coalition as it operates in the local context, with significant insights collected and inserted into analysis of the policy process through individual interviews with different policy actors. The policy actors interviewed are distinguished as to their perspectives and roles by employing Weible & Ingold's (2018) typological definitions of policy actors and a categorisation of their involvement in the policy process. Each one offers very relevant insights into common city cycling issues, political positioning and identifying relevant events, formulation and outputs influencing the policy process, but also outcomes. As an additional backdrop to the qualitative research developed in the first three chapters and employed in the case-study, quantitative data on cycling helps characterise performance indicators and outcomes regarding the policy context, and from there, to confirm how the subsystem's performance relates with the production of policy outputs, especially cycling infrastructure, by observing and analysing the variations in cycling (i.e., increase/decrease, cycling infrastructure, municipality – with different policies). The knowledge advanced from these investigations provide an applicable basis for measuring the effectiveness of public policy regarding urban cycling, with potential for further research and monitorisation of public policies in the case-study context and an instrument for replicability in other localities.

1.4 Starting point and how to respond to it

The core question of policy development and change applicable to Lisbon's cycling culture over the last decade could be summed in Sabatier's question: "*How is one to understand the incredibly complex process of policy change over periods of one or several decades? What are the principal causal factors?...*" (Sabatier, 1988, p. 130).

Hecló's (1974) arguments on the importance of the "*strategic interactions of people within a policy community involving both competition for power and efforts to develop more knowledgeable means of addressing the policy problem*" (Hecló, 1974; Sabatier, 1988, p. 130) provides a conceptual view as to how the '*policy community*' of the cyclists' coalition has (or has not) managed to bring about change and transformation in policy development. Thus, the research question studied in the thesis is the following:

How do cyclists' advocacy coalitions shape (or not) urban cycling?

This leads investigation contingencies to a case-study analysis within a "*reasonably clear conceptual framework of policy change over time*" (Sabatier, 1988, p. 130) of the problem at stake, and how it evolved in policy development in a geographically bounded area consisting of a large city and its metropolitan conurbation -Lisbon, Portugal and the Lisbon Metropolitan Area (AML)- with empirical evidence and data collected. The different approaches of two central neighbouring municipalities in the AML are also addressed in further detail -Lisbon Municipality and Oeiras Municipality- both with contrasting mobility and urban policies in practice over the last thirteen years, with the local cyclists' coalition (or '*policy community*') intervening with different degrees of intensity in each case. Thus, the case-study focus is:

An analysis of cycling policy development in Lisbon from 2009 to 2021.

Considering developments associated with policy change related to cycling, between 2009 and 2021, and how the ACF can instrumentally shed light on understanding the working of an issue of initially meagre influence upon the policy process, the different outputs produced, and outcomes achieved, research will focus on Lisbon's cycling resurgence over the last thirteen years, with the comparison between the two municipalities for coalition interaction, policy process delivering outputs, and different outcomes. Despite a basis of uniform national policy being applicable, and the fact that the AML's municipalities are geographically and morphologically interconnected as part of a large metropolitan area and functional urban area (FUA), divergent tendencies exist within the cycling subsystem's performance.

The thirteen year time frame assures an acceptable period to understand policy change in the ACF, exceeding the minimum recommendation of a decade study period (Sabatier, 1988; Sabatier & Weible, 2007), while offering noteworthy developments, such as relatively recent references in change: Analysis starting from 2009 corresponds to the inauguration year of Lisbon's first riverside cycleway, covering 7km on the prominent 25km Lisbon-Cascais artery, the foundational year of MUBi a key national-level cyclists' association based in Lisbon and advocating for cycling as a viable urban transport mode, coinciding with the year of the Portuguese election calendar at a local-level and national-level, with time frame municipal elections in 2009, 2013, 2017, and 2021, a period of successive

socialist governments leading political party coalition city governments from the 15 July 2007 flash elections until the 26 September 2021 elections, and national-level parliamentary elections in 2009, 2011, 2015, and 2019, with different results; socialist government in 2009, centre-right coalition from 2011 to 2015, socialist minority government backed by left-leaning libertarians and communists between 2015 and 2019, and a socialist minority government from 2019 at until the 30 January 2022 parliamentary elections, renewed as a majority socialist government in those flash national elections. Other potentially significant exogenous factors within this thirteen-year time frame with influence on Lisbon's urban systems and the cycling subsystem were Portugal's 2010-2014 financial crisis, the new traffic code drafted in 2013, and the different governments at the national level. A final impacting factor affecting cycling globally was the appearance of novel coronavirus COVID-19, with impacts in Portugal since March 2020.

Other key related questions remain, regarding the influencing factors which occurred during the study time frame, and which are the most effective measures to be processed in public policy. The seminal report prepared by de la Bruhèze & Veraart (1999) as part of the Dutch Bicycle Masterplan, analysed indicators and the status of cycling in several Western European cities with a crucial, yet simple, research question coming to mind regarding cycling in urban mobility systems:

“Does policy matter?” (Veraart & Schipper, 2020)

With information analysed and data collected between 2009 and 2021 on the traffic routes in Oeiras and Lisbon Municipalities a linear regression analysis helps answer this question. From Albert de la Bruhèze & Veraart's (1999) seminal report, Oldenziel et al.'s (2016) '*Cycling Cities*' collection advanced knowledge by quantitatively and qualitatively analysing different cities throughout Europe, with Ruth Oldenziel's research team at the Eindhoven University of Technology (TU/e) expanding the *European Experience* to a universal "*Cycling Cities. Your City Next?*" collection where any city could be analysed. This inspirational research tool for scholars, citizens, and city mechanisms, investigating past, existing, and the latent relation of cycling in different cities, how it has evolved over time, and what are the most recent tendencies, advanced new insights from past events and lessons. My thesis also engages with this sociohistorical perspective, but reapplies it with a focus on policy change, taking the policy process analysis a step further in advancing knowledge on how cycling enters the political agenda of contexts with low cycling rates, the operationalisation of the cyclists' coalition, which have been the most effective actions this coalition has achieved and what resources, constraints and limitations have been identified.

1.5 Originality of the work

Despite abundant scholarship on the various dimensions of cycling -health, safety, sustainability, infrastructure, built environment, mobility systems, environmental policy and climate action, the COVID-19 pandemic, etc.– not one single determinant is responsible for explaining the robust increase which cycling has experienced in many cities around the world. Cycling policy is a highly complex issue, transversal to several fields of research and involving a multitude of different actors and interactions. Between 2017 and 2021, scholarship reviews on cycling and the policy

process using on-line search tools such as Google Scholar, Scopus, and Web of Science, expose few studies directly addressing public policy theories, policy development and the role of advocacy coalitions on cycling.

Most significantly, similar on-line searches considering the ACF's theoretical model and exemplary practices reveal few studies focusing specifically on the cyclists' coalition, and even less on these coalitions' actions in low cycling rate cities. The scholarship review on "*Common Approaches for Studying the Advocacy Coalition Framework: Review of Methods and Exemplary Practices*" by Pierce, Hicks, Peterson, & Giordano (2017) provides an analysis of 161 articles yet only one study applies the ACF and developing methodology for analysis of the urban mobility subsystem. This ACF article provides significant insights into the involvement of 'active transport advocates' in Munich's '*collaborative stakeholder dialogue*' (Baumann & White, 2015), which contrastingly de la Bruhèze & Oldenziel's (2018) detailed research from a cyclist coalition-based perspective observe as falling short of optimal results (pp. 46-53). What Baumann & White (2015) claim as being the virtues of the Inzell Initiative's '*collaborative stakeholder dialogue*', for instance, Albert de la Bruhèze & Oldenziel (2018) underpin as a failure; after one decade of negotiating cycling was in many ways sidelined, integrated in a "*serve all and offend none*" policy (p. 48), in a city still very much ruled by automobility and public transport (p. 50), where the urban mobility system's status quo hasn't effectively challenged yet.

The originality of this work is that it employs the ACF regarding cyclists' coalitions interactions, but with a closer focus on effective policy process ignoring or involving cyclists and how it has evolved in a context where cycling has been ignored or marginalised. Does effective policy change occur? Albert de la Bruhèze & Oldenziel (2018) raise significant warnings for research on cyclists' coalitions in policy development and their capacity for effective change (pp. 50, 53), sustaining drawbacks which I research in Lisbon's cycling coalition interactions in the policy process. Lisbon -as a city with low rates of cycling- is comparable to several other European localities where cycling has a relatively low institutional status or better-performing North-American cities when any of these are contrasted with traditionally top-ranking Dutch or Danish localities, or even cities such as Munich (The Gallup Organization, 2010; Van Audenhove, Koriichuk, Dauby, & Pourbarx, 2014), especially since the underlying factors concerning coalition capacity for achieving policy-change come from a history of very little policy support.

Part of the success of increased cycling in benchmark cities has been identified as the influence of social movements and advocacy organisations influencing public policy (Oldenziel & Albert de la Bruhèze, 2016b, pp. 11-12; Pucher & Buehler, 2012b, pp. 360-361; Pucher, Ensink, et al., 2021, pp. 421-422). Scholarship has indicated this as an important factor but has not deeply researched the policy networks associated to this impact. The claim that cyclists' advocacy coalitions have played and are playing a decisive role in shaping cycling in various cities is central to the research of this thesis: The Lisbon case study is hypothesised as providing a valuable cross-section of how to determine policy development in progress. The research question therefore focuses on:

How the cyclists' coalition has shaped local urban cycling to determine how it can continue to do so effectively.

The innovative approach here is that with the ACF policy theory as its basis, this thesis advances new knowledge of the fundamental role of the policy process and its implications upon a contemporary policy issue in a context where adversity and exclusion of it are common; cycling in automobility dominated localities.

1.6 Contribution to developing public policy expertise

This thesis delivers a relevant assessment, with insights achieved from research and personal experiences collected between 2009 and 2021. By contributing with feedback and questions, sustained by empirical approaches and effective quantitative data, which informs the status of the policy subsystem (*i.e.*, cycling), to “*communicate ...experiences back to the scholarly community in order to enhance mutual exchange and future learning*” (Weible & Ingold, 2018, p. 340). The research herewith presented sheds new light on the mechanisms of advocacy coalitions in the policy process and introduces a local perspective on the emerging phenomenon of cycling’s influence on decision-making for paradigm-shift in cities as an emerging public policy issue, specially at the local level, but not limited to it. Wide ranging implications in many ways ignored by contemporary policy agendas are mostly addressed at a local and regional scale (municipal and metropolitan area) pertinent for policy analysis and city governance. This thesis gathers and unravels data on policy outputs and outcomes, much of which is currently unavailable or dispersed in cities fragmented greater city areas, such as Lisbon.

Furthermore, the qualitative and quantitative data-collection methods and treatment, and especially their relation to policy change are applicable for further research on policy for other periods in time and/or other cities, where government and policymakers have neglected cycling. In a broader context, it may also be applicable for policy change regarding other ‘outside’ policy issues with related contextual factors regarding urban land-use policies or sustainable urban transport issues such as public transport, pedestrianism, and the complementarity between active mobility and public transport. This thesis provides a replicable approach for dealing with the policy process in other contexts where the cycling subsystem, and the cyclists’ coalitions promoting it, are facing difficulties in what is an immensely asymmetrical struggle for resources (information, public space, policy agenda-setting and priming, budgets, and infrastructure) within urban systems dominated by public throughfare, space policies, and in many cases special planning and land-use patterns, which favour automobility.

For cities with very low rates of cycling, with very low ‘*cycling maturity*’, policy change for increased cycling poses a series of contentious discussions and tremendous challenges in a variety of areas. As observed in other fields where policy change was difficult or even a failure, coalitions are ‘*a strategy of the weak*’ (Wagner & Ylä-Anttila, 2018, p. 887), with success in policy implementation being a slow process requiring persistence from advocacy members and coalition articulation at different levels (Stewart, 2009, pp. 34-35, 157), and even then overall success is not always visible, steady or even assured. Effective output production is even less likely to occur and projected or desired outcomes are very difficult to predict when data is lacking. In many cases, it is very challenging to measure results in comparative terms. In a different policy field, Wagner and Ylä-Anttila’s (2018) ACF-based analysis of Irish climate mitigation policy development between 2011 and 2015, for instance, reflects on how a coalition was formed as a ‘*strategy of the weak*’ in face of established organisations which were wielding significant influence upon like-minded decision-makers with aligned goals and vested interests prevailing in policy-making (Wagner & Ylä-Anttila, 2018, p. 887). In automobility dominated contexts similar situations occur with the most influential groups having a say.

In spite of the Irish climate coalition’s failure in achieving its goals, part of Wagner & Ylä-Anttila’s (2018) conclusion may result from their study time frame falling short of the slow and convulsive pace of the policy process and change (Stewart, 2009, p. 42) because they have not taken into consideration the ‘*enlightenment function*’ of policy research advanced by Weiss (1977b, 1977a) and supported by Sabatier’s (1988) foundational work on advocacy coalitions within policy subsystems and on the role of policy-oriented learning in achieving policy change (pp. 129-131). Taking

into account Sabatier's (1988) one-decade minimum study time frame (p. 131), this thesis analyses thirteen years of a relatively successful coalition achieving policy change on a local scale but far from the necessary metropolitan scale necessary for encompassing impact; *i.e.*, Lisbon's cycling policy developments and outcomes between 2009 and the end 2021.

1.7 Academic and personal motivations for the thesis topic

As an architect and cycling policy and planning consultant with experience with local governments and other entities in Portugal, including several in Lisbon and the AML, I pursued this thesis in order to gain greater insights into one of the most significant obstacles experienced when trying to change policy making perspectives or implementing cycling infrastructure projects —especially when formulating and implementing measures for mode-shift to more sustainable transport modes— where cycling plays a prominent role, along with walking and public transport. Issues such as political resistance and acceptance to change, policy development inertia and stimulus from different elements in the administrative policy process, and policy value perspectives at the local scale are the focus in this thesis. Simultaneously, research focusing on Lisbon's cycling experiences over the last century, conducted within the “Cycling Cities” research group from the University of Lisbon, headed by Ruth Oldenziel (Eindhoven University) with Maria Luísa de Sousa, João Machado, and David Vale, in parallel with the Sustainable Urban Mobility Program and the Foundation for the History of Technology research unit coordinated by Ruth Oldenziel, also provided significant motivation in developing this thesis, advancing greater knowledge into the city's cycling culture, its current resurgence over the last decade, and informing future perspectives.

1.8 This thesis' simplified design

This thesis is structured based on the policy process as it relates to the cyclist's coalition within a conceptualised framework (Chapter 2), as a hypothesised form of policy-action, replicable in different settings and confirmed by similarities in their policy interactions (Chapter 3), and researched as a phenomenon in a specific geographical area over a bounded timespan of thirteen years (Chapter 4), substantiated with qualitative and quantitative data on Lisbon's cycling traffic tendencies between 2009 and the end of 2021, and how this coalition has (or hasn't) effectively shaped urban cycling, to different degrees in different city areas. From the simplified design presented in Figure 1, policy actor interview inputs and data collected in the study area, the dynamics of coalition influence upon policy development provide new insights presented in the Lisbon case study in Chapter 4. Research of '*policy actors*' and an assessment of their influence on policy development, outputs and outcomes advancing knowledge of the cycling subsystem within an ACF research approach is schematically graphed to provide a replicable framework for different uses and geographical locations. Research assesses '*policy associations*', specific events, level of responsiveness reflected in policy outputs and the corresponding outcomes, providing a basic framework, structured as follows:



Figure 1 – Simplified research design

This research structure helps identify 1. - the phenomenon, concepts and research aims being sought by the thesis, 2. - clarifies the ACF, policy actors and processes involved, 3. – understand cyclists' coalitions at a general level, starting with comparable cities and analysis of general related contextual factors and policy products, provides 4. – a detailed case study of Lisbon's Cyclists' Coalition during the 2009-2021 study period with insights into the local policy process, both qualitatively with interviews, document analysis, and various insights and quantitatively with several data sources, including innovative forms of collection, and 5. – identifies research gaps and limitations to this policy process-based model, unravelled by the research that is herewith developed.

2. Conceptual framework - Advocacy coalitions

2.1 Introduction to the conceptual approach

Considering the conceptual approach to *How advocacy coalitions do or do not shape urban cycling*, the question emerges as to why the ACF was chosen as the theoretical approach. Specifically, how could the phenomenon of the cyclists' coalition impact the policy process for change to be addressed (for increased cycling)? Why this framework?

Scholarship on public policies that have successfully boosted cycling support a series of descriptive factors applicable to cities where this transport mode has grown and entered mainstream culture (Albert de la Bruhèze & Veraart, 1999; Furth, 2012; Handy, van Wee, & Kroesen, 2014; Oldenziel et al., 2016; Pucher & Buehler, 2012b; Pucher et al., 2010), providing different types of evidence on the central areas where cyclists' coalitions struggle for achieving such change. A robust theoretical framework applicable for further research is identified as follows:

Cycling's success factor in numerous European cities has been the advocacy and citizens' participation (Oldenziel et al., 2016); the same applies to the case-study area – Lisbon - where advocacy has been a key factor in unleashing public discussion. Thesis research analyses advocacy and citizen participation as one of the success factors of cycling. Employing the PRESTO definition of 'champion', 'climber', and 'starter' cities (Dufour, 2010) as comparable benchmarks to provide a reference for studying cycling's status in a city and further investigated by analysing more research sources for further discussion about cycling coalitions' role in policy change.

The policy outcomes are assumed as the impact of the broad-based cyclists' coalition upon policy change; these outcomes are measured by the rate of cycling. This rate is the causal dependent variable, defined by several independent/explanatory variables which are hypothesised as being associated to increased rates of cycling, namely infrastructure -especially the cycleway network, but also bikeshare systems and bicycle parking- and the administrative jurisdiction responsible for implementation -the municipality. These explanatory variables identified are subject to a quantitative analysis in the case-study, namely policy outputs with impacts upon cycling.

Further research can emanate from what will be investigated in this thesis, employing other variables with positive or negative impacts on cycling. This thesis addresses several policies with positive impacts, related to cyclists' coalition actions. Beyond the scope of this work but using it as a basis, the negative impacts upon cycling are a subject worth further study also, focusing on policies which hinder cycling and are applied in some contexts, such as helmet laws or recommendations, vulnerable road user directed '*road-safety*' campaigns, and other restrictions imposed upon cyclists (and/or pedestrians).

The thesis hypothesises that policy has a direct impact upon outcomes, the dependent variable of the rate of cycling, *i.e.*, cycling modal share within the overall mobility system (percentage of total trips realised cycling and comparison with other modes of transport) is correlated to other explanatory variables, which in themselves are relevant

indicators revealing policy brokers' willingness to take cycling seriously. On a side note, the overall population's receptivity to cycling includes other variables collected in the moving counts, not addressed in this thesis. Further research is needed on the gender-split (percentage of women cycling could be interpreted as an indicator of greater perception of safety in the built environment), age groups (more children, youth and elderly cycling reveals greater universality of access and willingness to cycle, but also perception of safety), and use of safety equipment such as helmets or high visibility gear (which may be interpreted as indicators of a low perception of safety in the built environment), and numerous other areas of study such as territorial and urban arrangements, distance, the built environment and population densities, policy values as they are interpreted upon these and how they reflect upon cycling cultures, just to name a few.

On the other hand, the ACF's theoretical basis underpins my pursuit in advancing knowledge on how policy influences, transforms, and ultimately shapes cycling outcomes in cities. Typologically, Lisbon is within the parameters of Western and Southern Europe and its greater city area a large sprawled conurbation as one of Europe's largest mega-regions (Florida, Gulden, & Mellander, 2008, pp. 18, 28, 31), providing a potential prototype analysis for other cities since some of the overall mobility subsystem indicators are comparable to other European and North American counterparts (Van Audenhove et al., 2014, pp. 14, 18). The pervasive role of automobility, the lack of a metropolitan area-wide cycling network with thoroughly integrated infrastructure and the low rate of cycling makes Lisbon an accessible case-study for other cities with low cycling rates. It also shows enough level of change to analyse (replicable) insights achieved from a common theoretical framework and the research tools emanating from this conceptual basis.

This thesis explores a theoretical understanding of what advocacy coalitions are; how they function; and what their policy roles are. It also analyses the different types of coalitions, their practices, their actors, and internal and external relations with society and policymakers as part of the policy process.

The thesis is useful in gaining in-depth knowledge of the framework where policy change has happened yet refined at the conceptual level for applicability and replicability in different scopes of public policy associated with urban systems, and particularly sustainable mobility and public space. This work provides a specific application of the ACF (increased cycling) with a focus on policy concepts (learning, process, and change), defining an advocacy coalition itself (the cyclists' coalition), with research on cyclists' advocacy coalitions in general in Chapter 3, and their specific outputs, interrelations, and impact on the case-study city's policy change between 2009 and 2021 in Lisbon, Portugal in Chapter 4.

Focusing on the concepts defining the advocacy coalition (the cyclists' coalition). For starters, one caveat is to be assumed when establishing the basis for the conceptual approach:

The thesis employs several concepts to gain a comprehensive understanding of the theories, models of application and how these are hypothesised and operationalised.

The dangers of '*conceptual stretching*' are relevant, especially when new cases are studied (Carlsson, 2017, p.161), as is the case with research on contemporary policy process and change. It relates to the role of a specific advocacy coalition focused on a specific subsystem (cycling) and the policy issue: increasing cycling. From Carlsson's (2017) graphical clarification of the hierarchical relation between concepts, namely where wider scopes apply such as the

ACF, the conceptual framework guides this thesis in levels of research from the initially established hypotheses to the level of operationalisation, applied at a practical level in the latter chapters, establishing first of all the conceptual construct for research, as presented in Figure 2 below. This construct complements the research design presented in the introduction (Figure 1), positioning the conceptual definitions as they relate among each other and apply to this thesis.

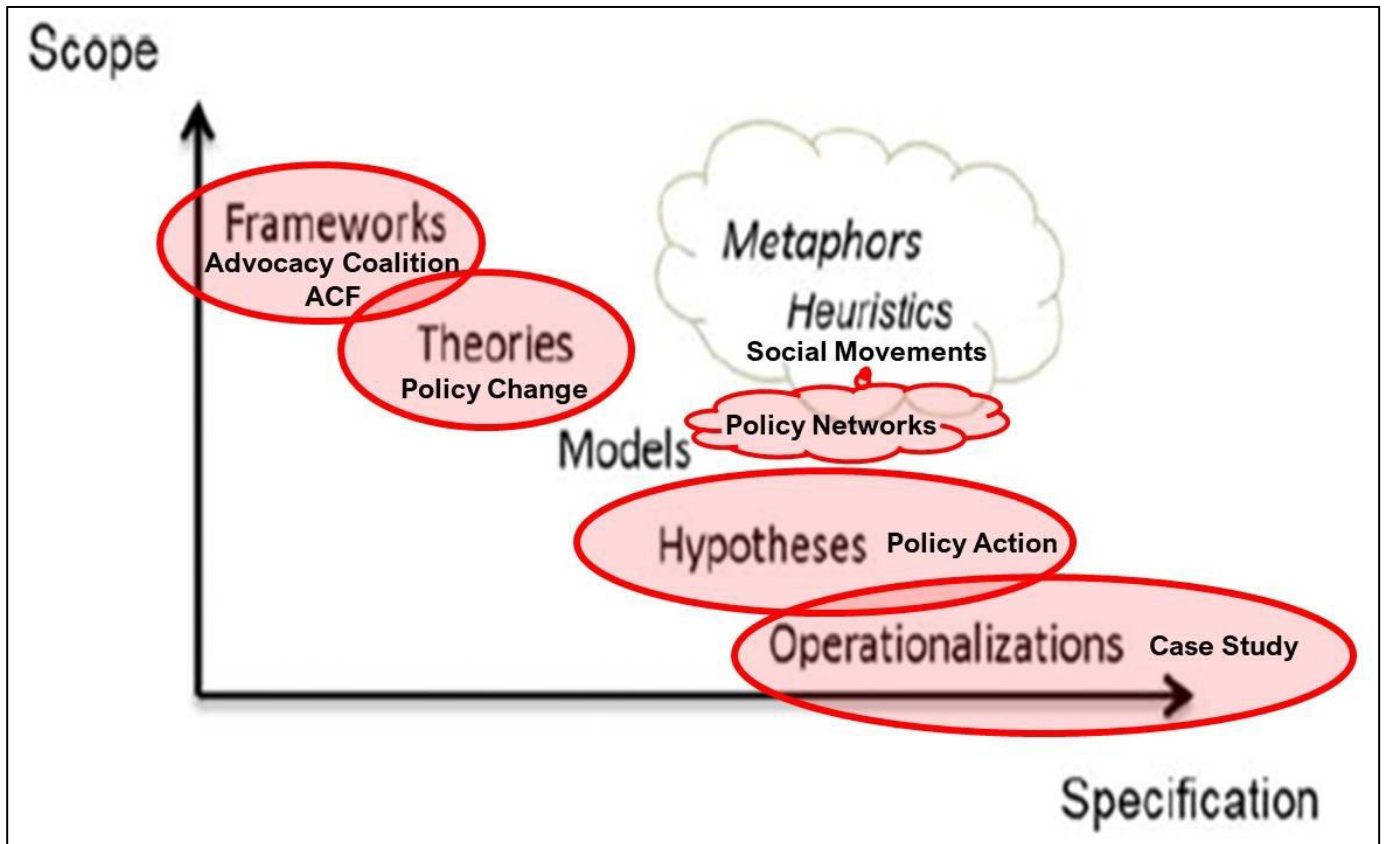


Figure 2
Carlsson's (2017) conceptual 'Relation between frameworks and other intellectual constructs used in research' (p. 158), adapted to this ACF research

The ACF is a 'policy relevant framework' (Carlsson, 2017, p. 161), pertinent for structuring my research, focused on a specific advocacy coalition as its conceptual guide for understanding how policy actors relate, navigate through the policy process and influence change. In fact, Weible, Sabatier, & Flowers (2008) consider the ACF as one of the leading theories for analysing policy change, learning, and coalition behaviour for policy development. Carlsson (2000) advances on the importance of advocacy coalitions for understanding policy change over time (p. 506), positioning the ACF as a framework which "encompasses a theory of policy change" (p. 511). Since the ACF incorporates this theoretical premise of policy change, it is applicable in many different policy areas (Carlsson, 2017, pp. 160-161) which is also particularly relevant considering the role of the actors which form the coalitions, the

struggles and events where attempts for change are involved, policy responsiveness through outputs, and relevant outcomes.

Situating ACF within research concepts

Distinguishing between frameworks, models, theories, hypotheses, heuristics, and a series of other general intellectual constructs related to policy process analysis provides a relevant clarifier of the different purposes they're used for: defining objects precisely, using concepts suitably, and establishing what the research is precisely aiming at (Carlsson, 2017, pp. 148, 157, 159). In this respect, Weible, Sabatier, & McQueen (2009) found the ACF as a useful basis for organising research in various policy areas with very different applications (p. 125). By aiding in the organisation of thinking and providing guidance for research design, "*a framework stipulates how we believe groups of variables are related to one another. Thus, frameworks guide us in formulating questions that should be addressed, but a framework never reveals how single variables are related or the content or strength of those relationships (Ostrom, 2011; Ostrom, Gardner, & Walker, 1994)*" (Carlsson, 2017, p. 158). Figure 2 graphically situates a framework in relation to other conceptual constructs, with the relevant adaptations applied in this thesis, situating the ACF within a broader range of research areas beyond that of isolated theories, such as policy change. Carlsson (2017) notes that frameworks, such as the ACF, are capable of studying a broader range of phenomena than a theory in itself (p. 157), which is useful for the practical matters I'm aiming at. Comparatively, the framework approach positions the advocacy coalition conceptually in a realm different than that of social movements research also. Keeping this in mind, it is also important to consider Cox (2015), who posits that the perspective of "*social movement studies is a valuable heuristic device through which to interrogate the cultural dimensions of social and political phenomena and vice versa*" (p. 2). This thesis has aspects which must touch upon the role of these heuristics and theories, operationalising the conceptual aspects of policy change as it occurs regarding a specific case-study issue with much broader implications, but also to identify limitations.

As discussed previously, the starting point focuses on the hypothesis of a city's policy change (Lisbon) as being a product shaped by a specific advocacy coalition in a delimited time period (2009-2021) with specific actors and their relations playing a key role, as '*a preliminary answer to the research question*' (Carlsson, 2017, p. 160), and to be operationalised in the following chapters as a study and measurement of this specific phenomenon, to obtain the possibility of explanations regarding outputs produced and outcomes achieved. To unravel that policy matters.

2.2 What are advocacy coalitions?

Weible & Ingold (2018) define advocacy coalitions as groups of people whose organisational affiliations create informal alliances on policy issues, and that the "*glue binding these coalitions together are beliefs and ideological viewpoints on how the world should be structured and policies should be shaped*" (p. 327). According to Sabatier & Pelkey (1987), advocacy coalitions consist of a group of "*elite actors from a variety of institutions -interest groups, agency officials, legislators, executive overseers, intellectuals- who share a general set of normative and causal beliefs concerning the policy area*" (p. 237). Advocacy coalitions can be viewed considering the actors involved and their actions, with evidence emanating from their policy interactions. Within a social movement analysis, Cox (2015) considers how collective identities and shared values have been and are formed among cyclists' coalitions with

their strengths and weaknesses changing among the different mobilisations they have conducted in different time periods (p. 2). The difference between advocacy coalitions and social movements lays within their theoretical constructs and corresponding scope of action, while a social movement is broader based and does mobilise collectively in an organic, sustained manner, its ambit is focused on a “*non-institutional challenge to authorities, power-holder or cultural beliefs and practices*” (Goodwin & Jasper, 2015, p. 4, cited in Cox, 2015, p. 2), while advocacy coalitions are composed of the policy actors and their actions entering, bridging, and working outside, with and within the institutional framework.

Cycling as a mobility practice is one of those key actions being considered also as part of cyclists’ coalition actions, therefore cyclist citizens are also crucial coalition members addressed in this analysis, since cycling is more than an example or a political statement, in settings where it has been excluded, it’s a political action. In fact, the key dependent variable is a measure of quantities (traffic volumes) or percentages (modal share) of cyclists.

Emphasis on social learning as coalitions contend over the policy agenda within their operative political realm provides a key understanding of the ACF and the “*broad principles of commonality and difference that operate as a kind of deep structure in public policy*” (Stewart, 2009, p. 17). One of Sabatier’s (1988) basic premises of thinking regarding the ACF emerges from his analysis on how policy ideas evolve and how policy change functions through policy subsystems and their broad base of actors, as opposed to the mechanisms within conventional government acting through administrative/legislative levels/single-level contact with specific interest groups (Sabatier, 1988, p. 131). In this thesis the policy subsystem is cycling, and the cyclists’ coalition is the broad base of actors. This hypothesis applies to a more complete understanding of how substantive policy change has occurred, and how it is currently transforming, with regards to the local political realm. Yet, Dowding’s (1995) claim that the ACF fails to produce policy process theories is relevant, “*because the driving force of explanation, the independent variables, are not network characteristics per se but rather characteristics of components within the network. These components explain both the nature of the network and the nature of the policy process*” (p. 137).

For a greater understanding of the cycling subsystem, and researching it within a specific bounded context -the geographical area of a large city with a wide array of policy actors, a coalition (cyclists), in a setting dominated by a powerful counter-coalition (automobility’s interests) involved in policy conflict, an analysis of the cycling subsystem and the successful ‘*strategies of the weak*’ its actors employ over a thirteen year time period are attested through an ACF-based qualitative analysis on policy, confirmed by quantitative data. This line of research advances a degree of innovation regarding policy learning and change, areas where the ACF provides a clear, interpretable theorisation of its elements.

From the challenges of the theorised approach of policies advanced by Majone (1980), previously engaged by Pressman & Wildavsky’s (1973) research on the complexities of formulating and implementing public policies and the learning experiences of collective action for economic development in the city of Oakland, California, Sabatier’s (1988) third premise of the ACF posits that “*public policies/programs incorporate implicit theories about how to achieve their objectives and thus can be conceptualised in much the same way as belief systems*” (pp. 131-132). Furthermore, considering these implicit theories, Stewart (2009) suggests that groups sharing policy values, uniting around common beliefs, mobilise resources around related issues, for instance, city street problems are related to the cyclists’ coalition in that the impact of choices in the physical public realm and their struggle in reclaiming public space and public participatory budgets (PPB) towards advancing their policy aims. Considering these public policy values and the relation with policy change in a matter of the cyclists’ coalition’s concern, Stewart (2009) notes that “*the built environment tells the observer the relative weight that particular societies accord to private rights as against public utility... Policy change... describes changing patterns in choice-making, and shorter-term, in that it focuses*

on decades rather than centuries" (pp. 25, 34). These are elements to keep in mind when reading the context being studied and how policy is processed regarding cycling as a political issue also, an issue of choice and weighting.

An exploration of the diversity of policy actors and their different degrees of involvement, how they participate in strategies to increase urban cycling, and a look at a variety of events, including policy conflicts with automobility's interests, provides insights into the context where the cyclists' coalition is operating during the study time-period; with automobility being the counter-coalition in this case, with opposing choices and weighting for the available space and financial resources. From this simplification of the policy context and seeking to further advance knowledge on the cyclists' coalition's interaction for policy learning and change, research of the underlying ACF conceptualisation of policy process sets to explore the typologies of the essential policy elements for public engagement, influence, policy formulation and implementation, outputs, and outcomes. This definition of advocacy coalition elements is structured not as an exact science, but with conceptual elements to guide researchers through a slightly fuzzier reality, with some overlaps, as observed in greater detail in the following chapters. Certain conceptual elements are analysed at a general level in Chapter 3, for instance, but they merge or don't exist operationally with sufficient significance in the Chapter 4 case study. Considering a resumed explanation of the policy formulation elements operationalised within the ACF, the basic elements for analysis are defined in Table 2 below:

Table 2 - Advocacy Coalition Elements in Policy Formulation

Phase of the Policy Process	Element	Description
Formulation	Subsystem <i>cycling</i>	Cycling is the subsystem of analysis in this thesis. McCool (1998) cites Freeman's (1965) definition of subsystems as " <i>the pattern of interactions of participants, or actors, involved in making decisions</i> ", and Worsham (1997) refers to the subsystem model the " <i>lingua franca of those studying public policy</i> " (McCool, 1998, p. 552). This thesis dwells into the ' <i>policy community</i> ' interactions stemming from cycling as specific policy issue; <i>i.e.</i> , the collective action of a group of cyclists working as policy actors in different ways as they vie for policy change to make their city more cycling friendly. In this respect the cycling policy community is working in favour of the cycling subsystem they want to legitimate, make more viable and advance within the urban system, especially within the urban mobility system.
	Policy Issue <i>change for increased cycling</i>	The policy issue being researched is policy change for increased cycling. To study this change, I analyse how cyclists' coalitions have influenced change and decision-making processes. Note that the policy issue (policy change for increased cycling) manifests itself through the intensity of cyclists' coalition interactions, policy formulation and implementation, outputs, and outcomes.
	Coalitions <i>cyclists' coalition</i>	The cyclists' coalition is a key element, but what exactly is a coalition? I employ Sabatier's (1986) definition of an advocacy coalition when referring to the cyclists coalition, as " <i>a group of actors from various public and private organisations who share a set of beliefs and who seek to realize their common goals over time</i> " (p. 39). The advocacy coalition works as a central element in this conceptual framework, keeping in mind McCool's (1998) proposition that " <i>The advocacy coalition model clearly offers more explanatory power than traditional notions of subsystems</i> " (p. 556, footnote 3). To understand the cyclists' coalition, its reasons, goals, and interactions, Weible & Ingold's (2018) insights are relevant; " <i>the glue binding these coalitions together are beliefs and ideological viewpoints on how the world should be structured and policies should be shaped. People in coalitions coordinate their political behaviours, such as planning a social media campaign, organising protests, or lobbying government officials</i> " (p. 327).
	Actors	Advocacy coalitions consist of diverse policy actors. These are individual people, organisations, or associations which are " <i>not "passive rule-followers ('cultural dopes'), but active rule users and makers</i> " (Geels & Schot, 2007). Wittmayer, Avelino, van Steenberg, & Loorbach (2017) cite Giddens' (1984) description of actors as being " <i>embedded in structures, while reproducing them at the same time –structures do not exist out there, but only through use and reproduction in practice.</i> " (Wittmayer, Avelino, van Steenberg, & Loorbach, 2017, p. 47). In a profoundly automobility-ruled world cyclists cannot be ' <i>passive rule-followers ('cultural dopes')</i> ' and by cycling on the public space they become active rule users and makers thus they are included as key cyclists' coalition members.
	Associations	The term associations in this thesis refers to political associations as defined by Weible & Ingold (2018). While advocacy coalitions are included as one possible form of political association, other types of association exist involving specific actor types and more or less specific time frames for action and involvement, formal or informal organisation, and of an

ephemeral or more stable nature (Weible & Ingold, 2018, pp. 327-329). Differentiating and categorising political associations provides significant insights into relations involving advocacy coalitions within policy development itself, considering relations between actors, events, formulation, and policy outputs. Political associations include informally structured advocacy coalitions as described above, but also other types of political associations, namely short-lived, policy issue centred informal 'coalitions of convenience', policy issue focused experts and researchers connected informally as 'epistemic communities', from macro-level and less structured informal 'social movements' sharing policy beliefs and values at a societal level while advancing alternative propositions to mainstream culture, to formally organised 'political parties' focused on government, governance networks and polities, working with political programs, electorates and elections, and also formal 'interest groups' with members organised for collective action in face of specific policy issues. These different forms of associations have interacted with cycling as a policy issue, with different intensities, scales, moments, and frequently with conceptual and programmatic overlaps.

Events Considering this thesis' line of research and applicable time frame, events are defined as those specific episodes which may either spark the formation of a coalition, reinforce it or mobilise its actors in face of policy conflicts, problems or crises. Wagner & Ylä-Anttila (2018), for instance, claim that among other possible paths, policy change in the ACF can occur through external subsystem events (p. 887). Weible & Heikkilä (2017) argue that "*all policy issues and the related policy conflicts are affected by and sometimes create events*" (p. 34), and disorder emerges from events with potential influence on policy outputs and outcomes (Nohrstedt & Weible, 2010, pp. 6-9).

The conceptual elements established above structure and help to explain policy formulation and how it is operationalised, especially considering how the process develops from the latter stages of influence into implementation, outputs (and from there, to better understand outcomes). Conceptual elements can effectively be measured (Table 3), and from these measurable elements I apply indicators to establish the bridge between the conceptual framework and tangible results which can be studied in any chosen setting, herewith applied in the research on cyclists' coalitions' impact in different cities (in Chapter 3) on a descriptive level, and the detailed case-study of the Lisbon cyclists' coalition in Chapter 4.

Table 3 - Advocacy Coalition Elements in Policy Implementation

Phase of Policy the Policy Process	Element	Description
Implementation	Outputs	<p>Policy outputs are the deliverables of the policy process, considering the political goals and aspirations of the various actors involved in the different stages of the complexities of policy process.</p> <p>Regarding advocacy coalition and involvement, actors that participate in the policy process, outputs are viewed as a research element which translates conceptual policy objectives into tangible policy outputs. Regarding cycling as a policy issue -and change emanating from the cyclists' coalition as a phenomenon- outputs provide a measurable dimension into the implementation facet of policy change. Examples regarding cycling as a policy issue are the conversion of non-programmed city streets into car-free streets, reclaiming road space to implement cycleways or convert on-street automobile-parking areas into cycleways, bicycle parking, bikeshare station locations or even widening sidewalks and calming city streets.</p> <p>Furthermore, the implementation of policy outputs associated to cycling is associated with a basic city-level, or municipal-level resource; city-space (Oldenziel, 2016a, pp. 192-193). Access to this resource, how it is programmed, distributed, or redistributed has also led to policy conflicts, which are associated to specific events (Oldenziel & Albert de la Bruhèze, 2011). These events, in turn, provide a barometer regarding policy interactions, change and the political positioning of conflicting coalitions, politicians, organisations, and political parties and/or their members.</p> <p>In fact, according to Weible & Heikkila (2017), conceptually, outputs emerging from <i>"policy conflicts are public policies, particularly those that target the substantive area of an issue, changes in the institutional arrangements structuring policy action situations, and changes in officials holding positions in government"</i> (p. 34).</p> <p>Taking into consideration the limited resources at play in the cycling policy issue (e.g. city street space, time/space relation, traffic congestion, national and local government budgets, etc.) and conceptualising the policy process as a means to distinguish between outputs as being non-existent, existent but ineffective or suboptimal, and effective or optimal given the setting and its circumstances when implemented, these outputs can be measured considering a number of different policy products: legislation produced, guidelines and recommendations published, related decisions associated to budget allocated towards cycling, or with impacts upon cycling, including choices reflected upon the built environment; either favourable, such as cycling infrastructure and traffic -reducing and -calming measures, etc., or unfavourable, such as car infrastructure (road building, road widening, car parking facilities, etc.). In this respect, despite the caveats concerning political responsiveness, the following assumption is considered valid:</p> <p>Outputs produced describe the level of policy actor influence and orientation.</p> <p>From Lowi's (1972) differentiation between distributive and redistributive policy outputs regarding wealth, for example, we can translate this distinction to policy outputs regarding finite resources within the realm where the cyclists' coalition is attempting to gain greater</p>

		<p>involvement in policymaking; <i>i.e.</i>, redistribution of public street space in cities and policies associated with the mobility system.</p> <p>Regarding outputs, chapter 3 examines different cyclists' coalition impacts from documents on different comparable cities, and Chapter 4 details into the different degrees of coalition interactions and events, the resulting strategies employed with regards to urban cycling in the Lisbon Metropolitan Area (AML), and the distributive or redistributive approaches used.</p>
Change	Outcomes	<p>Policy outcomes are the results achieved from the policy formulation and implementation process. The hypothesis that policy change can, to variable degrees, be measured according to policy outcomes is central to this thesis. Likewise, the complexities and varieties of policy process interactions that lead to these outcomes, and how they are related to policy outputs is analysed adapting Oldenziel & Albert de la Bruhèze's (2016b) five factor analysis to explain commonalities in cycling practices in different cities (pp. 9-13), keeping in mind the complexities of the sociohistorical perspective and what has been omitted or included as '<i>usable pasts</i>' (Brooks, 1918), and how the subsystem's role in the policy process has been/is excluded, thus providing practical insights into effective policy change.</p> <p>Regarding increased cycling as a policy issue, outcomes are measured quantitatively in terms of change produced, <i>i.e.</i>, overall increase in bicycle use (data from traffic counts over an adequate time span, such as those presented in Chapter 4 – between 2009 and 2021), and modal share performance within the overall mobility system (data from census and mobility surveys). For further study, beyond the scope of this thesis: information on cyclist typologies observed – age-group, gender, specific user type can follow this line of research, deepening its ambit and replicating other dimensions associated to change. Policy learning and change are therefore analysed qualitatively with notes taken, documents studied, and interviews realised with a diversity of actors from the cyclists' advocacy coalition, policy brokers, and general citizens, and quantitative data is used to confirm the hypothesis in the case study.</p>

From the conceptual elements in Tables 2 and 3 above, policy formulation and implementation elements can be summed in the ACF as “a set of *interrelated areas that explain how a policy is formulated and implemented. Four factors determine the outcome of a policy implementation process – external events, internal events, policy-oriented learning, and negotiated agreements between incumbent advocacy coalitions.*” (Knutsson, 2017, p. 167).

Despite greater complexity as the process is operationalised, with element overlaps leading to fuzzier definitions of some actors and their interactions, the policy process is -for simplicity's sake- capable of being conceptualised into a relatively clear linear process flow-chart, illustrating the interrelated areas of an advocacy coalition's endeavour in policy development for change, simplified as follows:

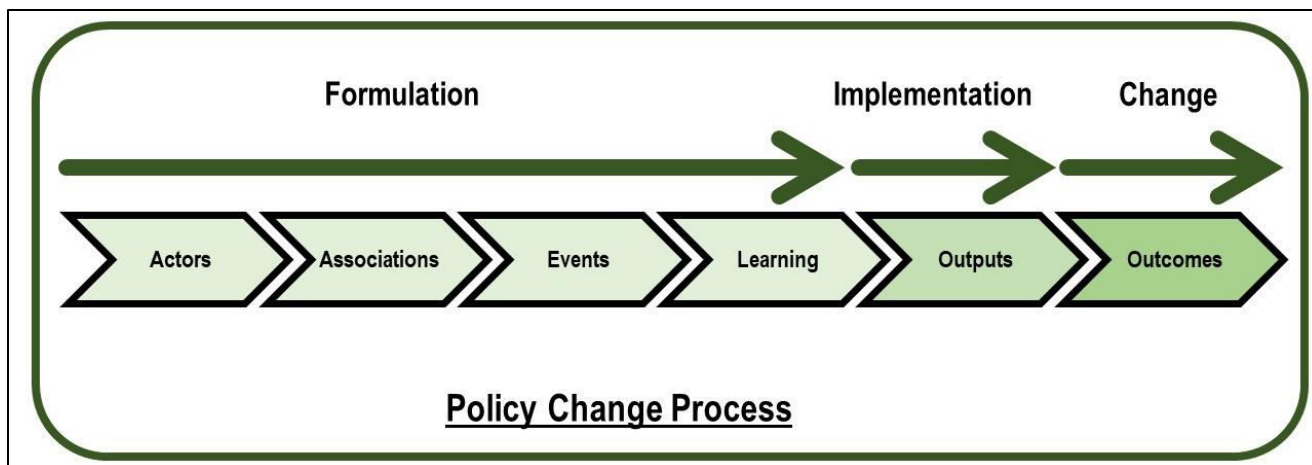


Figure 3

Advocacy coalition elements within the policy process for change

Considering the advocacy coalition elements working within the policy process for change, the ACF provides a conceptual toolbox, useful for a structured analysis of how actors work as they strive to influence and steer policy orientations. Considerations on how cyclists' coalition members can organise themselves for optimum performance, how they create associations and work with political structures to influence policy outputs, and the variety of events that they participate in as they struggle to achieve desired outcomes also reveals the roles of policy-oriented learning as part of the formulation process. For this thesis, Figure 3 above, simplifies advocacy coalition elements into a policy formulation, implementation, and change process in its most simplified form.

2.2.1 Networks and subsystems

Policy issue networks work with a series of systems, most notably with political systems and different levels of governance. As a subsystem, cycling works within the urban systems of each city and takes into consideration local specificities and complexities, foremost, as a mode of transport within a larger mobility system, with different interactions at the urban, regional, and national levels of mobility systems. In this respect, cycling works as a subsystem, and as Aldred (2013) suggests, "*within a mass motorised context, cycling as a mode of transport exists by comparison with, and in competition with, motorised modes (and walking).*" (p. 253)

Network analysis relates to the arrow labels of the complex process for policy change, as simplified in the policy formulation diagram of Figure 3: *i.e.*, actors, associations, events, learning, as a factor employed in identifying advocacy coalitions, from scholarship on the structures of coordination and the policy actors involved. Scholarship on power-seeking in regional planning subsystems, for instance (Henry, 2011) and coalition actor network structures in climate change policy developments in several European countries over the last decade, as another example (Gronow & Ylä-Anttila, 2016; Ingold, 2011; Matti & Sandström, 2011; Wagner & Ylä-Anttila, 2018). Research has identified advocacy coalitions and their pertinent actors in subsystem networks, episodes, and relations (Wagner & Ylä-Anttila, 2018, p. 877). Klein & Tremblay (2010), for instance, demonstrate that coalition interventions at the

urban-scale, involving civil society and social organisations, “*are more likely to be successful than those that turn their back on these organisations*” (p. 567), pointing to the importance of building-up policy networks between coalition actors and establishing organised associations.

The formation of these policy networks are established from peer-to-peer contacts, peer networks, venues and encounters -both formal and informal, as conceptualised in Section 2.4 on policy actor interactions- trust between adherents, and knowledge and exchange amongst members (Boonstra, 2004; Marsden, Frick, May, & Deakin, 2010, pp. 508-509; Nonaka, Toyama, & Konno, 2000). Considering these policy networks, Ingold & Varone (2012) define the appropriate unit of analysis as a “*political subsystem composed of participants who regularly seek to influence policy within that subsystem... composed of advocacy coalitions whose members can include legislators, agencies, and interest groups, as well as researchers and journalists; these all coordinate with one another based on shared beliefs*” (p. 319).

A subsystem involves events of policy conflict between at least two advocacy coalitions, such as the cyclists’ coalition and the automobility coalition as a contra-cycling, or ‘*bikelash*’ reaction generally opposed to policy outputs which favour cycling in urban areas, with finite space which requires redistribution. To understand the policy actors involved and their interactions, Weible & Heikkilä’s (2017) study on the Policy Conflict Framework (PCF), identifies policy conflicts as working across three levels of action:

- political system
- policy subsystem
- policy action situations (p. 25).

Regarding the ACF, focus on the cyclists’ coalition encompasses these three levels of action; *i.e.*, influence and achievements are informed by specific policy action situations (or events, as illustrated in Figure 3 above) and their policy outcomes, working upon the status of the policy subsystem and reverting back to the political system with different parties and their polities positioning themselves within the different fora of conflict. Weible & Heikkilä (2017) frame the policy subsystem as the intermediate level of analysis essential for understanding the ACF, building upon the cumulative definitions from their analysis of the scholarship on actor networks and subsystems, as follows: “*...any partition of a political system that focuses on a policy topic, a locale, and the actors involved. ... the ACF’s definition of policy subsystems (Jenkins-Smith, Nohrstedt, Weible, & Sabatier, 2014) because it is flexible enough to describe similar phenomena including policy regimes (May & Jochim, 2013), issue networks (Hecklo, 1978), policy networks (Adam & Kriesi, 2007), and policy space (Krehbiel, 1998). It is also useful because the wording “subsystem” denotes the appropriate imagery of being a subset of a political “system”.*” (Weible & Heikkilä, 2017, p. 25).

Chapter 4 is a case-study of the workings and results of policy interaction in the specific context of Lisbon, but this is also preceded with parallel examples from the outputs and outcomes achieved by other cyclists’ coalitions in chapter 3, with a look at cycling in comparably sized cities within the European context (See section 3.1 and Table 6). Keeping this in mind, bounding research within what is an advocacy coalition at the conceptual level, and to approach how its networks are established, the concept of a subsystem includes the following definition, although policy actors (addressed in Section 2.3) are the central part and don’t necessarily work within these organisations but can organise organically. In fact, “*a subsystem comprises a set of public and private organisations actively engaged in the debate over a specific policy problem or issue in a geographically defined location.*” (Wagner & Ylä-Anttila, 2018, p. 876)

2.2.2 Temporality

Temporality can be identified as the frame for change in the policy process in Figure 3; it envelops the development of policy, the outputs produced, and results achieved over time. As analysed previously, a minimum of a one-decade time period analysis is required for framing an ACF analysis of the policy process (Weible & Carter, 2017, pp. 26-28). To describe change and explain its dynamics within a specific setting, mid- and long-term perspectives are critical to achieve a glimpse of the continuity of what the policy process consists of. In this respect Weible & Carter, (2017) suggest that “*a broad temporal perspective reinforces arguments and empirical research that indicate that the study of policy consequences cannot stop at policy adoption, but rather continue over time to affect future policy processes.*” (p. 29). The significant role of temporality is implicit in Lowi's (1964) and Schattschneider's (1935) claims that “*policy creates politics*”, with Weible & Carter's (2017) underpinning that this was a fundamental “*effort to shift thinking away from policy change as a theoretical and analytical end point, and toward the notion of many continuous interactions comprising policy processes*” and they continue to conceptually frame that this fundamental viewpoint of change “*has led to the recognition that policies shape, reshape, and reinforce social constructions* (Schneider & Ingram, 1997), *the engagement and influence of particular policy actors and groups* (Hacker & Pierson, 2014; Pierson, 1993)”, and also “*patterns of civic engagement* (Mettler, 2002)” (Weible & Carter, 2017, p. 29).

From a perspective of network analysis, temporality is key in understanding how the policy matured and how a specific policy subsystem functions in relation to other systems as part of its policy setting. To be clear, when coalitions haven't effectively achieved influence upon the policy process, insufficient time for analysis can be one of the drawbacks, as confirmed by shorter spanned research on the ACF in Wagner & Ylä-Anttila's (2018) analysis of coalition dynamics in the Irish climate policy between 2011 and 2015. Furthermore, according to Oosterhuis (2016) and Cox & Bunte (2018), research on behaviour change and social practices reveal a gap regarding much of these cyclists' coalition's campaigns since these are generally ‘*ahistorical*’, ignoring the constructs of social and political forces which have rooted the policy values at play over time (Cox & Bunte, 2018, pp. 122, 126; Oosterhuis, 2016, pp. 247-248).

2.2.3 Conceptualising advocacy coalitions and policy process

What advocacy coalitions are conceptually, how they function, their motivations, the different typologies of policy actors, their practices, associations, and their relations, including interactions with policymakers, are basic insights discussed conceptually throughout this chapter. It provides an organised framework structure to decipher policy change as it develops within the policy process, either successfully or not, considering the coalition, the subsystem, and the policy issue being studied: the cyclists' coalition, cycling as a subsystem, and change for increased cycling as a policy issue.

Carlsson (2017) warns of the similarity of concepts and, citing Rhodes & Marsh (1992) points to the difficult task of organising a “*Babylonian variety*” of typological concepts, part of which are addressed below, in section 2.3 on advocacy coalition actors, and their form of association in section 2.4 on policy actor interactions. Connected concepts, however, are at play in the policy process, and similarities make overlaps even fuzzier in those dynamics, with several applicable caveats. Sometimes concepts can substitute one another, and “*advocacy coalitions could be labelled discourse coalitions, and public energy fields could presumably be understood as disseminating*

particular policy narratives or epistemic communities, and so forth" (Carlsson, 2017, p. 155). Nonetheless concepts differ significantly as they are formed by different logics and perspectives of the world's issues, with important aspects to be kept in mind regarding research on the cyclists' coalition and its struggle for influence. The fact that policy communities consist in a limited number of actors exerting a balance of power is an important factor. Carlsson (2017) notes that

(Policy) structures also have shared values, continuity, and persistence—aspects in which issue networks are quite different. At the same time, policy scientists have emphasised that these two constructs are likely to vary internally depending on the policy niche they inhabit (Rhodes & Marsh, 1992). For instance, issue networks tend to appear different depending on the issue. This circumstance is a considerable hurdle for any type of comparison, not to mention the construction of a robust typology. Another problem is the actual definition of the term "policy networks. (Carlsson, 2017, p. 155).

Keeping in mind Carlsson's (2017) warnings about conceptual structuring and the need to assess policy actors, associations, and interactions as a response to why and how advocacy coalitions shape, influence (or not) urban cycling, I apply Weible & Ingold's (2018) '*practical insights*' on the ACF to explain the multiple means of advocacy coalition participation. Accordingly, Weible & Cairney's (2018) synthesis for political participation underpins the general framework of the ACF with '*lessons*' applicable within this thesis' approach, as it focuses on political participation, in the broad sense of linking citizens and a diversified set of policy actors, and how these reflect upon public policy.

2.2.4 Influence upon policy development

According to Rubin (2018), interest group coalitions intensify actions and gain support by "*guiding, lobbying and advocacy efforts and through the quality of information*" they provide to group members, employing common technical skills for lobbying using the '*triangle of interaction*' to enhance information exchange and influence between coalition members and their interest group organisations as they confront policy matters and struggle to achieve their goals (pp. 8-9). The mechanisms identified by Weible & Cairney (2018) point to the central functioning of policy influence external to institutional policy formulation as it is understood from an advocacy coalition's perspective:

1. Self-governing from the bottom-up can be effective in making policies, both outside and within government settings, but it requires norms of reciprocity, trust, experience and adequate information; 2. Build and maintain advocacy coalitions to influence public policy; 3. Become involved in advocacy coalitions as a regular or intermittent participant, as brokers negotiating agreements between coalitions, or as policy entrepreneurs championing ideas...

Policy theories also offer a different lens for influencing public policy than what is commonly found in political science, which often assumes that only elections and political parties matter in influencing government and politicians (instead, most policy making takes place in many levels and types of government through the influence of coalitions); policies are mainly made through top-down decision processes (instead, self-governance via bottom-up approaches are possible) (Weible & Cairney, 2018, p. 192).

The ACF defines a series of mechanisms structured to identify and understand interrelations between policy actors. Figure 4, below, integrates cyclist coalition's interactions within this structure, identifying the links for influence in

the policy process, struggles and complementarities with competing coalitions in the urban mobility policy subsystem, and policy formulation and implementation results manifested by policy outputs and impacts (outcomes).

For the conceptualisation modelled in Figure 4, focus is on the cyclists' coalition, conceptualised from the "2005 Diagram of the Advocacy Coalition Framework" (Sabatier & Weible, 2007, p. 202), based on "The general model of policy change focusing on competing advocacy coalitions within policy subsystems" (Sabatier, 1988, p. 132). The general ACF model of policy change provides a useful conceptual basis and operationalisation to study this specific policy issue by focusing on Coalition A (the cyclists' coalition), which can be used in other cities, in replicable contexts, or possibly for different policy issues. Chapter 3 on cyclists' coalitions in comparable cities and regions provides a starting point for this operationalisation, with the case-study of the Lisbon's cyclists' coalition advancing new insights in greater detail.

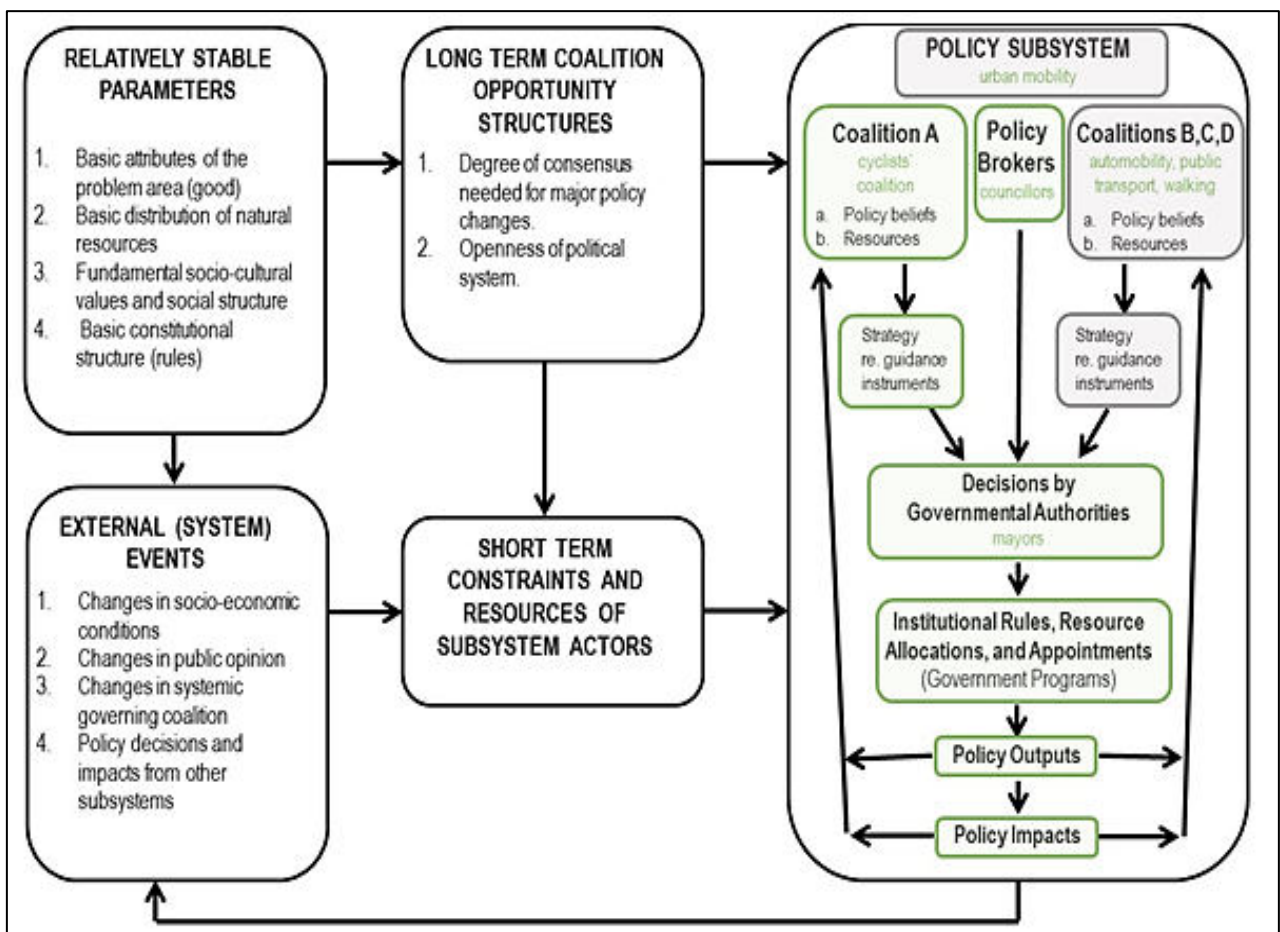


Figure 4

Sabatier & Weible's (2007) general updated model of policy change focusing on competing advocacy coalitions within the urban mobility subsystem.

2.3 Advocacy coalition actors

Policy actors are the backbone of any of the political associations working within an advocacy coalition; understanding these actors and their different roles provides structural elements for defining the mechanisms involved in the policy process and the role they play in change. Sabatier & Pelkey (1987) describe coalition actors as emanating from “*policy elites interested in particular policy areas*” and that these “*policy subsystems should be broadened to include various levels of government active in policy formulation and implementation, as well as journalists, researchers, and others who play important roles in the generation, dissemination, and evaluation of policy ideas*” (p. 247).

Detailing in on the subsystem and its policy issue networks, Hecló (1978) differentiates policy formulation interactions as they evolve from the ‘*all join in*’ widening citizen participation in policy development versus the ‘*policy as an intramural activity*’ consisting of interactions from ‘*specialised subcultures composed of highly knowledgeable policy-watchers*’ as they engage in specific policy debates (pp. 268-273). In this respect Sabatier's (1986) seminal ACF research underpins coalitions as being composed of different people working in various different public and private organisations with common beliefs and interests. Subsequent scholarship on the ACF refers to political associations as being composed of policy actors, these being either ‘*individuals*’ or ‘*organisations*’, with the term ‘*association*’ representing the basic components of policy interactions within the research framework being employed. Sabatier & Pelkey (1987) for instance consider coalitions as consisting of “*people from a variety of public and private organisations who shared a set of fundamental beliefs or interests*” (p. 248).

Knutsson's (2017) research on policy-oriented learning establishes what policy actor coalitions consist of; *i.e.*, ‘*organisations*’ and ‘*individuals*’, founded upon a common policy belief (pp. 168-169). Coalition interactions evolve and relate with the policy process over time in an intertwined relation with the concept of learning, feeding from this knowledge obtained, and vice-versa, feeding back with their actions, systematically correcting their course for policy change in a dynamic process.

Considering the dynamics of the cyclists’ coalition and how its actors engage in the policy process for change, an analysis of a city’s evolving level of cycling maturity as the process kicks-in with outputs being produced and outcomes causing greater impact, stances regarding policy formulation and implementation also evolve. Activists in earlier or less-developed stages of interaction may manifest strong opposition towards new cycling infrastructure being implemented due to substandard solutions, for instance, but when infrastructure begins to attract more users, perceptions and attitudes change. Cities with a lack of outputs and low levels of cycling maturity -where cycling infrastructure is sparse or non-existent- may witness activists vehemently defending a ‘*vehicular cyclist*’ approach and opposition to new cycleway solutions or typologies such as cycle lanes or dedicated cycle paths (Furth, 2012, pp. 114-119; Reid, 2017, 143-160), in many cases also due to a greater propensity for outputs being realised with substandard solutions (e.g. dysfunctional cycleways, that are inadequately designed, too narrow, unconnected, indirect and incoherent, etc.). Contrastingly, in cities with higher levels of cycling, new infrastructure is commonly welcomed and arguments tend to focus on improving specifics via public participation or institutionalised forms of policy input such as formal Sustainable Mobility Urban Plan (SUMP) policy cycle meetings, addressing issues such as improved and increased connectivity, with actors involved consisting not only of activists, but also citizens, families, schools, businesses and other non-affiliated organisations (Andersen et al., 2012; Bruntlett & Bruntlett, 2018).

Policy actors are varied, categorised according to their specific roles within the policy process, seeking insights upon how they interrelate with each other, and the depth of engagement in policy change each different actor has, their perceptions and experiences. Table 4 provides an adapted comparison of advocacy coalition actors as defined by Weible & Ingold (2018) in Table 1 above, the corresponding policy actors identified by Marsden et al. (2010) for city governance structures.

Keeping in mind the previously mentioned caveat that policy actor definitions are fuzzier than the specific actor typologies, since some individuals involved in an advocacy coalition fit into more than one of the actor types, the typological categorisations are refined to fit into a case-study applicable format, useful for a complete analysis of the cycling subsystem and its relationship with the policy issue.

Table 4 – Policy actor types involved in the policy process		
Advocacy coalitions (Weible & Ingold, 2018, p. 332)	City governance (Marsden et al., 2010, pp. 506-507)	Cyclists' coalition
Principal coalition actors	Elected officials, government administrators, suppliers, interest groups, residents, think-tanks, consultants, non-governmental organisations 'policy entrepreneurs' (who may be located inside one of the aforementioned groups)	Activists, researchers
Policy brokers	Elected officials, government administrators	Policy brokers
Policy entrepreneurs	Local officials, governmental organisations, policy entrepreneurs	Policy entrepreneurs
(Could be coalition actors)	Private suppliers	Auxiliary coalition actors
(Could be policy entrepreneurs or coalition actors)	Consultant firms	Consultant firm staff could be activists or auxiliary coalition members
General citizens	Residents	Could be any of the above
Principal (or auxiliary) coalition actors	Interest Groups	Could be principal or auxiliary coalition actors
(Could be policy entrepreneurs or coalition actors)	Academics	Could be principal or auxiliary coalition actors

Some interviewed individuals in Chapter 4 fit into one or more roles at a specific moment or as they engage in the policy process over the study time frame. A citizen, for instance, may be a teacher bringing up the issue in a

classroom or promoting participation in bike-to-school initiatives, mobility surveys, or school promoted cycle rides... Is that activism? An activist may participate in an interest group at a certain moment, and simultaneously, be an academic researcher. Christopoulos & Ingold (2015) refer to 'exceptional actors' who at a given moment are policy entrepreneurs and at another become policy brokers (p. 476); this has occurred in cycling subsystems in benchmark cities, such as with Groningen's political figure, Max van den Berg, from 1969 to 2007. Starting as an academic, van den Berg entered institutional politics at the local level as an alderman, then being elected as deputy mayor of Groningen (1969-78), and later projecting policy measures to other Dutch cities (Bruntlett & Bruntlett, 2018, p. 45-49), but also as national chairman of the Dutch Labour Party (PvdA) between 1979 and 1986, and later as member of the European Parliament (1999-2007), engaging in public policy commissions, committees, and organisations. The typological categorisations established in Table 4 are useful for identifying a series of common positionings, patterns and policy actions, but also as indicators of the level of maturity and output capacity relating to the (cycling) subsystem of the policy process itself.

2.3.1 Principal coalition actors

According to Marsden et al. (2010) the dominant actors involved in starting and searching for new policies for cities are local government officials, politicians, residents, and interest groups (p. 510). Ingold & Varone (2012) identify policy actors working not as individuals, but as formal organisations at the forefront of current politics, especially as they form advocacy coalitions (p. 326). Nonetheless, Sabatier & Pelkey (1987) highlight the importance of focusing on people who share a core set of beliefs in a specific policy area/subsystem, instead of focussing on formal organisations (p. 257), thus anticipating Marsden et al.'s (2010) definition of principal actors involved in policy innovation and learning in city governance networks. The role of people, cyclist citizens, is at the core of change as it is addressed in this thesis.

Seeking detailed insights into coalition involvement and influence in local policymaking, the specific focus on principal policy actors, with information obtained from notetaking, documents, and most significantly interviews (see Chapter 4, section 4.2.1 – Qualitative approach – Process, Table 9) perceptions of the important role of local decision-makers in advancing key policy output definition towards pro-cycling measures in a city are gauged. 'Activists' are key actors working transversally on the issue also, either within NGO's, interest groups or simply exercising citizenship, or working as experts. Epistemic actors bring new perspectives from research, working in university-based research units, policy issue or meta-issue agencies, and areas of consultancy and expertise. Journalists and citizens also provide new insights and a practical perspective of the issue. The unavoidable policy brokers and policy entrepreneurs are also key actors addressed throughout the research, with two policy brokers being interviewed, and policy entrepreneurs explained. An additional note regarding policy entrepreneurs, due to their sensitive role, their anonymity would be exposed, and for research and to safeguard identities, these actors weren't interviewed for the Chapter 4 case study.

Christopoulos & Ingold (2015) differentiate policy brokers from policy entrepreneurs in their quest for influence. These actor types use different paths of influence since they are "*differently embedded in a policy network as they display distinct relational profiles*"; namely policy entrepreneurs engage in the overall network while policy brokers gain political benefits from their interactions when addressing the local subsystem. Over time, as the policy process engages with different and new challenges, "*exceptional actors oscillate between roles... to suit specific relational situations and task demands*" (Christopoulos & Ingold, 2015, pp. 475-477). On the other extreme of involvement,

some individuals may participate as policy actors despite their personal indifference regarding the policy dispute such as researchers, public officials, or other actors (Sabatier & Pelkey, 1987, p. 257), such as journalists or unaware citizens.

2.3.2 Policy brokers

Ingold & Varone (2012) observe that despite the vast scholarship applying the ACF, the role of policy brokers, their institutional interactions, and discrete or assumed positioning, as well as their influence in the policy process are not always clearly defined (p. 319). Policy brokers, as key actors in the policy process, are personalities who *“intervene in situations where two or more advocacy coalitions are in competition... about their beliefs and policy positions. The role of brokers is to then search for stability in the specific political subsystem and to mediate between the opponents in order to make compromise solutions feasible... policy brokers are well positioned to find compromise solutions”* (Ingold & Varone, 2012, pp. 319, 324).

In fact, understanding the role of policy brokers —and how they decide— is key to understanding the relationship between a specific policy subsystem and how policy outputs are achieved in a given context. Regarding the cycling subsystem we can consider mayors, deputy mayors, councillors, infra-local borough or district leaders and high-level politicians as the most common policy brokers interacting with the cyclists’ coalition. In fact, Moreno (2020) points to the pivotal role of mayors as policy brokers at a much broader level than city politics, with wider ranging implications upon policy change; key actors in dealing with key urban issues in face of the current global climate challenge and a multitude of problems emanating from this:

More than ever, heads of state must work closely with the mayors of major cities around the world, who enjoy the trust of their fellow citizens. Mayors are not a transmission belt between national political life and the local life. They are the backbone and full players in the political life of our countries. Nothing can be done in urban life without the strategic vision, without the dynamics, without the commitment and without the permanent presence of each one. (pp. 40-41)

Policy brokers *“seek stability and play a crucial role in mediating conflicts between competing coalitions in a subsystem”* by mediating *“between the coalitions in order to find stability and to bring a feasible policy compromise to its success”* (Ingold & Varone, 2012, pp. 321, 331; Sabatier, 1988). Sabatier & Pelkey (1987) refer to policy brokers as *“primarily being concerned with keeping the level of political conflict within acceptable limits and with reaching some “reasonable” solution to the problem”* (p. 258), and these coalition actors are assumed to be rational, mobilising and acting strategically with their self-interest in mind (Ingold & Varone, 2012, p. 322). Considering the contentious events around the finite public space in a city and the redistribution of street space between different users and transport modes, cycling’s greatest competitor for space is the dominant automobile. Public transport and pedestrians also compete for space in this realm, depending upon the policy approach being either sectoral (modes compete) or integrated (modes complement each other).

Regarding the role of policy brokers managing competing issues, and striving for consensus and complementarity -by including active mobility, including cycling, within an integrated vision of urban and regional mobility- and numerous other city issues such as air quality, water, housing, land-use, health and climate, Moreno (2020) suggests that mayors —the key policy brokers and the elected representatives chosen by citizens— are able to *“translate into actions a real systematic vision”* of these integrated policies. Yet, this effective policy formulation and

implementation must also keep in mind the modest dimension of their time in the governance system, and its impact within a much larger time frame applied to the city's history and assuring continuity of the common good (pp. 54, 63).

Considering the conceptualisation of the policy broker within local political spheres of city governance, in the struggle between two competing coalitions —cyclists vs. automobility— these policy actors take into consideration the largest share of the electorate they can gain support from during a mandate or anticipating the next election. In this respect, if what is effectively being sought is change, policy brokers can take a proactive role by finding a compromise as a formula for reducing intense conflict and gaining political ground from their brokerage capacity (Ingold & Varone, 2012, p. 321; Sabatier, 1988, p. 155). In scenarios with low rates of cycling, an appeal to 'both sides' may be made while forgetting that there's a significant asymmetry in resources being allocated to each side, and a completely unbalanced mobility system reinforces the dominant side. An example from a former policy broker interviewed for the Lisbon case-study illustrates how this perspective can function:

Someone who could balance the two (coalitions)? I confess that nobody occurs to me, there are people on both sides... I think it must be by consensus because it cannot be by opposition. Also, because here is a case of individual freedom... Here even more than consensus There may be an issue of individual freedom: cycleways and roads, whoever wants goes by car, whoever wants goes by bicycle....In Lisbon you have a much more limited territory than in Cascais... in Lisbon to build a cycleway you must steal space from automobility, in Cascais you can build cycleways without taking space from the car in many cases. In fact, in Cascais, the automobile issue is more a habit than a cause. (Interviewee #10 – Former Policy Broker)

"There isn't just one side, there are two sides." Carlos Moedas, when questioned about the Almirante Reis Avenue cycleway removal he promised during the 2021 municipal election campaign (André, 2021). He was elected Mayor on 26 September 2021.

Using the same comparison of 'people on both sides', a perspective aiming at revealing the extreme biases of policy brokerage when a systemic imbalance is sustained by non-elected brokers in Portugal's road safety authority (ANSR) or infrastructural management agency (IP) puts a finger on what seems to be a '*wicked issue*', an unsolvable problem, requiring strong top-down programmatic political action from the national government, and opposition from local governments. In fact, both IP and ANSR have been identified as favouring automobility, a position corroborated to a certain extent by all eleven policy actors interviewed (see the Chapter 4 case study, especially 4.2.2 Qualitative approach: interviews). Interviewee #3 suggests a position which keeps the discussion within a thoroughly rigged system, questioning the existence of policy brokerage, exemplifying with a comparable analogy:

They do two things, one, by sociological and political influence, they give benefits to the strongest group, the car -during the 20th century, they gave benefits to the car-, but when you want to invert the system, they treat it using the same balance that Donald Trump advocated regarding the Nazi demonstrators who killed the girl "There are good people on both sides", they always say "on both sides". There is some ideological issue here.

One of the best Councillors (at Lisbon City Hall), from the centre-right PSD, Marina Ferreira, once in an election campaign said, "I am not here to benefit or disbenefit any mode of transport." This neutrality that accepts the status quo of imbalance -in favour of the automobile- says that the problem is on both sides... safety campaigns for cyclists or pedestrians are saying that both sides are in breach; "both sides", like Trump's speech concerning Nazis with torches, etc. but "there are good and bad people on both sides".

This neutrality, which may even be well-intentioned in some cases -not taking a stand- is wrong from the point of view of urban policies, you must take a stand. You have to benefit the most sustainable modes and disbenefit the worst ones. (Interviewee #3 – Activist)

Regarding cycling in particular, an important point with influence upon policy brokers' decisions in policy disputes is the cultural view and status of cycling in the policy setting, as identified by Jensen, Cashmore, & Elle (2017). From their findings in Copenhagen, a city with high rates of cycling, they demonstrate that "*urban sociotechnical systems may be governed by multiple, partly overlapping (and perhaps even incompatible) political rationales.*" (p. 475). For policy brokers these overlaps also imply overlapping perspectives from other policy actors and the electorate, a complexity which can be addressed by different political agendas with which policy brokers have to deal with. Cycling's status as one of the legitimate components of a multiplicity of governance agendas implies that policy brokers must respond to cycling from different viewpoints and in a variety of issues.

Policy-brokers deal with issues that are set on the table by (supposedly) listening to all and deciding in an informed manner; debates such as speed limits, traffic calming, and street safety require that policy brokers listen to different voices and observe different perspectives. Jensen, Cashmore, & Elle (2017) mention related issues such as traffic safety, transport investments, urban experiences, city liveability, and public health. They explain that the experience-oriented visibility promoted by the Copenhagen city '*Bicycle Account*', with quantitative data, was instrumental in having municipal policy brokers endorse a reduction in speed limits in residential areas, aiming at increasing safety among cyclists and pedestrians, despite a police veto requesting a statistically documented relation with traffic risks (p. 475).

Similarly, the role of policy brokers was evident during the development of Portugal's 2013 traffic code when the national government (then headed by a centre-right PSD/right CDS party coalition), with the parliamentary commission headed by the centre-right PSD member of parliament (MP) Carina João Oliveira, in coalition with the right CDS MP João Paulo Viegas, worked collaboratively with all parliamentary parties involved. Various commission meetings were held to listen to different stakeholders involved with road issues and gather opinions from different perspectives, including those from environmentalist groups, cyclists' and pedestrian groups, children's safety group APSI (Portuguese Child Safety Association), government agencies, the police and automobility interests (MUBi, 2013b; Presidência do Conselho de Ministros, 2013).

Previously there had been consultations between cyclists' coalition members and associated groups such as members of the large family's association APFN (Portuguese Large Families Association) to better support the arguments of pedestrians' and cyclists' coalitions and to provide a broader picture of what was at stake around this mobility system policy issue. The draft was discussed and reviewed exhaustively to integrate the different political rationales and perspectives, and the bill finally drafted was addressed by the parliamentary plenary in relatively consensual manner; approved by all of the members of parliament (MP) from the five most significant parties present in the plenary session, only suffering a last-minute abstention from the two communist green party MPs (PEV) (Presidência do Conselho de Ministros, 2013).

Policy brokers endorsed an innovative traffic code for Portuguese standards, removing references to helmet use associated with cycling, which had been initially proposed in the first draft, increasing cyclists' and pedestrians' legitimation in public space in comparison to previous traffic codes, and introducing new concepts such as residential 'coexistence zones' with a 20km/h speed limit (ECF, 2013; FPCUB, 2013a; MUBi, 2013c). Despite the successful policy brokerage involved in the traffic code's policy process, the complementary road signage decree which should have been prepared by the national road safety association (ANSR) shortly afterwards took over six

years to be formulated and implemented, and the final result fell short of the optimum policy outputs regarding the status of walking and cycling in the traffic code, and their legislated role in the streetscape (MUBi, 2019).

Policy brokers and mediation

Policy brokerage is a form of network action, connecting different competing advocacy coalitions to obtain a mediating position, as suggested by Sabatier & Jenkins-Smith (1993). Regarding the cyclists' coalition struggle for placing cycling on the policy agenda, with a legitimate occupation of street space, the role of municipal decision makers is key in mediating between different actors vying for policy influence in a city's mobility system. Policy brokers looking at incorporating cyclists' perspectives and managing these, are faced with opposing views from a variety of local actors backed by different political rationales. From those defending a car-centric status quo, to neo-conservative and neo-liberal political parties addressing aspirations from parts of their electorate, to varying interests from large-scale automobility interests to local-scale shopkeepers and citizens demanding space for car travel and parking. Some of these rationales aren't fully informed of the entire picture of what mode-change to greater levels of walking and cycling can deliver in benefits for them; for instance some storekeepers may not be aware that streets with less car-traffic and more public space availability are more amenable to people and may increase their level of sales, or families and older citizens may not be aware of the health benefits, increased autonomy and safety everyone gains from streets with less cars (Blue, 2014; Walker, 2021).

In order to mediate between different conflicting beliefs, while searching for political stability, policy brokers are identified as defending a more '*centrist*' positioning than those striving for policy change, between these two antagonistic visions (in this case: cycling vs. automobility), and holding a '*moderate*' position to enable operationalising policy change in articulation with '*moderate*' coalition actors (Ingold & Varone, 2012, p. 331). This view applies when advancing for outputs which produce change, such as the role of car-free centres and cycleways in the cycling revival experienced in different cities.

Despite the centripetal role from policy brokers, and their mediating mechanisms as key interactors with the advocacy coalition's collective action, they can also be key allies for policy change when their policy orientation aligns, or at least when they have a political capacity to hear and integrate the ideas that are being suggested by the coalition: "*The distinction between 'advocate' and 'broker'... rests on a continuum. Many brokers will have some policy bent, whereas advocates may show some serious concern with system maintenance. The framework merely insists that policy brokering is an empirical matter that may or may not correlate with institutional affiliation: Although high civil servants may be brokers, they are also often policy advocates—particularly when their agency has a clearly defined mission*" (Sabatier & Jenkins-Smith, 1993, p. 27)" (Ingold & Varone, 2012, p. 331).

It is this continuum which provides a crucial perspective upon realising effective change and greater policy influence from the advocacy coalition. Considering the analogy regarding policy broker biases, the question that remains is if institutional non-elected brokers (e.g., at road-safety authorities, such as ANSR, and road management organisms, such as IP in Portugal) dealing with politicians in a car-centric setting, in face of other transport modes are policy brokers acting as such, or are they advocating the status quo of automobility?

Political parties as policy brokers

From the importance of the mediating role, Ingold & Varone (2012) advance a hypothesis for political parties brokering decisions in a policy conflict: "*If policy actors have either no strong belief systems (on the specific policy*

issue at stake), are internally divided (on this issue), or defend more centrist positions than the advocacy coalitions in competition, they then use their belief independence to pursue their (material) self-interests and act strategically as policy brokers to seek stability between advocacy coalitions.” (p. 323)

Political parties by nature —constrained by their electorate and by their efforts in gaining greater political ground— don't have to necessarily take part directly in any of the competing coalitions. They may strive for their own self-interest in promoting a policy compromise, pursuing strategies aimed at directly influencing decisions and the policy output produced. This output may, or may not, align with one of the coalitions; an analysis of election programs may reveal important orientations, nonetheless policy brokerage during their mandate also gives leeway for influence on the policy process, to different degrees according to the policy brokers' priorities. Political parties, for instance, also function as policy brokers as described regarding the discussion of Portugal's traffic code formulation and implementation in a parliamentary committee before being presented in the plenary. Furthermore, in Portugal's mayor-centred municipal system (Teles, 2014, pp. 8, 11), combining collegiality with presidentialism (Jalali, 2014, p. 239), it is the policy figure of the mayor that most effectively embodies the function of the policy broker, but so do to lesser and more specific levels, the local deputy-mayors with decisions concerning their areas of political supervision and engaging with the specific subsystems, regarding cycling these are the deputy mayors for mobility, but could also involve urban space, environment, and even leisure and sports.

Conceptually, in the Lisbon cycling subsystem, working with the mayor-centred institutional arrangement of the elected municipal cabinets (*i.e.*, municipal governments, municipal executives) with leadership from the local mayor, the deputy mayors involve the subsystem in governance issues and help solve complex matters, despite cases of deputy mayors not necessarily possessing the legal-rational authority on their specific policy issues (Teles, 2014, pp. 6-7), nor the expertise, or possessing these but not being able to effectively involve coalitions in the policy process.

‘Devil shift’ and veto points: non-existent policy brokerage

With the role of elected leaders and/or political parties as policy brokers, Ingold & Varone's (2012) three steps for testing the hypothesis of identifying the role of brokerage provide a basis for confirmation of their existence or omission, and these were kept in mind when assessing the political realm around the specific issue in the anonymous case-study interviews conducted in this thesis:

(1) Policy brokers have first to be identified empirically as not taking part in or being placed at the border of one or another competing advocacy coalition, as they do not share their respective strong core beliefs. (2) The empirical analysis should then highlight the material self-interests of policy brokers which lead them to participate actively (despite the absence of strong core beliefs for the issue at stake) in the policy-making process. (3) Finally, there should be empirical evidence about the strategies implemented by policy brokers to engage in compromise finding between advocacy coalitions, while at the same time realizing their own interest (p. 323).

Policy brokerage as hypothesised by Ingold & Varone's (2012) three step test is taken by analysing the policy process, and the municipal government programs proposed and implementation events, and the positioning of major contenders to office during the local elections. Regarding brokerage between opposing coalitions, and considering the role of institutionalised veto points in democratic systems, and how they can be activated by advocacy coalitions, Lisbon's dominant automobility coalition functioned for various decades with cycling's status being ignored from the political discussion and absent from policy, and when it did appear, it was quickly vetoed by

the dominant institutional arrangement, as occurs to date habitually in the outlying metropolitan area municipalities and in several dimensions of Lisbon's different related policies. Lisbon's first cycleway, for instance, was built and inaugurated in 2001 using mostly green spaces, but a cycleway expansion only occurred eight years later, since 2009 and even then, as an implementation within the city's green structure, only entering the mobility department's agenda with recognisable scale in 2016. In this respect, Ingold & Varone's (2012) hypothesis applies, that *"If the political system offers several institutionalised veto points to advocacy coalitions engaging in the "devil shift," then policy brokers attempt to prevent advocacy coalitions from activating veto points and therefore have a great influence on the final policy output"* (p. 325).

The use of veto points is demonstrated in practical terms in the Lisbon case-study, specifically in the municipality of Oeiras where the local mayor has held power or has been closely linked to it, almost continuously, for over 37 years, since 1985. Regarding the use of veto points, PPB related occurrences, point to the hypothesis of no real policy brokerage in the municipality of Oeiras, illustrated since the 2014 PPB resulting in resounding public support for a coastal cycleway which was not accepted by the municipal cabinet (Auchapt, 2014; SIC Notícias, 2014).

Despite being part of an institutional policy mechanism, the citizen-proposed and -elected cycleway victory was a disruptive event upon the status quo of Oeiras' local governance, followed by the municipality's withdrawal of the PPB for five years, until 2019, when another cycleway proposal organised by the same participants won again, and implementation has not occurred to date either (2022). A cancellation of the PPB occurred for another year, and when reintroduced in 2021, once again another structural cycleway was proposed by the same participants, achieving third place among the batch of top five (later 10) leading proposals to be realised, thus a third consecutive victory. Once again, the proposal was ignored, and no PPB was conducted the following year. The 2021 proposal had the added complexities of removing through car-traffic from the historical town centre of Oeiras and was further reinforced by a similar proposal which assured the continuity of the cycleway to the neighbouring municipality of Cascais, which also won. These two proposals combined link several key localities along a 6 km strip of densely populated urban areas in both jurisdictions. In all cases, the winning PPB proposals for cycleways in Oeiras municipality have experienced veto points from local policy brokers and none had been implemented or are included in municipal plans (2022). Ingold & Varone (2012) conceptualise the possibility of conflict between very cohesive advocacy coalitions leading to the use of veto-points by the dominant coalition, posing difficulties for policy change: *"if very cohesive advocacy coalitions oppose each other, then policy change is very improbable as the dominant advocacy coalition will use institutionalised veto points to hinder any policy change"* (p. 324).

As the interactions of the cyclists' coalition and commonalities in the policy process for change regarding cycling are analysed, future pro-cycling developments are plausible; the question that emerges is their speed of implementation. The Lisbon case-study details into this and other events seeking paths for identifying effective change as it happens, and alternatively where it is sidelined into sub-optimal policy outputs, stalled, or vetoed. A key response to these questions lies in Ingold & Varone's (2012) advancement of the veto-point hypothesis and testing for it:

Robust testing of this second hypothesis includes four steps. (1) The identification of the institutionalised veto points that might be used by advocacy coalitions. (2) The empirical investigation should then demonstrate how the advocacy coalitions gradually engage in a "devil shift" through the threat of activating these veto points. (3) Furthermore, it has to be shown how policy brokers prevent this conflict expansion and the effective use of veto points. (4) Finally, the analysis should demonstrate that the policy actors belonging to the advocacy coalitions acknowledge the activities of policy brokers and value their mediating role within

the subsystem. In other words, a counterfactual reasoning is required to ensure that the policy outputs would have been different without the intervention of the policy brokers (p. 325).

Examples of policy brokerage involving the cyclists' coalition are addressed in section 3.5 Policymakers relation with cycling, structured from Oldenziel & Albert de la Bruhèze's (2016b) five factor analysis of cycling in European cities. Yet regarding the events referred to above, and Ingold & Varone, (2012) there have been no deals between the supposed policy brokers (*i.e.*, mayors) and the cyclists' coalition, direct outputs aren't produced from the negotiation, and policy brokers have maintained their original automobility-aligned position, revealing lack of openness for change.

Empirical elements for identifying policy brokers allow for advocacy coalitions to have an opportunity at addressing institutionalised veto points, and produce a '*devil shift*'; an exacerbation of how competing coalition actors view their opponents (Sabatier & Weible, 2007, p. 194; Sabatier, Hunter, & McLaughlin, 1987). The '*devil shift*' influences how policy brokers engage in conflict prevention, and their brokerage position within the subsystem as viewed by the several actors (Ingold & Varone, 2012, pp. 337-338). This exacerbation of conflict, as perceived by competing coalition actors, can ignite volatile conflict between opposing coalitions; for instance, in episodes of greater policy influence from the cyclists' coalition as it challenges the status quo of automobility and aims at redistributing public space from car lanes and/or car-parking to cycleways; different groups position themselves over the conflicting issue.

A common example of the '*devil shift*' in a car-centric context is when a cycleway is built in a city with low levels of cycling infrastructure and there are public claims of too many cycleways being built, to condition policy-brokers from approving cycling network expansions. Another common claim by car-centric critics of cycling is the existence of no cyclists and empty cycleways when in fact they are used (van Oosteren, 2021, pp. 30-34). The Portuguese colloquial term '*ciclovazias*'-cycle-empties- exemplifies this '*devil shift*', as does the term '*ciclonazis*', a dictatorship of cycleways, in a country where cycleway infrastructure coverage is lower than in most other Western European countries (OpenStreetMap.org, 2021), and linked cycleway networks are scarce.

While "*risk aversion among decision makers presents a major challenge for actors seeking to promote significant policy change*" (Mintrom & Norman, 2009), by taking the risk and investing their own personal resources (time, reputation, political hazard) upon a mobility system struggle, policy brokers' also advance their self-interests by means of their brokerage activities in policy development, and they also keep electorate dynamics in mind. Political parties, or local politicians, for instance, can advance new, appealing policies which in turn may increase the public's perception of their expertise, reputation, influence, and power in the subsystem. Within the same orientation, a political party may maximize power in achieving or conducting government, playing a key role in advancing the subsystem in committees, and increasing votes in elections (Ingold & Varone, 2012, p. 334).

2.3.3 Policy entrepreneurs

Besides policy brokers, policy entrepreneurs are the other principal coalition actors with significant influence on policy change in coalition interactions. Marsden et al. (2010) consider '*policy entrepreneurs*' as actors of particular interest to the study of policy learning, transfer, and change (p. 501). Considering the central role of learning and transfer of ideas and best practices in city governance, policy entrepreneurs are key coalition actors in activating the institutional mechanisms for change. Policy entrepreneurs navigate within the operational context of

relationships developed among the various actors working on policy change, linking citizens, activists, technical staff and decisionmakers/policymakers (i.e., policy brokers). Kingdon (1984) underpinned the key role of policy entrepreneurs in achieving change through the commitment of personal time, knowledge, interactions, and directing resources towards achieving the policy goals sought. Likewise, one of the Lisbon case-study policy brokers interviewed sums the role of the policy entrepreneur and his relation to the policy setting in a practical way: *“If I have a favourable environment for advancing, and I have an advisor who says that it is useful and it worked out very well there, then I advance.”* (Interviewee #9 – Former Policy Broker)

Brouwer & Huitema (2018) define policy entrepreneurs as:

highly talented and exceptional bureaucrats, who, just like their private counterparts, are constantly on the alert for new opportunities (for policy change) and have the capacity to “sell” and “market” new ideas. What distinguishes policy entrepreneurs from other participants in the policymaking process is their above-average willingness to take risks. Another distinguishing characteristic of policy entrepreneurs... is that they, unlike those who are only engaged in the generation of innovative ideas (“policy intellectuals”) and those who mainly translate ideas into proposals (“policy advocates”), are involved throughout policy change processes. A last distinguishing feature is that we restrict the term policy entrepreneurs exclusively to those individuals who change the direction of policies while holding bureaucratic positions (p. 1259).

Despite policy entrepreneurs' constraints - either as external consultants subject to contract terms and the possibility of no renewal, as advisors constrained by peers, their superiors (mayors or deputy mayors) and their operational contract terms, mostly dictated by the political mandates, or as public servants who must respond to hierarchical superiors in public governance chains, Brouwer & Huitema (2018) question if their strategies for policy change actually diverge from traditional bureaucrats and politicians and point to the need for more research in this area (p. 1271).

Weible & Carter (2017) observe that the policy entrepreneur concept has been investigated by numerous scholars across varied topics and settings (p. 30). Policy entrepreneurs differ from *‘private entrepreneurs’* who work for the private/business sector, and work beyond the limits of Marsden et al.'s (2010) definition of *‘consultants’* and *‘suppliers’*, who engage in the proposal and study of different options for implementing change in a governance setting (p. 510), especially due to their willingness to take risks (Brouwer & Huitema, 2018, p. 1259). Brouwer & Huitema (2018) also note that *“Policy entrepreneurs are generally ambitious first and foremost for the organisation or the public interest and not for themselves”* (p. 1271).

Thus, policy entrepreneurs assume critical positions for policy change within organisations. The difference between policy brokerage and policy entrepreneurship is crucial for understanding the nuances of an ACF analysis of policy process and change. The scholarship provides a variety of approaches defining policy brokers and policy entrepreneurs, sometimes interchangeably, using different roles within the same definition. Ingold & Varone (2012) warn of the different goals being sought by policy brokers in ACF application research vs. policy entrepreneurs in other academic conceptualisations of policy research, suggesting that

Some scholars favour a more economic way of defining policy brokers, calling them entrepreneurs: policy entrepreneurs act on a politically profitable opportunity (Holcombe, 2002, p. 143), have a competitive spirit (Schumpeter, 1961), are primarily self-interested, manipulate their environment, and have leadership qualities (Arce, 2001, p. 124). Other scholars are not so categorical and see entrepreneurs as usually creative actors who are nevertheless motivated by the pursuit of self-serving benefits (Kingdon, 1995, p. 204). The multiple streams framework further states that policy entrepreneurs play a crucial role in capturing

the attention of policy makers and manipulating it to their advantage (Zahariadis, 2007, p. 69). Other scholars are again closer to policy approaches but still highly prioritize the interest-driven characteristics of policy brokers (see, e.g., Schneider and Teske, 1992, p. 742), their specific political skills such as personality, charisma, and an ability to manage people (Kuhnert, 2001, p. 21), and to take advantage of inefficiencies in public management (Christopoulos, 2008) (p. 321).

A policy entrepreneur is a complex policy actor type, difficult to identify from outside the subsystem and capable of embodying different characteristics and approaches, and not always fitting into all the different scholarly conceptualisations. Nonetheless, regarding the cyclists' coalition, policy entrepreneurs can be identified, usually involved in boosting cycling policy close to policy brokers and working in association with these and with citizens and activists, therefore providing the fundamental link between the multidimensional chain of formulation and implementation in the policy process. Considering commonalities between comparable cities, a historical comparison of cycling's revival in different localities points to various policy entrepreneurship actions at work in those different cities where effective change occurred. An analysis of the periods preceding the key '*tipping points*' as exemplified by Veraart & Schipper (2020) and examined in section 2.5.12 below, provides important insights into different entrepreneurship interactions.

2.4 Policy actor interactions

"No man has the privilege to understand the future, unless he is prepared to create it." Fernando Pessoa, cited in Público (2021)

Heikkila & Weible (2017) define policy actors working within a coalition as being involved in interactions of influence, aiming at guiding policy development for their shared goals using "*their expertise and sustained involvement in attempting to influence the policy processes that ultimately shape societal outcomes*" in a given issue by means of involvement in government, non-profit organisations, the private sector, consulting and academia, citizen-based organisations and the media (p. 180). Policy actors interact by linking and associating to formulate and implement the outputs they believe will advance optimal outcomes, as *per* their shared beliefs and goals.

2.4.1 Links between individuals, communities of interaction, and organising

Links are formed among coalition members and beyond by means of personal communication, the media, and social networks, each playing a significant role within advocacy coalition actions for policy learning, transfer, and dissemination of ideas. The links between individuals and organisations can be viewed as the way they join into collective action, with a '*justified true belief*' emerging as social interaction evolves between individuals working with the policy issue. Nonaka (1994) argues that there is a relation between epistemological and ontological positions of knowledge, with these being negotiated and agreed upon in '*communities of interaction*,' to create knowledge, and differentiate between explicit knowledge acquired and tacit knowledge being shared, in a '*spiral*' of continuous dialogue (p. 15, 17-18).

These '*communities of interaction*' correspond to the policy networks discussed previously, but also have commonalities with other advocacy coalition forms of association and are in fact a step further into understanding the components of a basic network or subsystem involved in a policy issue, as discussed above, in section 2.2 on what are advocacy coalitions. Organisationally as these communities build into a cohesive '*policy community*' their interaction begins to take the form of a political association, initially at an informal level from which these begin to enter the policy process, even if just '*from outside*' conventional structures. The role of activists coalescing in a critical mass (CM) cycle ride is one path for this link (see section 2.4.3. below). On an academic and expert level, epistemic communities reveal another dimension of '*communities of interaction*' working on cycling as a critical issue in the policy process (see section 3.6.3 below). As a common denominator, what binds these connections since the first moment are shared beliefs (Sabatier & Jenkins-Smith, 1993), and the links they develop are what unite the policy actors solving problems around the issue a stake (Nonaka, 1994, p. 23).

The epistemological dimension of knowledge as it emerges from shared beliefs, *i.e.*, as they translate into an acquired, shared knowledge, is established as a common understanding: knowledge. This knowledge is viewed by the coalition as it needs to be shared in '*communities*', with coalitions aiming at advancing their influence by gaining ground in social awareness and understanding of their focal issue, and subsequently onto the political agenda. Within the ACF, linking between individuals and organisations, and outwards, with society, involves negotiation, forums, stimuli, policy conflicts, and policy actor attributes (Knutsson, 2017, p. 169). Therefore, from Nonaka's (1994) and Knutsson's (2017) advancements on organisational knowledge creation and coalition learning, it is by way of feedback from actions taken by individuals, from conflicts and discussions in a diversity of forums (politics, media, social movements) and from there the '*communities of interaction*' that emerge among actors, that opinions and belief systems advance into the coalition's knowledge base.

Weible & Carter's (2017) conceptualisation of '*linking*' as a form of extending the policy process beyond its typical scope of inquiry further explains policy-oriented learning between policy actors as a "*linking of input-output sequences across the boundaries of fields, as the effects of one spillover into the other*" (p. 36). Linking occurs by means of various mechanisms of policy learning and transfer including events such as institutional policy interchange forums (e.g., workshops, conferences, and other venues focusing on the policy issue). The cyclists' coalition has been involved in various policy information dissemination venues, interchanging best practices and new innovative ideas being experimented, considering various levels of interactions, from technical workshops aiming at local public officials (especially technical staff) to infra-local and local presentations, national and international conferences. Velo-city conferences (VCC) are a major international benchmark, launched and organised by the European Cyclists' Federation (ECF) held since 1980 (ECF, 2020a), but so are national venues promoted by national cyclists' agencies involving cities and regions, such as France's *Vélo & Territoires* association (Vélo & Territoires, 2021), Spain's *Red de Ciudades por la Bicicleta* (Red de Ciudades por la Bicicleta, 2021), or private firm Copenhagenize organising workshops aiming at local government officials and technicians, including traffic engineers, municipal architects and mobility department staff (Copenhagenize.eu, 2020), among others. Portugal lacks an organised permanent linking association between cycling cities, with one Portuguese city (Torres Vedras) being a member of the neighbouring Spanish *Red de Ciudades por la Bicicleta* cycling cities network association. Lisbon, on the other hand, has participated in several international programmes, initiatives, and city networks which work for larger capital cities, with the VCC bids in 2014 and 2018 having the collateral usefulness of municipal governance structures reviewing the policy area's '*state of the art*' while preparing the bid and reinforcing contact with the ECF and the local cyclists' coalition.



Figures 5 and 6

Velo-City conference shortlisted city evaluation by ECF delegations

Figure 5 at the intersection of Av. da República and Av. Duque d'Avila (November 2014). Figure 6 arrival at Lisbon Airport, with cargo-bike baggage transfer (November 2018).

Another source of linking between actors occurs with the media, communications, and social networks playing a significant role within advocacy coalition dissemination action. Knutsson (2017) suggests that with the role of advocacy coalition learning through the media as a policy forum, and influencing the creation of biases from heuristics; *“It would not be hard to think that the media attention both informs decision-makers directly, but also indirectly by influencing public opinion and thus generating expectations from the electorate.”* (pp. 175, 179). Heuristics, policy narratives, heroes and villains are all components inherent to the linking process strengthening policy actor interactions, but also acting as a double-edged sword against coalition goals depending upon how information is shared and treated in social networks and the media.

Within this line of thought, Shanahan, Mcbeth, & Hathaway (2011) quantify the impact of policy narratives on influencing public opinion, by providing different perspectives of policy actor interactions and links as these relate and evolve around a specific policy issue. Knutsson (2017) points to the dangers of biases in advancing a *“heuristic rather than a truly informed decision-making premise”* (p. 178) influencing policy learning and development. A caveat to bear in mind is further advanced by Carlsson (2017), noting that *“... stretching also occurs with heuristics, which are frequently confused with models, and even theories. In research, heuristics can assist learning, discovery, and problem solving, but as noted earlier, they are otherwise unjustified. When used appropriately, heuristics can help policy research, but exaggerating them by endowing them with other qualities—for example, those of a model—invites heavy criticism. Contrary to models, heuristics rarely map reality accurately; this is not their purpose.”* (p. 162) This caveat is kept in mind when analysing the links involving policy actor relations and their implications in policy organisations.

From links to organising

The fact that the ACF assumes policy actors as tending to form coalitions with those with whom they share beliefs rather than restricting their interactions with those with whom they share institutional affiliation, focuses on coalitions

as a group of actors, from diverse areas of the social and political realm (including elected and public agency officials, interest group leaders, researchers, activists and concerned citizens) who share a specific belief system constraints —*i.e.*, a set of basic values, causal assumptions, and problem perceptions— and who show a certain degree of coordinated activity over time (Sabatier, 1988, p. 139; Wagner & Ylä-Anttila, 2018, p. 876). Sabatier & Jenkins-Smith (1993) establish the significance of the coherence of '*policy core beliefs*' as a fundamental condition for identifying a coalition within an ACF investigation" (pp. 3, 226), one of the challenges inherent to this thesis on cyclists' coalitions and which is latent in the following chapters is the following:

What is the core belief of a cyclists' coalition actor? What incites these actors to jump from links to organising?

To understand what these beliefs are, and what incites actors to begin organising and coalition building, the following sections describe political typology associations on a general, conceptual level. Knowledge of these is fundamental to understand how advocacy coalitions work on a general level, and what mechanisms cyclists' coalitions activate for effective change, and which have been employed successfully in the Lisbon case-study.

2.4.2 Policy networks

A wide diversity of policy actors form an advocacy coalition working for a common goal, sharing common beliefs and values concerning policy issues. An association can also be considered an actor within this definition. Entire political associations involved in the coalition, or significant portions of these, relating with the policy issue to varying degrees, may also participate in an advocacy coalition with roles and functions attributed to them. Citizens, through their practices also integrate the coalition, also contributing to the base indicators of analysis regarding outcomes; in cycling this can be measured through cycling rates: *i.e.*, modal share within a mobility system or traffic volumes generated and compared through different counts (see Tables 6, 10, and 11, and section 4.9 Outcomes).

The conceptual definition of an association is relevant to this thesis' line of study, structuring mechanisms of influence in the policy process and which groups are most effective for temporal and geographical settings, working with different strategies within a given context. For these definitions Weible & Ingold's (2018) typologies of political associations are useful, especially since they're conceptually simple and applicable to a wide-range of different political types of organisations, readily adaptable to the context verified in different cyclists' coalition cities (Chapter 3), the Lisbon case-study (Chapter 4), and for further research on advocacy coalitions working for policy change.

Marsh & Rhodes' (1992) typology of '*policy networks*' builds on a generic research element of governance and is categorised into sub-elements, taking a step closer to the line of research being developed here, addressing an issue of '*policy influence from the outside*', as it organises as an element for policy change. Differing from Jordan & Schubert's (1992) definition of the '*iron triangle*', employed for researching closed and stable relationships between interest groups, government agencies, and American congressional committees (p. 21), this type of conceptualisation difficultly applies to the '*policy influence from outside*' being studied in this thesis. My focus is on a coalition which is ignored, excluded, and marginalised, which is the case for cyclists until very recently in Lisbon and to date in the AML. At best, perhaps Rhodes' (1990) equivalence of an '*iron triangle*' to the concept of '*subgovernment*' provides a closer analogy to the policy network functioning within the cycling subsystem being analysed, and specifically to the notion of a '*policy community*', corresponding to the idea of the cyclists' advocacy

coalition with a foothold in the governance process. No matter how frail the cyclists' policy community may be, where it is possible to form "small groups of political actors, both governmental and nongovernmental that specialise in specific issue areas" and where "the distinction between government and non-government becomes blurred" (p. 297), sparking a coalition is conceivable.

Carlsson (2017) clarifies and updates Marsh & Rhodes' (1992) typology of policy networks, which helps to explain how networks develop and are organised by different actors, how advocacy coalitions form and what they are constituted of, and how policy networks develop within the broader policy realm, which at different points and dimensions interact in the policy process for change. To help distinguish inevitable conceptual overlaps in these networks, Carlsson's (2017) clarification applies:

Policy Community: *A policy community is "a special type of 'stable network' that has advantages in encouraging bargaining in policy resolution. In this language the policy network is a statement of shared interests in a policy problem: a policy community exists where there are effective shared 'community' views on the problem. Where there are no such shared views no community exists" ...Policy communities are characterised by "shared experience, common specialist language, staff interchange, and frequency and mode of communication" (Jordan, 1990, p. 327).*

Epistemic Community: *This is a label for capturing "network[s] of professionals with recognised expertise and competence in a particular domain and an authoritative claim to policy-relevant knowledge within that domain or issue area" (Haas, 1992, p. 3).*

Issue Network: *These types of networks are formed by actors in possession of special knowledge in relation to a particular issue. Thus, issue networks are understood as "shared-knowledge group[s] having to do with some aspect (or, as defined by the network, some problem) of public policy" (Hecl, 1978, p. 103).*

Advocacy Coalition: *Such networks have proven to be important units of analysis in understanding policy change over time. Advocacy coalitions consist of "people from a variety of positions (elected and agency officials, interest group leaders, researchers and so forth) who share a particular belief system—a set of basic values, causal assumptions, and problem perceptions—and who show a nontrivial degree of coordinated activity over time" (Sabatier & Jenkins-Smith, 1993, p. 25). These constitute specific subsystems within which coalitions compete. These subsystems can be understood as issue-specific networks.*

Implementation Structure: *Inspired by (Pressman & Wildavsky, 1973) ground breaking study of the implementation of policy programs, this concept has been launched as a new unit of analysis (Hjern & Porter, 1981). "An implementation structure is understood as a group of actors trying to solve a common policy problem. This unit of analysis is not understood by reference to political administrative logic. An implementation structure is defined by its participants" (Carlsson, 2000, pp. 505-506).*

Public Energy Field: *The public energy field represents a discourse analytic tradition within political science. Public energy fields should be understood as "the playing field of political discourse; here is where public policy gets created and recreated... **Energy** implies that the field is sufficiently charged with meaning and intention" (Fox & Miller, 1994, p. 10).*

Policy Narratives: Similar to the previous, this concept represents a postpositivist image of policy making. According to (Jones & McBeth, 2010, pp. 340-341), policy narratives are structured by four features, a “setting,” a “plot,” “characters,” and a “moral of the story, where a policy solution is normally offered.” These structures are suggested as the relevant unit of analysis when studying the policy process.

Policy Stream: Kingdon (2003) asserts the policy process is composed of three “streams:” politics, problems, and policy. According to this framework, two more components are necessary to put ideas on the agenda: policy entrepreneurs, who can push and facilitate processes, and windows of opportunity to make decision making possible. A policy stream thus has qualities akin to those of policy networks.

(Carlsson, 2017, p. 154)

2.4.3 Citizens’ spark

Scholarship focusing cyclists’ policy networks has employed the term ‘*human infrastructure*’ (Lugo, 2012, pp. 41-46; Lugo, 2013) as forging a link between citizens and organisations as they act collectively introducing the issue-specific networks into the general public’s agenda. The ‘*human infrastructure*’ is loosely associated with an ‘*implementation structure*’ dealing with a common policy problem as per Carlsson (2000), Carlsson (2017), Pressman & Wildavsky (1973), above. This ‘*human infrastructure*’ is defined by its participants, habitually starting with actions such as in Critical Mass (CM) cycle rides and Bike Kitchen collaborative community bicycle repair collectives (known in Portugal as *Ciclofincas*), or other creative street level initiatives. Regarding citizen’s interactions triggering local citizen activism, Balkmar (2020) suggests that while conventional cyclists’ organisations have worked trying to influence policy-shaping transnationally and nationally, grassroots organisations have conducted regular public cycling events locally, to reclaim road space with hands-on activism, such as installing ‘*ghost bikes*’ at critical collision points where cyclists have been killed by motor traffic, street protests, blocking traffic, and improving cycleways with do it yourself (DIY) paint and repair actions (pp. 325, 338).

Within the regular events conducted by grassroots cyclists’ activism where any participant in the public realm can join in, Furness (2007) points to CM cycle rides as an initial spark for transformation, allowing citizens to “be able to theoretically understand how life could transform in a different political or cultural milieu, ...it is almost impossible for one to work towards radical change if they have never experienced life outside of the paradigms of capitalism and consumption. What Debord refers to as an experiment in culture or what Borden refers to as performative critique are analogous means to initiate a break with the function and ideology of the lived environment – a way to see beyond the confines of ‘the society of the spectacle’ (Debord, 1983)” (p. 306).

According to Furness (2007), citing Debord’s (1957) approach to experimentation as it engages with citizens, transforming the spectator into an active element of collective action, taking the citizen a step further into practicing his/her citizenship by activating the street level collective action spark: “the most pertinent revolutionary experiments in culture have sought to break the spectators’ psychological identification with the hero so as to draw them into activity by provoking their capacities to revolutionize their own lives” (Debord, 1957, p. 13), cited in Furness (2007) p. 306.

In fact, the CM ‘*implementation structure*’ introduces one possible first step towards coalition building, towards setting beliefs that invert the roles of ‘*heroes*’, from automobility centred roles to those of common citizens engaged

in transformative policy action (towards becoming and accepting a system outsider, the cyclist, as the new hero in the automobility dominated streetscape). These implementation structures have evolved to more advance levels, also experimenting with other resets of the public space, such as clandestine DIY road repairs painting cycle lanes where authorities have consistently refused to implement adequate cycling outputs, or quickly implemented officially coordinated long-term oriented tactical physical street space interventions. Examples of these officially promoted tactical urbanism events include temporary play streets, open streets, and other road interventions to permanent intersection painting and repair, retail, restaurant. and café street parklets substituting automobile parking, guerrilla gardening and depaving sessions, to sidewalk widening and pop-up cycle lanes to numerous other mechanisms for recovering street space from automobility and returning it to people and the city (Lydon, 2012).



Figures 7 and 8

Av. Marginal during an EMW open streets day and on a weekday open to car-traffic

Figure 7 –Carcavelos Beach, Cascais on a car-free morning in September 2015. Figure 8 - Marginal Avenue at Paço de Arcos, Oeiras, May 2020

Another level of grassroots citizen activism that supplements the initial spark is online, either preceding or complementing local implementation structures disseminating information via digital social network platforms such as *Twitter, Facebook, Instagram, YouTube, WhatsApp, Telegram*, etc. and (previously) with online blogs. Balkmar (2020) outlines how online activists seek to promote cycling as a mobility choice from real-life cycling experiences concerning safety, traffic interactions and modal conflicts, infrastructure, or lack of, media coverage of cycling, negative attitudes towards cyclists, and car-free lifestyles. By addressing the current reality of these issues from a different perspective to that exposed in mainstream communications channels, they also propose different solutions and futures for society while critically assessing the dominant '*sociotechnical*' system, including the thought of life without a car (pp. 334-336). In this respect, Aldred (2010) underpins that '*cycling citizens*' contribute with policy views '*from outside the motor-car*' linking cycling, their mobility practice, with its natural local level relationships, and their aim of contributing to safer, cleaner, friendlier settings, and a diversity of connections (p. 35).

These views are also conceptually associated to views '*from outside*' the dominant automobility arrangement working in urban mobility systems, with implications sparking other policy actions associated with the cyclists' coalition. Balkmar (2020), for instance, relates Aldred's '*cycling citizenship from the outside*' with bloggers'

communicative work on the internet (p. 336), which I consider extensible to the most recent uses of digital social network platforms used by cyclists' coalition members. Considering the Lisbon case-study, interviewees #1 Citizen, #3 and #6 Activists, #5 Policy Broker, and #11 Journalist, mentioned the impact of on-line activism. Interviewees #6 and #11 mentioned the role of online communication in a large, sprawled city, keeping the discussion levels of intensity relatively high. This high level of intensity between the monthly CM rides where citizens would meet and discuss issues in person (Interviewee #6 – Activist), while reclaiming city streets, would no doubt play an important role in Lisbon's cyclist coalition interactions.

2.4.4 Policy organisations and political associations

From the different cyclists' coalition events, operationalisation within the policy process filters in by different means (e.g.: media, social networks, communications, direct contacts), even if only very slightly at first and with no apparent impact. Policy actors are understood as acting within varied definitions of what is considered a political association, commencing as individuals, or general citizens (Weible & Ingold, 2018; also Table 4 in section 2.3, above), and beginning their first steps of coalition building by associating politically, into policy networks (Section 2.4.2 above), and/or by creating what Lugo (2012) terms as '*human infrastructure*' (pp. 41-46), which can be the first stage of action from thought and concept to implementation. This '*human infrastructure*' functions as an initial stage of the '*implementation structure*', with CM rides and collaborative community bicycle repair collectives acting as community co-operative, co-governance, and co-creation mechanisms of a much vaster global social movement (Carlsson, Elliott, & Camarena, 2012). These community-based grassroots initiatives work collectively with citizen engagement by associating into small non-profit organisations "*aimed at providing a venue for people to learn about the bicycle and build community around promoting sustainable transportation*" (Bike Collectives Network, 2014). From this '*human infrastructure*' the coalition also enters formal organisations, political parties, and official government departments, with varied actors playing decisive roles, to varying degrees of influence and intensity within the decision-making process. In fact, 8/11 (73%) of the Lisbon interviewees in the case study, including a former policy broker, mention CM as one of the first policy actions observed the city's policy change regarding cycling.

Weible & Ingold's (2018) comparison of advocacy coalitions to other forms of political association condenses the types and attributes of policy organisations, providing a structure to organise policy actor associations, by differentiating key features; formal or informal organisations/citizen/activist-based or institutional/common perspectives (beliefs) or other purposes/temporal stability or ephemeral associations (p. 328). Table 5, below, sums these associations which are used in the analysis of the cyclists' coalition and the case-study.

Considering policy actor interactions aiming at policy change, this synthesis of political association types and attributes clarifies policy process interactions within the phenomenon (of increased cycling) and provides keys into the existence of an advocacy coalition. Confirming this existence, the coalition is the most relevant policy actor involved in the diverse interactions, formulating, and implementing policy outputs, with the respective outcomes achieved. An analysis of the independent, or explanatory, variables at play confirms transferability, replicability, and opportunities for policy learning from and to other cities, as addressed in section 3.1 - Comparable cities and regions. The qualitative case-study research on the Lisbon cyclists' coalition and its influence on policy change during the thirteen-year 2009-to-2021-time frame confirms the hypothesis, even in a setting with a baseline of very low cycling modal shares.

Table 5 - Comparing advocacy coalitions to other forms of political associations
(from Weible & Ingold, 2018, p. 328 Table 1)

Types of political association	Attributes of political association				
	Type of political association	Formal or informal membership	Type of actors involved	Glue binding network together	Stability
	Advocacy coalition	Informal	Any 'policy actor' or individual or organisation seeking to influence public policy	Common beliefs or values about a policy issue	Usually stable
	Coalition of convenience	Informal	Any policy actor	Common beliefs or values about a policy issue	Ephemeral, usually around a specific policy decision
	Epistemic community	Informal	Experts, usually scientific, seeking to influence public policy	Common knowledge about a policy issue	Stable or ephemeral
	Social movement	Informal	Citizens and policy actors	Common beliefs or values about a policy issue, usually at the societal scale	Ephemeral
	Political party	Formal	Citizens and policy actors	General and specific policy issues and strong focus on electoral campaigns	Stable
	Interest group & interest group coalition	Usually formal	Led by policy actors affiliated with the association with citizen membership	Policy issues related to the organisation	Stable or ephemeral

Advocacy coalitions

Policy change over time and the people engaged in transformative policy structures can start with basic '*human infrastructures*' from a leisurely cycle ride, develop over time into an '*implementation structure*' and organise into full-fledged citizen participation and activism, and from there organise into formal associations; interest groups, such

as cyclists' associations, epistemic groups of experts and/or academics working together from a multidisciplinary approach, entering and/or creating organised research groups in universities and think tanks, and/or any of these individuals or organisations working with consultants, public officials and different levels of government (epistemic communities), and in conjunction, operationalise the entire structure as a broad-based encompassing coalition (advocacy coalition).

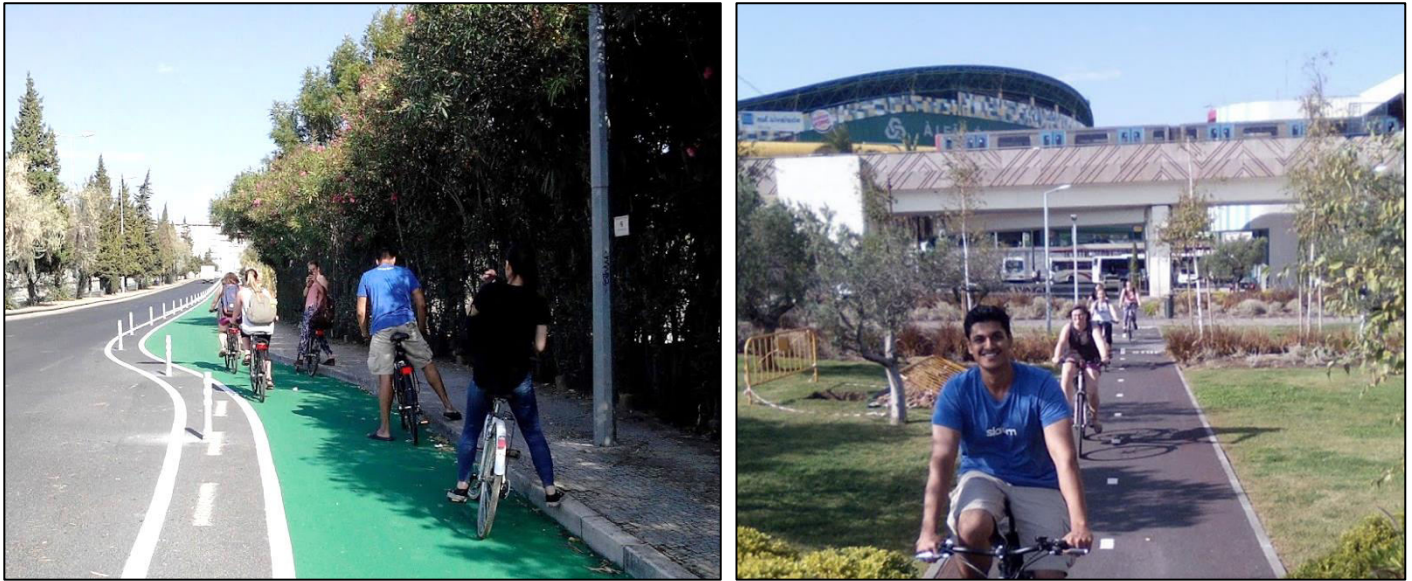
These individuals work together as '*policy actors*' within a broad base of organisations, different people holding a variety of positions in society and politics, sharing common perspectives, a particular belief system with its base values, assumptions, and perceptions within an issue-specific network as an advocacy coalition. From insights upon policy actor interactions working within the constant debate on urban policy, the cyclists' coalition is at the vanguard of challenging the dominant automobility coalition on its most sacred resource, the car's occupation of public street space and infrastructural budget allocations. By challenging a wide range of social, political, and economic perspectives which are central in assuring automobility's political centrality, and its pervasive influence within a series of policy subsystems —public space, land use, mobility, environment and climate, health, family, urban, and social justice policies— the cyclists' coalition engages, or could engage, in a prolonged confrontation with automobility coalition for effective policy change. An ACF analysis requires qualitative insights, obtained from research and policy actor interviews, but also an adequate time frame as mentioned previously, in 1.4 Starting point and how to respond to it, and quantitative data for validating outputs produced and to establish a relation with outcomes.

Epistemic communities

Epistemic communities are composed of experts sharing common knowledge about the policy issue at stake while seeking to influence public policy (Weible & Ingold, 2018, p. 328). The actors which make up epistemic communities are experts on the policy issue: scholars, researchers, policy issue related consultants and '*designers*' or planners, working within their broader community, with their common value base on the phenomenon they're working on. Jones & Baumgartner (2005) point to individuals and organisations advancing knowledge of the issue and choosing the relevant options they can operationalise when pressure builds-up and/or crises situations emerge (pp. 48-54). Baumgartner (2013) suggests that from the knowledge advanced policy actors in a network question the failings of the status quo and take advantage of events (see 2.5.10 – Events), and '*windows of opportunity*' for change (see 2.5.12 – Tipping points). Haas' (1992) definition of an epistemic community is that of a "*network of professionals with recognised expertise and competence in a particular domain and an authoritative claim to policy-relevant knowledge within that domain or issue area*" (p. 2; see also 2.4.2 Policy networks, and Table 5 above). Cyclists' epistemic actors, for instance, have been central within the cyclists' coalition, as per section 3.6.3 below. Weible & Ingold (2018) conceptually exemplify that one of the possible ways epistemic communities act within the ACF is that of being a '*subset*' of the advocacy coalition, grounded upon the pivotal role of being scientific experts that inform the decision-making process (p. 328). Within this line of thought Jones & Baumgartner (2005) underpin the role of information-processing in the '*politics of attention*', which is summed as follows:

On any given day, policymakers are required to address a multitude of problems and make decisions about a variety of issues, from the economy and education to health care and defence. This has been true for years, but until now no studies have been conducted on how politicians manage the flood of information from a wide range of sources. How do they interpret and respond to such inundation? Which issues do they pay attention to and why? ...questions on decision-making processes and prioritisation in "The Politics of Attention" ... (are based on an) information-processing perspective. ...the allocation of attention and the

operation of governing institutions into a single model that traces public policies, public and media attention to them, and governmental decisions across multiple institutions. ... the responses of policymakers to the flow of information. ... how the system solves, or fails to solve, problems rather than looking to how individual preferences are realised through political action. (Jones & Baumgartner, 2005, abstract)



Figures 9 and 10 – Epistemic interaction

Master of Planning students from Ryerson University (Toronto, Canada) surveying Lisbon's urban transformations and cycleway expansion in October 2017.

Another aspect of epistemic communities is their role as coalition building entities. Within the cyclists' coalition even the operational location and social area of influence of epistemic communities can play a role. Epistemic communities with research groups involve and build-up upon the role of scholars, academics, and innovative consultants working with these. In this respect universities are important innovation hubs and laboratories (Mota et al., 2019, pp. 232-234), where epistemic groups work, with the universities themselves also playing a practical role in policy change in various aspects, including that of promoting cycling through a diversity of means, implicitly by the nature of student's lifestyles, campus locations and layouts, and the basic mobility needs of a university community, but also intentionally when universities play a role in related policy development.

Pucher (1997) points to universities and large student populations as a key factor for greater cycling in German cities with the highest cycling mode share (pp. 35-36). Mota et al. (2019) further unravel the impacts a bike-friendly campus (BFC) engaging with university communities as agents for change with impact on the surrounding city, even in societies such as Portugal's, where cycling rates and outputs are generally incipient (Mota et al., 2019, pp. 229-231, 234).

Social movements

Advocacy coalitions act in function of a common perspective around a subsystem and related policy issues, yet their interactions also are intertwined with other policy issues at an even broader, societal scale (Weible & Ingold,

2018, pp. 328). The connections between advocacy coalitions and social movements are relevant for understanding political relations and to define a research agenda on shaping policies (Weible & Ingold, 2018, p. 340), and the broader outcomes of these interactions. Social movements, for instance, have a long history of interaction with local cyclists' coalitions in those cities where grassroots struggles actively seek greater street space equity and related citizen's rights. Where this link is most intense there has been effective collective action, with impact in several European cities (Oldenziel & Albert de la Bruhèze, 2011; Oldenziel et al., 2016), from family sovereignty to children's autonomy, from women's rights to environmental concerns, from neighbourhood conservation to public health and safety, interrelated issues are numerous. By researching four specific social movements —feminists, socialists, anarchists, and environmentalists— Horton (2009) portrays the bicycle as a vehicle for social change (p. 18). Similarly prominent Lisbon cycling activist and the city's first '*bicycle mayor*' referred to the bicycle as "*a trojan horse*", useful in introducing broader change within society; "*our needs to strive as humans.*" (Mortensdatter Mo, 2019, p. 35)

Social movements differ substantively from advocacy coalitions, as illustrated previously in Figure 2. and described in section 2.2 – What are advocacy coalitions? Social movements are broader based and focused on non-institutional contestation of dominant mainstream cultural values, while advocacy coalitions work both outside, with and within the institutional framework, directly with the policy process. Social movements and their relation to the cycling subsystem and cyclists' coalitions are analysed in detail in section 3.6.4 – Social movements and cycling, as an element of the cyclists' coalition policy process involvement as it relates with citizens, associations, and advocacy coalition-building. In general terms, the relation between social movements and advocacy coalitions could be defined as the coalition being an essential link between related aspects of the social movement and the institutional policy process.

Political parties

Political parties are an unavoidable topic when seeking the advancement of knowledge on how political associations interact for policy change, especially when considering relatively short time frames, less than one decade but within at least one government mandate. Wagner & Ylä-Anttila's (2018) research on the policy formulation of Irish Climate Policy between 2011 and 2015 suggests the important role of working with political parties for effective advocacy coalition influence upon policy development. Despite the Irish climate coalition's efforts, these didn't translate into effective policy influence, as the coalition was not able to integrate within the most influential parties when the national climate policy was being developed in Ireland during those four years. During this government mandate, the result was that of weakened, ineffective climate policy outputs. For advocacy coalition influence on the policy process, a four-year political mandate time period doesn't suffice.

Notwithstanding the existence of an advocacy coalition grappling over a policy issue, a longer, prolonged struggle is necessary for social permeability and effective results, with a minimum one decade time frame being required (Sabatier, 1988, p. 131). Contrastingly, political parties are guided by different timespans based on relatively short-term government mandates, usually lasting around four years, and party thought is focused more on electoral campaigns and corresponding votes than on specific programmatic issues. Yet the influence political parties have upon the policy process is inevitable, and by interacting with parties and helping define policy aligned targets, a major boost for political commitment can be achieved. Wagner & Ylä-Anttila (2018) summarise the handicap of not working within political parties as follows: "*The omission of targets reflects the preferences of the two government parties, which were concerned about how targets might affect their plans to expand agricultural output*" (p. 876).

The relevance of political parties and politicians is also associated to their role in policy brokerage (see section 2.3.2 above), as they could work effectively with advocacy coalitions seeking policy influence, interacting in both directions: influencing party programs and reverting specific program targets which are formulated and implemented as policy outputs, with social impacts measured as policy outcomes. Advocacy coalitions which lack relationships with political parties compromise their full potential for policy change. During the 2011 to 2015 Irish climate policy formulation, for instance, the lack of influence from advocacy coalitions within the leading party attests to this: “*Fine Gael’s lack of cooperation ties may reflect the fact that, as the main party in government, it did not need to engage in coalition building to get its way*” (Wagner & Ylä-Anttila, 2018, p. 881). Ingold & Varone’s (2012) analysis of political parties as important policy brokers further notes that for democratic systems, “*where political parties are central actors, then it makes sense to consider them explicitly*” (p. 322). Regarding Irish climate policy “*The most significant organisations to see their preferences reflected in the law were the two parties in government, Fine Gael and Labour, and the two most influential organisations involved in the agricultural sector, the DoA and the IFA*” (Wagner & Ylä-Anttila, 2018, p. 885). From here we can infer that interactions between key institutional decision-making policy organisations brokered influence from their most relevant policy actors; decision makers and policy-brokers (Sabatier, 1988).

ACF research focuses on how significant levels of influence are processed from key interactions and episodes, thus the role of political parties is a fundamental element in the policy process being considered. Regarding a specific subsystem issue (cycling), a survey of key official organisations (*i.e.*, political parties, national government and public agencies, and municipal governments) and responses from their chief policy actors provides relevant insights as to how these important policy organisations decide and influence specific subsystem policy outputs. In a democratic system, however, the overarching support for all this comes from the elected part of the governance realm, and political parties are composed of citizens and policy actors working within the governing agenda. A case in point, regarding the ideological approach observed when cyclists’ coalitions managed to influence the policy process in Portugal’s road safety debate manifests the possibility of political party involvement, with different institutional powers exercising an ideological and political practice differing from the legislated implementation produced in strategic documents (*i.e.*, the Traffic Code, for instance). Section 4.5 on policymakers’ relation with cycling in Lisbon in the policy process reveals political parties’ dimension in policymaking related to the national Traffic Code, local events, and interviewee’s insights.

In a different, more local dimension, political parties also play a central role in presenting different perspectives for policy influence for change, aligning their programmatic political views with different interest groups and coalitions for collective electoral action. An example of this is provided with the city of Arcata, in Humboldt County, California. Arcata has been regarded as a trendsetting city in the USA for implementing impacting environmental policy, with a set of varied measures aiming at change.

Over twenty years ago, Beatley (2000) already assigned an impacting ‘*green-urbanism political agenda*’ with the fact that Arcata was the USA’s first Green Party majority city council from 1996 to 1998 (and again from 2004 to 2006) introducing innovative measures for improved environmental performance, uncommon in the American setting. Large surface retail stores were halted, with positive impacts on downtown street-front stores and new political alliances established with local stakeholders. Local business, for instance, understood the advantages of these measures: “*Our sales are up 30% to 40% over last year. There are never any vacancies on this plaza. There’s no boarded-up storefronts. The council is not opening us up to the big box stores, and they are keeping this a viable economy. They are not letting anybody just build anything they want.* (Curtius, 1998)” (Beatley, 2000, pp. 362-363). University towns’ greater openness towards progressive attitudes also correlates with Arcata’s

breakthrough Green Party politics for the USA, common in epistemic centres. Some of Arcata's '*green political agenda*' policies were also adopted in other progressive US cities with local epistemic communities, including Davis, California (Beatley, 2000, p. 255), the city in the USA with the highest cycling rates and with the largest employer being the local University of California campus (Handy, Heinen, & Krizek, 2012, pp. 260-261).

In fact, the role of Green Parties has been crucial to much of the policy change achieved in various European countries, regions, and cities, associated with an agenda of environmental and social justice, many times in coalition with other parties such as the centre-left European social democratic and socialist parties, and occasionally with centre-right Christian democratic parties which share some common values. Among the most impressive changes in the German cities of Freiburg and Münster in the 1970s, and the Austrian capital Vienna in a '*red-green*' coalition with the centre-left social-democrats between 2010 and 2020, introducing concepts such as "*citizens' participation in planning processes, reduction of car traffic, better public transport and bike infrastructure, school reform, investment in renewable energy, measures to fight against child poverty, more women in top jobs,...*" to the municipal agenda (European Greens, 2010).

The ten-year Green party participation in Vienna's municipal ruling '*red-green*' coalition brought about significant policy change upon the city's urban policies, advancing with the long-term overhaul of the city's mobility system and with notable results for cycling (Buehler, Pucher, & Altshuler, 2017). The German '*red, yellow and green*' national coalition government formed in November 2021 worked with pre-election issues for an overhaul of Germany's transport sector, with cycling and rail gaining prominence, and other related environmental measures expected for the following mandate (Graupner, 2021), promising policy process events and change. Likewise, Pucher (1997) considers that the cycling boom experienced in western Germany from 1972 to 1995 was a result of public policy, and that this was influenced by a number of factors, especially in cities with university students, their environmental consciousness and the role of the Green Party (p. 35).

Remarkable gains were also achieved by the Green party in the June 2020 French municipal elections, winning in some of the largest cities in France —Lyon, Marseille, Bordeaux, Strasbourg, Grenoble, Besançon, Poitiers, Annecy, and Tours (European Greens, 2020; Reuters, 2020)— and entering the municipal cabinet in Paris in coalition with the ruling centre-left socialist mayor Anne Hidalgo, and the far-left communists (Willsher, 2020). Even in some of the French cities where the Green party didn't gain office in the 2020 municipal elections, such as Lille, the robust Green results placed them as a leading opposition force, providing an opportunity for relevant influence in the political debate and agenda-setting, enhancing impacts upon electorate dynamics and policy change.

Advocacy coalition members' entry into politics, the realm of political parties and their forum of debate provides an added bonus for activating broader channels of communication to the public in general, and voters in particular, through agenda-setting (McCombs & Shaw, 1972, pp. 180-181, 184-185). Coalition members entering the political debate —and ultimately policy brokerage— have played a key function for policy influence, and local examples of the efficacy of these interactions with the cyclists' coalition are numerous. Groningen's 1977 traffic plan, for instance, liberating its city centre from automobility's hold, implied a programme-oriented politician taking power to activate change. Despite cycling's uptake being directly related to a latent demand for cycling and a traditionally high pre-existing cycling mode-share without the drastic political action of eliminating through car traffic from the city centre the '*window of opportunity*' and respective '*tipping point*' wouldn't have happened as it did (2.5.12 – Tipping points).

As a young councillor in Groningen entering politics in 1970 and taking office as deputy-mayor in 1972, by 1977 Max van den Berg became the political catalyst for introducing the city's revolutionary *Verkeerscirculatieplan* – *Traffic Circulation Plan*, helping boost his city into one of the world's top benchmark cycling cities with one of the

highest cycling modal shares. Max van den Berg started as an activist and researcher, but upon entering the Dutch Labour Party (PvdA) and getting actively involved in politics, he achieved some of his aspirations for change, as he states in Bruntlett & Bruntlett's (2018) *Building the Cycling City* book: "If you only stay in a citizen's group, then you usually just end up fighting against politicians... You have to integrate yourselves with the politicians, convince them via knowledge, and sometimes yourselves run for office." (p. 49).

Twenty-two years after Groningen's revolutionary *Traffic Circulation Plan* was launched by Max van den Berg, just north of Portugal's border, Pontevedra followed the same pattern of abrupt policy change, closing its city centre to through car-traffic in 1999, when Miguel Anxo Fernández Lores became mayor. Anxo's path for involvement and change in Pontevedra has some similarities to van den Berg's in Groningen; after twenty five years of social and environmental activism, and twelve years as an opposition councillor in city hall Anxo took office (Puga, 2011). As with van den Berg, Anxo Fernández Lores gained office by interacting and participating in a political party structure, with a programme-oriented agenda for the city. Pontevedra's political and cultural context is not so far from the reality of many Portuguese small and mid-sized cities.

In 1999 Pontevedra didn't have a cyclists' coalition, and no direct involvement with it is known, but the aligned struggle to recover street space from automobility and returning it back to the people was part of Anxo's local agenda, aligned with environmental, health, and quality of life issues which entered local politics through social activism, political interactions, and policy brokerage as a leading local individual in the regional Galician National Bloc left party (BNG). As soon as Anxo Fernández Lores took power in 1999 he changed the city's mobility priorities with the pedestrianisation of the entire city centre and reduction of speed limits and access in the outer neighbourhoods (Burgen, 2018; Reguly, 2020). Pontevedra's plan didn't take cycling directly into consideration, but by removing automobility's dominance, both walking (and cycling) were re-established as the most viable mobility modes, at least in the denser city centre.

Both Groningen and Pontevedra are benchmark cities regarding policy change with impacting outputs produced and quick impacts upon their mobility systems. But for these quick impacts, an intricate background of political party involvement and politics had already been operating in the respective localities. The role of local citizens and activists working in political parties was in both cases key, first as secondary figures, or opposition, followed by gaining leadership and policy brokerage. In both cases the role of political parties, their leading local figures gaining office and assuming the role of policy brokers has provided impressive policy outputs and outcomes, resulting in quick impacting policy change. Without these political party interactions such drastic change wouldn't have happened in Pontevedra or Groningen.

Interest groups

Interest groups are another important form of political association involved in policy change and playing a visible part in the coalition's endeavours. Interest groups emanate from activists, with individuals affiliating in these associations. Their collective action can be infra-local, local, regional, and national, working at one or all levels, with specific policy issues in mind. Rubin (2018) conceptualises focal catalytic coalition organisations (FCCO), such as the 'housing for the poor' advocacy groups working in American cities as formal, member affiliated structures with resources working and lobbying at the national-level, near the structures of national power in the USA, mostly in Washington DC (pp. 6-8). Considering the cyclists' coalition at the European level, the European Cyclists' Federation (ECF) has been an effective central cyclists' coalition interest group, working towards structuring itself as a potential FCCO in Brussels, where EU level policy decisions occur, and the ECF headquarters representing

national cyclists' associations and federations. Aligned with ECF are the Confederation of the European Bicycle Industry (CONEBI) and also Cycling Industries of Europe (CIE) which sprung-off from ECF.

The scholarship on interest groups and interest group coalitions, even from very different policy-making contexts, provides useful conceptual elements for understanding potentially effective tools for leveraging collective action coordinated by an advocacy coalition. Rubin (2018) identifies common formal interest group organisation tasks, even for those organisations of smaller scale and with scarcer resources, namely: membership recruitment (increasing aligned policy actors), choice and prioritisation of issues, research and data gathering, information dissemination, issue framing, lobbying with elected officials, lobbying with regulators and administrative officials, building solidarity within the coalition, and legitimising support for the interest group (p. 7). These interactions are interchangeable with activists and activist associations as they are analysed within this thesis' ACF study of policy change.

Epistemic groups such as common issue think-tanks and research organisations also function complementarily to interests groups and, in some cases, overlap with these, especially as they act in response to interest group or coalition objectives, working to advance expertise, and obtain funding and resources for interest group member organisations, to tackle the most pressing challenges the coalition is facing in policy conflicts at the time. When policy issue problems persist and challenges pose an enduring endeavour interest groups may coalesce and organise themselves into an international, national, regional, or local level FCCO, as can happen at the European level by uniting cyclists' interests at the broader level; for example, uniting associative and industry interest groups, epistemic groups, and street-level activists.

Interest group coalitions

Interest group coalitions generally start by dealing with a limited number of issues, for instance the need for a cycleway or a cycleway network, which lead to the formation of political associations to better articulate an advocacy group, but as issues evolve to a broader scope of related problems and larger issues of concern to social advocacy (Rubin, 2018, p. 9), these interest groups become more encompassing, forming a broader based advocacy coalition. Integrating NGO's (organisations which fit into the *'interest group'* typology) and citizens in governance decision-making, by advancing an environmental perspective within the institutional instruments available in a specific setting (country, region, or city) can be achieved by use of meta-issues associated with the subsystem and policy issue. Cycling in a city, for instance, can be related to the implementation of Local Sustainability Agendas, such as the Local Agenda 21 (LA21) or the updated Localised Agenda 2030 (LA2030) goals.

Environmentalists and a diversity of community-based NGO's have played significant roles in educating, informing, and working with the public by getting work done, contacting media, local business groups, and citizens, which would be of greater difficulty for a government structure to accomplish. These interactions include participating in community information networks run by the NGO's or in partnership with aligned local governments, brokering and facilitating programmes with interested citizens, organised groups, or businesses. Beatley (2000) exemplifies how interest groups have the capacity to contact with all levels of city life, from the individual citizen to the neighbourhood society or association, to the city governance structures and population. In this respect, he resumes that NGO's can *"function in ways that the government is not able to. The advantages are greater flexibility (administratively and politically), being able to move more quickly on potential projects, and the perception of neutrality in the community. It may also have the advantage of avoiding the turf conflicts that can often arise between different public*

departments and agencies” with the keystone to effective NGO brokering being “networking and bringing together interested people and organisations.” (p. 354)

Interest groups getting involved in the process of engagement with their focal subjects, working on the policy issue, work towards having a say, while reinforcing the coalition’s contacts and influence. NGO’s work with neighbourhood groups, local social associations, the Church, businesses, while, focusing on identifying relatively easy things for change — *‘the low-hanging fruit’* — and promoting concrete change at the neighbourhood level, getting things done.

Regarding cycling the *‘low hanging fruit’* for the first levels of change, an interest group working with local partners in a broader governance setting steered by a government (which could be infra-local (borough), municipal, regional or national) could promote or facilitate *‘soft-measures’* which don’t conflict with anyone and please all, namely training or expertise in cycling classes, bike-to-school, or bike-to-work initiatives, bicycle parking recommendations, and installation assistance including assuring spaces serving small business, neighbourhood, infra-local or local facilities, large corporate business, public transport companies, or even national government service levels.

Despite difficulties in cyclists’ associations capacity for advocating directly for change in public policies related to the built environment and mobility, the cycling industry provides increased leveraging for influence at the European level (and in Portugal specifically, with a large bicycle industry, at the national level). Dispersed membership enables interest group coalitions to pressure decision-makers simultaneously at various levels (Rubin, 2018, p. 7), and continent-wide replicable policy influence can work three ways in Brussels by influencing 1) the EU, impacting 2) national governments, and also 3) regional and/or local decisionmakers. But in all cases articulation is recommended.

Furthermore, considering the economic weight of the cycling industry, its reputation can provide influence in decision making and this interest group is prone to have more actors embedded in the policy network and greater institutional power (Ingold & Leifeld, 2016, pp. 14-15). Additionally, policy actors with low reputational influence also have fewer network ties. Research points to a tendency for policy actors to attribute more decision-making power to those with whom they collaborate (Wagner & Ylä-Anttila, 2018, p. 881), and this policy development collaboration is easier to establish and more common to those policy actors with greater formal authority, more intense participation in decision-making processes that are centrally related within networks.

Policy actors with greater formal authority are considered more influential (Fischer & Sciarini, 2015, p. 68). Wagner & Ylä-Anttila (2018) confirm that between 2011 and 2015, coalition influence in the Irish environmental policy subsystem suffered since *“domestic NGOs are weak, powerful economic actors and government departments dominate the policy process, decisions are largely determined by the cabinet, and economic issues are prioritised over ecological concerns”* (p. 885). Similarly, most interviewees in the Lisbon case study perceived ANSR’s and IP’s high reputational influence among government structures, and their role as being associated with maintaining the car-centric status quo, as a significant barrier for policy change.

2.5 Policy formulation and implementation

Knutsson's (2017) research on policy implementation underpins how ideas are transformed into practice (pp. 166-167), outlining the theoretical components which sustain policy formulation when he cites Matland (1995), who

defines 'successful implementation' as "the programmatic activities formulated in response to an authoritative decision. These activities are the policy designer's plans for carrying out the wishes expressed by a legitimating organisation, be it a legislature, a judicial agent, or an executive body". This raises questions regarding how success is measured; using a top-down approach with policy outputs produced and outcomes achieved, or a bottom-up approach focused on the 'positive effects' of a broader evaluation (p. 154). O'Toole (2000) questions specifically "what happens between the establishment of policy and its impact in the world of action?", and suggest the need for a broader perspective in a 'complete assessment' (p. 273). Considering the problems of the nexus between policy formulation and implementation, Knutsson (2017) advances that "...policy implementation meets learning where different actors agree or disagree on how the policy should be formulated and implemented. Conflict resolution implies a change of "actions or rules for action" (March, 2010) on behalf of one part or the other, i.e., a certain degree of learning takes place" (p. 168).

Carlsson (2017) points to Griffith's (1939) seminal analysis of policy development outside formal government structures as an early precedent to policy network research, understanding forums of interaction, i.e., 'action arenas' and epistemic communities, among other policy formulation theories, which "may possibly obtain a better picture of the way things really happen if [we] would study these 'whirlpools' of special social interest and problems" (pp. 182-183). From Griffith's view, Carlsson (2017) suggests that real-life policy making unfolds in a more complicated and polycentric world involving many actors from different social areas, and noting that this is important to understand a policy network approach (p. 150). Likewise, network players include many varied actors from different areas, with advocacy coalitions understood as collective engagement of these actors for policy change, with elements common to those identified in an ACF analysis of actor typologies and interactions, as being analysed here.

Weible & Carter (2017) frame five common elements applicable to conceptualising policy development analysis: 1. Context, 2. Actors, 3. Temporality, 4. Events, and 5. Outputs and Outcomes (Weible & Carter, 2017, pp. 26-28). For more insights on change, implementation is different from formulation, and both are different from change, thus this thesis separates between policy outputs and policy outcomes, as per Table 3 and Figure 3, above in section 2.2 – What are advocacy coalitions? Central to the ACF (Sabatier, 1988; Sabatier & Weible, 2007) and hypothesised in this line of research, a correlation exists between policy outputs and outcomes.

Furthermore, interactions in different historical and geographical settings (i.e., in different time and policy contexts and different cities, and in the specific Lisbon case-study between 2009 and 2021), are key concepts worth analysis, achieved by researching the roles of different policy actors through their social and political interaction and how these exercise influence upon the policy process for change over time. In this respect, analytically and keeping in mind Knutsson's (2017) differentiation between a framework (the ACF) and other tools used in conceptual analysis: "The framework frames research problems." (p. 171)

Knutsson (2017) cites Ostrom, Cox, & Schlager's (2014) explanation of a framework as an analysis tool for developing knowledge, providing "...the most general list of variables that should be used to analyse different types of phenomena of interest and represents an effort to identify the universal elements that any theory relevant to the same kind of phenomena would need to include" (p. 270), identifying the variables to be employed in the research (Knutsson, 2017, p. 171). From Sabatier & Jenkins-Smith's (1993) scholarship on an ACF approach to policy change, Wagner & Ylä-Anttila (2018) advance upon the recognition of beliefs as the overarching and most significant factor sustaining coordinated actor behaviour and their participation in policy development (p. 876). Within this approach, numerous variables are identified, and from there a general view of the cyclists' coalition is structured as identified in section 3.2.4. – Operationalising contextual factors within coalition analysis of policy process.

2.5.1 Context and policy settings

Regarding large urban areas as the central context, Moreno (2020) questions “*What have we done with our cities, disfigured by mechanised centaurs always in a hurry? What about those cold and functional buildings that take life away from our streets, squares, walls and parks?*” (p. 29) Contextual factors are recognised as shaping and being shaped by advocacy coalition interactions, by means of their relation with and upon the policy process, conditioning behaviour and decision-making, with effects working in both directions after extended periods of time (Mettler & Sorelle, 2018). Weible & Carter (2017) refer to these factors as “*contextual (or structural) effects on policy processes*” (p. 31). How these contextual effects shape and are shaped by cyclists’ coalitions over a specific time frame are this thesis’ phenomenon of study. The formal and working rules that constrain and open-up opportunities for shaping policy decisions as they reflect upon the outputs produced are relevant contextual elements. Within this line of study —based on the outcomes— a conceptual lens upon how advocacy coalitions work within their geographical, historical, social, and policy settings is hypothesised.

In their survey of the scholarship on social practices and the importance of context as motivators prompting modal shift towards increasing cycling, Cox & Bunte (2018) argue that impacts are closely related to the political setting (p. 122). Within this perspective, Oosterhuis (2017) argues that “*the influence of historical and cultural factors on levels and practices of bicycle use has basically been underestimated if not overlooked*”. Social and physical context may either enhance or weaken governance policy outcomes, raising the question as to which factors work best in a specific policy area, and which processes apply?

Ostrom & Basurto (2011) point to the processes involved in the physical and social context being studied in policy formulation and implementation as being key, and the rule configurations which are more likely to result in favourable governance outcomes. Jensen, Cashmore & Elle (2017) suggest that:

sociotechnical systems also constitute phenomena that are rendered governable through organised epistemic practices” and that “Epistemic activities are fundamental to modern governance, not because these processes objectively represent the socio-material complexity of urban environments, but rather because they are instrumental in organising that complexity into a limited set of politically relevant and concretely defined phenomena. Epistemic processes thus make governance possible by installing a set of prioritised visibilities (Oels, 2005), which render some phenomenon visible as objects, while rendering others opaque. (p. 461)

Automobility has received prioritised visibility in the current sociotechnical arrangement in various features of daily life, including advertising, media, in films, time allocated in radio and television programmes, news and traffic reports in prime time, language used, and attribution of public space versus pedestrians, who have been sidelined to sidewalks and a secondary status, and cyclists, who have been excluded and omitted from the political and planning agendas in many localities. Transitions scholarship explains this duality on conceptual terms. Geels (2004) suggests upon the ‘*duality of structure*’ inherent to the ‘*sociotechnical system*’, where “*technologies are not only neutral instruments, but also shape our perceptions, behavioural patterns and activities. As the reciprocal interrelation between society and technology... form(ing) a structuring context for human action.*” (p. 903)

Likewise, Jensen et al. (2017) suggest that epistemic work presents a political vision of its own, as it analyses and works within the definitions of ‘*the system*’, and Shove & Walker (2007) suggest that “*epistemic practices are fundamentally political because a representation of a sociotechnical system, ‘is not just a technical matter of analysis*

but a political, constructed and potentially contested exercise in problem formulation'. (Jensen et al., 2017, pp. 460-461).

Automobility's role has been central to this '*duality of structure*', and inherent to the established sociotechnical arrangement observed in the policy settings of European societies, especially since the post-World War II (WWII) era (Oldenziel & Albert de la Bruhèze, 2011; Oldenziel & Albert de la Bruhèze, 2016b, p. 7; Oldenziel et al., 2016), initially boosted and financed by the Marshall Plan and later perpetuated by EEC development and cohesion funds, and more recently EU national recovery and resilience plans (NRPP). The EEC/EU funds applied in Portugal and Spain since 1986, and Eastern European countries since the 1990's exemplify this pattern. In North America, automobility had become well anchored well before WWII (Norton, 2008, p. 243). In all cases, impacts upon the policy setting were pervasive as was the prioritisation of public resources leveraging automobility, from funding allocation to public space use, to how relations develop and interact between the broader society, public opinion, and policymakers.

Policy setting

Aligned policy actors are key for effective policy outcomes, working as a factor of coalition stability and endurance, (Jenkins-Smith et al., 2014), versus destabilising agents who fragment and weaken the coalition, disorienting focus on outcomes. Weible & Carter (2017) suggest that contextual structural factors always condition how politics interact with public policy, underpinning the importance of the effects different settings in different countries (pp. 30-31); *i.e.*, stable governance contexts provide consistency of interactions over time. Yet for coalitions who present goals which oppose stable legislative organisms, the contrary may also apply. Cox (2015), for instance, finds that the failure of the UK cyclists' coalition in the 1930s resulted from their inability to work beyond the '*system*' boundaries, despite mass meetings organised by the cyclists' associations —CTC and NCU— since there was a persistent class divide between the elites and the public, with mass meetings not being able to translate into collective action. Instead, cyclists' attempt for policy action was kept '*inside*' the institutional political realm, seeking cooperation from unwilling politicians and legislative tendencies. The vast potential for impact made possible by '*outside*' collective action could have been awakened by combining a strong cycling proletariat with cycling protests, yet this was ignored in face of the peril of police repression, the manoeuvring of the public debate and a pro-automobility House of Lords in parliament (pp. 6-7). In the UK, as in most of the Western World in the 1930s, there was a significant class divide entrenched in society, there were no CM cycle rides, and no enduring mass cycling protests, with no social movement link coalescing into the policy process.

Impacting, non-disruptive policy action is also possible at the institutional level, working beyond the conventional system boundaries but within government agencies and local authorities. Exposure to international experiences and learning and bringing these examples into the local structures, for instance, responds to policy stalls caused by traps within specific recurrent local debates and limiting policies, such as obstructing new ideas with parking requirements or car-centred traffic concepts. Policy actors working with the established system but bridging beyond the conventional local institutional rules provide new insights to local policy settings. Batterbury (2003) claims that advocacy strategies require active cooperation with local government instead of radical opposition, questioning the confrontational methods which are common among urban social movements; this is when advocacy coalitions step-in with pertinent methods. He claims that citizenship needs work with social realities, within the mainstream political systems, if it aims to be effective (p. 150). Marsden et al. (2010), for instance, underscore the importance of local officials who engage in policy transfer and learning between different cities, as innovation is developed over time.

These local officials participate in city governance interactions as different coalition actors, from local decisionmakers (policy brokers: mayors, deputy mayors, elected officials), to motivated advisors and/or consultants (policy entrepreneurs) who prepare technical issues and deal with policy-oriented perspectives, but also local technicians from various professions including especially architects, engineers, and public managers, reaching out to citizens, activists, working with policy entrepreneurs and brokers.

Contextual factors such as a city's specific competitive edge in certain thematic areas are also a factor to be considered in an assessment of subsystem involvement and coalition action. Analysing creative culture subsystems, Florida (2002) notes that a higher intensity of existing street-level or cultural activities have greater 'critical mass', thus being more effective at challenging prevalent norms and attitudes (pp. 16-17, 24-25). Klein & Tremblay (2010) extrapolate that "*metropolitan elites generally throw their support towards economic activities that the region already performs well*" (p. 568). Coalition action can join these different areas and bring them to institutional brokerage discussions.

As a seminal proponent of 'localism' Jacobs (1984) described the usefulness of city-based economies, local social structures and business actor dynamics with potential for 'import replacement' and knowledge exchange among similarly performing city economies (p. 35, 47-52, 135-155). 'Localism' as a political conceptualisation of dealing with complex urban-related issues by leveraging the local level provides an approach for dealing with critical situations by means of inclusive governance and local social actor involvement (Katz & Nowak, 2018). In this sense, Beatley (2000) points to cities as delivering the best opportunity for paradigm-change towards greater sustainability, by means of innovation and inspiration (p. 248).

Moreno (2020) suggests the resilient, enduring nature of cities and their unique capacity to respond to increasingly complex global challenges associated with climate change and social injustices (pp. 93-110). Cities can counter, update, and improve national policy and legislation which works against sustainable policy, for instance, confronting national-level decisions such as the privatisation of public transport services and car-parking management firms (Beatley, 2000, p. 428). Examples in Lisbon include the reversion of the city's public transport privatisation and transfer to municipal ownership, reinforcing service and integrating the public transport pass system in 2015 when Lisbon's former mayor António Costa (PS) took office as Portugal's prime minister in a left party supported socialist minority government. Lisbon's public bikeshare system launched in 2017, managed and operated by the public car-parking company EMEL is another example.

Political systems are another contextual factor to be observed. Wagner & Ylä-Anttila (2018) conclude that the policy process culminating in Ireland's 2015 climate law, was preceded by the work of coalitions which may result differently in diverse political systems, and this variety could be a determinant according to whether there are different roles and strategies being applied, and the possibility of success being dependent on the specific institutional setting. They further argue that comparative research on these contextual differences helps underpin if coalitions matter for policy outcomes and under which conditions these factors could be significant (p. 888). Similarly, the struggle faced by cyclists' coalitions in cities around the world faces complex issues of dealing with the socially ingrained role of automobility and its dominance of the existing sociotechnical arrangement. The confrontation is asymmetric, and as Rosen (2002) summarises in his analysis of technology, culture, and change in the British bicycle industry: "*To disembody the automobile from Western culture would entail disembedding each of these different elements from the overall ensemble – an extremely difficult task*" (p. 156).

Within this context of unavoidable conflict with the dominant automobility mind-set, street space allocation and regulatory policy are generally ingrained within the established legal jurisdictions at different scales, namely regarding “*the road, the city, and globally*” (Flynn, 2016, p. 114). A pragmatic function to the process of coalition building regarding the introduction of cycling on the political agenda and public sphere is that of stimulating (or forcing) the debate. By exposing the incoherent policies of resource allocation in funds, energy, urban space, mobility and transport policies and placing these in the spotlight, the discussion starts to be informed. Furness (2007) describes how CM protest cycle rides introduce cycling as a policy issue in complicated, automobile dominated contexts, citing Mallen's (2005) description of these non-official rides as they establish ‘*meaningful connections with public space*’ between citizens and a larger group of people with their own city.

These ‘*meaningful connections*’ are related to what Lefebvre (1968) termed as ‘*the right to the city*’, claiming that “*The right to the city manifests itself as a superior form of rights: right to freedom, to individualisation in socialisation, to habitat and to inhabit. The right to the oeuvre, to participation and appropriation (clearly distinct from the right to property), are implied in the right to the city.*” (p. 73) Regarding the openness of city governance to the contributions of civil society, Klein & Tremblay (2010) observe that an ‘*inclusive governing culture*’ can result from the absence of firmly rooted governance networks or regime frameworks; a policy setting applicable to their Montreal case-study (p. 567), but also to many other large metropolitan areas composed of several local governments, governance structures, and a fragmented institutional framework as occurs in the Lisbon Metropolitan Area (AML).

Contextual differences influence the importance of political centrality in different geographic and administrative localities. Christopoulos & Ingold (2015) point to the role of centrality in political environments with powerful central actors and little contestation, as hypothesised for Lisbon’s outlying municipalities when compared to the more participative core: “*Centrality does not directly translate to power in a fragmented and clustered policy space. Unanticipated policy outcomes result because influence is harder for political actors to assess and power could lie with those that broker influence between opposing clusters or those that seek balance and compromise through group cohesion. In that respect network analysis allow us to directly reflect and theorize on issues of power and its dissemination in political systems.*” (p. 478)

Research on Lisbon’s cycling subsystem and its policy actor network reveals mechanisms of influence, with outputs formulated according to different levels of coalition intensity on one hand, and centrality versus effective power brokerage on the other. Outcomes being sought are achieved in association with the different gradations of intensity witnessed, and with outputs and more robust results being possible where the policy issue is effectively included. But the process is neither linear, assured, or immediate, as addressed in the Lisbon case-study in Chapter 4.

2.5.2 Conviviality

Conviviality between different cultures in a city also has a role in context and advocacy coalition building; for example, urban and suburban cultures in the mobility system can reflect contrasting transport choices resulting from different lifestyles, possibilities conditioned by urban and spatial planning (landscape, built environment, population density and economic activity and diversity), and performance levels verified between the different transport modes. Cycling, for example, is speedier than automobility in cities (Tranter, 2012), but with longer distances complementary modes and/or adequate (cycling) infrastructure not only makes an enormous difference, but by existing or not, informs of the possibility of having available alternatives and of their plausibility. Comparatively lower

cycling derived from different contextual factors is analysed in section 4.9 on the Lisbon case-study outcomes, but further research (beyond the scope of this thesis but related to it) will also point to other factors associated to the built-environment, infrastructural issues, and perception of safety variables such as less women and children cycling, and helmet-use, being factors corroborated between the urban and suburban divide.

The gradual shift from the city core to the suburbs, from the central higher density built-up areas to the low-density, sprawled suburbs illustrates different cultures, with impacts quantified by measuring bicycle-use indicators: intensity of cycling, perception of safety, gender split and different age groups (R. Félix, Cambra, & Moura, 2020; R. Félix et al., 2019). Muxi's (2013) study on monofunctional suburbs and how to transform their attributes for more equitable, sustainable lifestyles, engages with these common indicators, using space transformations for conviviality as a perspective to influence contextual change. These measures are not limited to the mobility system, or specific to cycling, but due to the centrality of the role of that the mobility paradigm plays in urban transformation, she does provide a series of measures with these variables in mind.

Conviviality and environmental awareness perspectives

In a different vein, the 2009-2021 period coincides with an increasingly important policy issue: the emerging urgency of implementing an impacting environmental agenda—specifically the climate agenda—which has grown as the planet's deterioration becomes ever more obvious by means of scientific proof and increasingly extreme climate events. Currently, discussion is emanating at different policy levels, from successive global proposals and commitments by national governments and international organisations to local actions and mobilisation from city governments and local groups, and bottom-up citizen pressure is also increasing. With cycling being identified early on as one of the most effective responses to this multifaceted and highly complex environmental agenda (Beatley, 2000), it was especially from those global agreements with a specific focus on city governance and citizen involvement (UNFCCC, 2015; United Nations, 1992, 2015a, 2019) that several issues applicable in current political agendas were introduced at all levels, and from there to the realm of a globally aspired but locally applied policy development. Illich's (1973) seminal '*tools for conviviality*' foreshadowed this local-based multi-level perspective.

Global policy has intensified, reflecting environmental issues with policy outputs in urban planning and mobility systems and this is reflected with, at least, aspirational policy and political lip service. In this period Portugal's parliament and successive governments approved several legislative measures with direct relations to cycling: the walking and cycling plan which was approved, but never implemented (IMT, 2012), the 2013 traffic code which integrated active mobility modes as legitimate road users (Assembleia da República, 2013a) in face of growing traffic related concerns under a centre-right coalition government (2011-2015). National climate commitments produced (Presidência do Conselho de Ministros, 2015), 'green' fiscal policy (Assembleia da República, 2014c), and under the centre-left socialist government backed by the parliamentary left since 26 November 2015, the national cycling strategy (Presidência do Conselho de Ministros, 2019c). These documents were approved and launched during a period of growing environmental and climate awareness, also denoting some level of coalition activity in the formulation and implementation phases, but issues regarding their implementation also point to weaker conviviality within the government implementation structures. Follow-up measures and street-level actions and outputs didn't always correspond.

Macro-level commitments trickled down to the local level by means of several institutions, mostly from environmentalist organisations, and regarding cycling, a leading role from the two EC- member national cyclists'

organisations: the Portuguese Cycle Tourism and Bicycle Users' Federation (FPCUB), and the Association for Urban Cycling Mobility (MUBI).

Less obvious organisations may have also been involved, from family groups to the Roman Catholic Church, for instance, playing a discrete but effective role during this period with important documents emanating from numerous national bishops' conferences engaging with social and environmental concerns as the forerunning institution for challenging the overwhelming dominance of sociotechnical systems (Francis, 2015, pp. 75-86; Tatay, 2018, pp. 3-6, 12-23, 40-46, 104-105). Relational concepts working at the personal and local level, possibly through parish or community group action, with each one's social and personal '*ecological conversion*', for '*the common good*', taking into consideration '*intergenerational justice*' and an '*integral ecology*' with the most vulnerable in mind; the socially invisible, the defenceless and voiceless.

Regarding environmental policy, the Catholic Church's continuous articulation has been manifest in several groups at the local level, and important manifests, with one of the most recent and high-profile being Pope Francis' encyclical *Laudato Si'* launched 24 May 2015, six months before the Paris COP21 global summit and pressing for solutions around this matter (Francis, 2015). Openness to the Church's long-standing preoccupation with systemic hegemony of the dominant sociotechnical 'system' and the negative impacts it can and has generated have at least achieved a common-ground level of ethical and moral references for human conviviality (Monbiot, 2015), despite a pervasive social setting of obduration, generally lacking interest or acceptance of a deeper search for transcendental explanations to common systemic and life-style problems (González, 1999, pp. 60, 63, 120-122, 152-155).

2.5.3 Bottom-up policy action

To inform policy action at the subsystem level various events are analysed, as working mechanisms of the advocacy coalition in developing and shaping policy. According to Weible & Heikkilä (2017), "...from Ostrom (2005), [events] define policy action situations as the diverse arenas within political systems and policy subsystems that include formal and informal venues where policy actors engage, debate, and attempt to address problems around policy issues." Ostrom's (2005) view of the action situation connects the Policy Conflict Network (PCF) as a conceptual construct to "decades of research on how institutional arrangements structure actor interactions and the outputs and outcomes of these interactions." (Weible & Heikkilä, 2017, p. 26)

Within these diverse arenas of political interaction, when the subsystem is still a generally excluded issue from the institutional framework, and issue coalitions begin to exist, they spark informal bottom-up actions, such as impromptu protest cycle rides, '*organised coincidence*' CM rides throughout the city or in specific city areas, DIY cycleway implementations, tactical urbanism interventions, etc. These informal street-level venues initiate a policy situation by questioning the *status quo* of automobility's reign over public space and on a deeper level, current mainstream social values. As Furness (2007) sums regarding CM cycle rides, these cyclist agglomerations take the city streets and create temporary change, viewed as a "*symbolic transference of power (which) is threatening not because it changes material conditions or undermines the power of automobile/oil corporations, but because it challenges the dominant ideology of automobility – the notion that cars can provide maximum flexibility, uninhibited movement and individual autonomy.*" (p. 310)

Debord's (1959) '*situationist theses on traffic*' foreshadow CM cycle rides as moments questioning automobility flow and public fund allocation as a city planning priority, Furness (2007) describes these collective cyclist action situations as thoroughly questioning the rules that dictate public agenda and resource appropriation by automobility's interests: CM participants show the importance of streets as public city space belonging to everyone (p. 306). As a policy action situation employing diversion and diversity, Flynn (2016) provides different definitions for CM; citing Rao's (2010) description of "a celebration of the simple joys and utility of the bicycle" (p. 110), and Blickstein & Hanson's (2001) explanation of "a protest, a form of street theatre, a method of commuting, a party, and asocial space" (Flynn, 2016, p. 108). Furness (2007) expounds that CM breaks the chains of automobility's domination of public street space for short periods of time while revealing real alternatives to car-dependency (p. 313), providing a vision of community and personal life free from what Sheller & Urry (2000) term as the "iron cage of modernity" (pp. 744, 754).

Lugo (2012) explains how in car-centric Los Angeles, CM established the events of '*human infrastructure*' necessary to spark a cyclists' advocacy coalition and policy action for other venues and public events (p. 41). Likewise, "*Critical Mass gatherings are a site of togetherness and the backdrop to developing personal relationships. This nomos impacts jurisdiction as it brings groups of Critical Mass participants together to depict a different way of using city streets, and celebrating freedom through bicycling.*" (Flynn, 2016, p. 107). This '*togetherness*' and the shared beliefs for the city are aspects also mentioned by Lisbon case-study Interviewee #6, an activist, as a place for growth into other cycling and social related projects (see section 3.6.2 Cycling associations).

CM cycle rides in the cityscape are an initial advocacy building mechanism for cyclists, by integrating strategies aimed at policy process interaction (Savan, Cohlmeier, & Ledsham, 2017, p. 241), '*constructing cycling citizenship*', in a perspective outside the traditional policy-making sphere (Aldred, 2010), illustrating new forms of mobility in cities where cycling has been excluded, forgotten, or didn't exist while interacting with the local built environment. Similarly, group leisure bicycle rides -even in their mildest forms- provide challenges and questions to automobility's pervasiveness, albeit at a much softer, subtler, and conformist level (Aldred & Jungnickel, 2012). Personal motives for CM participation differ between localities, and between citizens in the same locality, but they hold the common ground of being bottom-up policy action situations aiming at values for street-space allocation that differ from those being practiced by current policy or dictated by the current dominant sociotechnical arrangement. On the other hand, leisure cycle rides also incorporate different degrees of adaptation to the car-centric environment, but unlike CM, without a critical and disruptive approach striving for change, and therefore, not as an implicit policy action situation.

Flynn (2016) expands on the motivators and interactions involved in CM participants' collective action, identifying common beliefs which are transmitted and evolve through the repeated venue over time:

There are many different motivations to participate in Critical Mass. Participants may be engaging with their community, seeking to transform city infrastructure, or challenging environmental norms. In cycling with Critical Mass, participants are turning up in a space where one is not expected and moving around in the world in a way that defies normative categories. The monthly recurrence of Critical Mass events allows for an evolution of motivations over time, with the understanding that the setting itself transforms through the creation of new infrastructure, the reaction of authorities, and the politics of riding. Thus, the common script across all participants is a commitment to performativity and to acting out an imagined version of the city. (p. 110)

As an initial policy action, CM can be an effective means of hands-on questioning of street space allocation and the pervasive dominance of automobility in low cycling mode share, car-centric cities. Despite the existence of other policy actions, CM rides are commonly associated as one of the easiest and most basic ways to start bottom-up, increasing the subsystem's visibility and intensity for potential '*outside pressure*'.



Figure 11 - Oeiras Critical Mass at the Fort São Bruno Caxias meeting point, June 2020

2.5.4 Policy beliefs and biases

With coalitions guided by shared policy beliefs (Weible et al., 2009, p. 136), Wagner & Ylä-Anttila (2018) argue that policy beliefs interact within clusters, and that these are observable by measuring the level of interactions among organisations aiming at the same policy objectives (p. 879). On the other hand, Ingold & Varone (2012) observe that external factors are more relevant in core belief change in the ACF than they are in their case-study on Swiss climate policy in the 1990-2008 period (p. 330). Knutsson's (2017) claims that resolution of policy debates within the ACF goes further than beliefs but also assume "*basic human biases*" (p. 168), and that biased decision-making is influenced by "*inherent human tendencies [which] deserve to be considered in the development of explanations and understanding of policy implementation*" (p. 180).

In the formative social movements of post-WWII which emerged in various Western European cities (Albert de la Bruhèze & Oldenziel, 2018; Oldenziel et al., 2016), the situationists of the late 1950s were in some ways seminal in dismantling common societal biases of that era (Furness, 2007, p. 306). Debord's (1959) manifesto theses are pointed out by Furness (2007) regarding their critical view upon the proliferation of the automotive ideology and the role of city-planners and a capitalist system, but also its persistence by means of a deeper ingrained issue in society; the acceptance of automobility-based design and the common belief of the perpetuity of the automobile-centred society (p. 306). Urry's (2004) observation of the path-dependency of automobile-centred societies, how it affects people's choices and their ability to see beyond the automobile —physically and figuratively—, and how it works as

a self-reinforcing mechanism towards more automobility and consumption all point to the influence of commonly held social partialities upon decision-making and, ultimately, on the policy process itself, where social life is “irreversibly locked into the mode of mobility that automobility generates and presupposes” (p. 27). Automobility-centred policies reinforce the role of this locked-in setting by perpetuating it with the necessary resource allocation to feed the expensive predict and provide policies aiming at more infrastructure for car use: rules and systems prioritising automobility on one hand, roadways and parking assuring it is viable on the other.

Regarding the dominant bias favouring automobility, for instance, counter-cultural social movements networked by ‘like-minded people’ (Furness, 2007, p. 308) sharing beliefs regarding policy issues and its perspectives of street-space and the role of active mobility, disseminate critical views and act collectively to show dissent in CM cycle rides. These temporary ‘organised coincidences’ almost spontaneously transform general citizens into activists by simply cycling together on existing city streets, providing a momentary critical view of what public space can become; sharing experiences amongst participants and passers-by. Furness (2007) points to CM bicycle rides as a basic form of direct collective action, founded upon shared policy beliefs and, and from anarchist scholarship (Bey, 1985), creating ‘Temporary Autonomous Zones (TAZ)’ (p. 77). In effect, by cycling, cyclists’ join the coalition. In CM rides they articulate and momentarily control public space, defining a temporary output —a ‘human infrastructure’— and outcome —‘mass cycling’, albeit temporarily— through a safety in numbers effect; the road becomes a cycleway, the number of cyclists’ increases.

The creation of these TAZ, or ‘free enclaves’ engage common citizens in bottom-up collective action presenting unthought of possibilities for public street space in automobile dominated societies; “an uprising which does not engage directly with the State, a guerrilla operation which liberates an area (of land, of time, of imagination) and then dissolves itself to re-form elsewhere/ elsewhere, before the State can crush it” (Bey, 1985, p. 80). Flynn (2016) underpins CM as the embodiment of a shared belief with the temporary creation of an alternative vision, shared in the public space:

an alternative for that brief period of time in which it dominates the road, riding under its own rules and not those prescribed under the multiplicity of government regulations. With these alternative customs and rules, it represents a universe with a different way of relating to space and other people. Critical Mass is not simply about the act of riding a bicycle but is also a collective freedom from other social norms and legal codes. Participants come together to imagine what cycling would be like in the city if it were governed under a different regulatory framework (p. 114).

The struggle to implement these shared beliefs as a possible shared vision temporarily applied to city streets, public space, reinforce the role of citizenship and activism. Activism’s role in sprouting bottom-up ‘politics of hope’ by influencing local policy change (Riverstone-Newell, 2012), and by contagion of policy conflicts regarding a specific issue, ‘expanding their scope of conflict’ among a wider public (Schattschneider, 1960). These actions are commonly devalued by counter beliefs, e.g., when the media doesn’t give cover these meetings despite commonly presenting greater participation than other protests regarding other issues.

Epistemic actors can also position themselves within the dominant arrangement. Bookchin’s (1995) work on anarchism, for instance, suggests that a TAZ is just ‘a passing event’, with no more effect than a “fleeting expression of the ‘will to power’ that is, in fact, conspicuously powerless in its capacity to leave any imprint on the individual’s personality, subjectivity, and even self-formation, still less on shaping events and reality” (p. 24). In fact, perception influenced from biases proves difficult to crack and requires encompassing change considering all fronts of action. Félix, Moura, & Clifton’s (2019) research of people’s individual expectations, deterrents and motivators for the

increasing rates of bicycle-use in Lisbon, a city with low levels of cycling, suggests that overcoming perceived barriers in different contexts is not only alterable but may not be sufficient for behaviour change in modal shift towards more cycling (p. 11).

2.5.5 Clarifying beliefs in weak influence settings

Félix et al.'s survey (2019) identifies CM cycle rides as a relevant trigger for behaviour change to bicycle-use in Lisbon, a city with a history of low levels of cycling maturity (p. 7). The first instances of recruiting coalition members and the dissemination of policy beliefs in a setting where these are generally omitted and excluded requires conceptual explanation to shed light on the interactions that start disassembling common social biases when asymmetries exist between the coalition's goals and the current sociotechnical arrangement.

Considering that the different motivating triggers for cycling change over time and in different contexts, the role of CM is evaluated as a form of 'activism', effective in the most initial stages of collective action for change (Félix et al., 2019, p. 9). Previously, Furness (2007) had already explained the relevance of CM as a means to an end, arguing that it isn't a basis for sustained political action but a '*temporary cultural insurrection*' which changes the dynamics of public space, appropriating it for functions beyond those established among peoples' consciousness as regards automobility (p. 309). The '*pedagogical, communicative and/or symbolic functions*' of CM openly question established social views by transforming public space, albeit temporarily, considering Borden's (1998) '*performative critique*' of city space generated by the practice of skateboarding and, significantly, Debord's (1959) situationist theses questioning automobility by '*breaking the topological chains*' of the prevalent social belief in the '*permanence of the present society*' (Furness, 2007, p. 306). Regarding this disruption of social biases, CM's role triggering greater adherence of citizens to the cyclists' coalition is summed by Furness (2007) as:

not the solution to the problems of automobility by any stretch of the imagination, but the anomaly of cyclists swarming a street immediately changes the dynamics of that space – at once, everything ceases to function normally for the cyclists, drivers, or people passing by. It is not merely significant because the typical patterns of the environment are disrupted, but because the experiential insurgence gives cyclists a moment in which they are able to 'live the impossible' (Ferrell, 2001, p. 115). Cyclists who participate in Critical Mass frequently testify to the power of this experience because it transcends the mere act of bicycling (Furness, 2007, p. 309).

By all accounts, it is the cyclist citizen who is at the core of this implementation of making '*the impossible*' become reality. In settings of meagre support for cycling as a legitimate or viable mobility mode, one of the first steps towards policy-change is the need to challenge commonly held views, using methods which reveal the pervasiveness of automobility. CM's effectiveness fits in with the pervasive car-centred view of public space, but not necessarily in settings where automobility does not reign the street or where cycling is adequately addressed by urban infrastructure. Protest cycle rides for better conditions were commonplace in the Netherlands in 1960s and 1970s when cycling was excluded from mainstream policy, but currently with cycling being a recognized subsystem within the country's urban and regional mobility systems, such protest rides don't make sense in most cases. At least if there's no related policy issue to protest for.

Contrarily, in automobility dominated societies, Sheller & Urry's (2000) observation of car-traffic stopping protests as a form of high impact collective action can be practiced as a '*Reclaim the Streets*' statement, questioning

automobility's pervasiveness and its incoherencies, in line with CM cycle rides, but car-traffic stopping or slowing down may also involve counter-coalitions such as those in favour of automobility (p. 751). In this respect CM provides an ideological shift for increasing the relative scale of cyclists' coalition member actions within a car-dominated setting. CM generates policy issue visibility, even in cities with vibrant cyclists' coalitions but still very much dominated by automobility, where it functions as a '*self-sustaining chain reaction*' (John Pucher, Komanoff, & Schimek, 1999, p. 639), as it uses the same systemic elements as automobility for protest and critique, but also for increasing the number of participants. Nonetheless, participation is not fully accountable even if the policy process does not correspond to the coalition's ambitions, *i.e.*, the media and other mainstream communications organisms, including online public channels and municipal information, tend to ignore cyclists' collective actions in localities where cycling rates are generally low.

For effective collective action, the existence of a vibrant, active cycling coalition is key and CM rides feed this coalition and feed from it also. During the 2009 to 2021 time frame, for instance, in the core Lisbon municipality CM cycle rides appeared with regular monthly consistence since March 2003 (Massa Crítica Portugal, 2007b), gaining maximum momentum over the next few years, and, according to Félix et al. (2019) becoming relatively ineffective after 2012 (p. 9). Contrastingly, in the outlying municipalities of Oeiras and Cascais, CM appeared over a decade later, in 2015, related to the previous year's winning results for the coastal cycleway in Oeiras' municipal public budget with the municipality refusing to implement it. Participation in both municipalities peaked during the two following years in Oeiras and Cascais, and to a certain extent overflowing from Lisbon's core municipality itself with the annual *Mega-Massa Crítica Lisboa–Oeiras*, between 2015 and 2017.

Flynn's (2016) claims of the effectiveness of CM as an operative tool for policy influence should be kept in mind regarding differences between Lisbon and the outlying municipalities, for instance, where policy brokerage on the issue is questionable, with most municipal politicians ignoring the cyclists' coalition and the existing infrastructural arrangement being mostly unwelcoming to cyclists:

Critical Mass is temporal in that it takes place for a brief window of time once per month. While there may be longer term outcomes related to Critical Mass, including changes to municipal bylaws, cycling infrastructure, or other regulations, the contested and every day meetings are limited to the brief time when participants take to the streets. While these meetings are fleeting, Critical Mass engagement with the law over time remains meaningful. The understanding that the more that similar objects and bodies habitually settle in the same space, the more finely that space comes to be shaped to fit them applies. The ritual of participants weaving through the city has resulted in familiarity with city spaces and the laws which govern its streets. Legal geography alerts us to a deeper understanding of jurisdiction than can be observed by studying doctrinal law alone. Critical Mass reveals the complexity of jurisdiction in that cycling laws are not necessarily enforced, engagement with law includes conflicted and everyday meetings, and the passage of time adds a further instability to our legal framework (Flynn, 2016, p. 107).

Policy process takes time to produce outputs, and despite a conceptual linearity between the elements of formulation, implementation, and change (Figure 3, above), and a policy cycle of interactions in the ACF (Figure 4, above), policy influence is not assuredly linear, with outputs being varied, and outcomes subject to numerous contingencies. As such CM is not a sufficient influence in itself, and for the hypothesis of change to be valid as a product shaped by the cyclists' coalition, the need for persistent action over a prolonged time period (the ten-year minimum for an ACF analysis), requiring intensity of activities and relations, are still subject to numerous other contingencies, and the coalition must work in various directions and take into consideration the operationalisation of contextual factors in the policy process (see Chapter 3, section 3.2.4, below).

2.5.6 Ideological shifts

Following social movement theory, from scholarship on the radicalisation of social protest movements in the USA Furness (2007) argues that CM contributes to cycling advocacy by means of the ‘*radical flank effect*’ (Gamson, 1975; Haines, 1984; Isaac, McDonald, & Lukasik, 2006). In CM’s reoccupation of public space normally appropriated by automobility, cycling is viewed as transforming ideological perceptions regarding utilitarian cycling as a social practice, not necessarily appealing to everyone but bringing otherwise uninterested people on-board (Furness, 2007, p. 312). In fact, the diversity of people and their different motivations for participating in CM are wide-ranging; one of the activists interviewed in the Lisbon case study (Chapter 4 - The Lisbon cyclists’ coalition), articulately resumes how these ideological shifts start from changing perceptions triggered by, or from, cycling in the city:

Politicisation comes with the fact that (people) cycling have a very acute perception of the risk they run, and that only through demands, demonstrations, participation in associations will they be able to claim what they feel in their skin. When cycling, they feel at risk, they politicise themselves to defend themselves, they also associate and come together to be able to work better on this development and foster better cycling conditions, and with this they also end up having a critical view of some of the urbanism that favours the automobile. ...I think there are different motivations, for example, in Critical Mass, I remember that it brought together many radical environmentalists who thought that one should go almost into open warfare with cars. It brought together people who rode bicycles, and found it interesting, and wanted to have the freedom to do so without being honked at or without risking their lives. There were people who just always cycled, and it was a way to meet other people. There were other people who simply rode a bicycle because it was good for their health. That's why there are different motivations, there is no single cause. (Interviewee #8 – Activist)

Haines (1984) underpins the positive effect of radical flanks “*when the bargaining position of moderates is strengthened by the presence of more radical groups. This happens in either (or both) of two ways. The radicals can provide a militant foil against which moderate strategies and demands are redefined and normalised-in other words, treated as “reasonable.” Or, the radicals can create crises which are resolved to the moderates’ advantage*” (Haines, 1984, p. 32). To a certain degree Haines’ (1984) ‘*positive radical flank effect*’ occurs both ways in CM bicycle rides, especially in cities with at least some history of cycling, since these rides are both an introduction for many people to consider city cycling as a reasonable mode of transport, thus increasing the potential amount of coalition advocates, while simultaneously creating a (temporary, but repeated monthly) crises on city streets by slowing down traffic, manifesting greater street congestion and conflict with automobility.

Whereas cycling on city streets may be considered a radical manoeuvre in a car-dominated society, when it does occur, participants and passers-by understand it is possible. Furthermore, as Furness (2007) notes, citing Komanoff (2005), “*Critical Mass contributes to both a transformation in ideological perceptions of bicycling and the construction of new identities for cyclists*”. Beliefs are moulded as a key role for ideological shift, playing a significant role in citizens’ decision to cycle (Furness, 2007, p. 313). Furness (2007) provides crucial insights regarding the growth of CM cycle rides and the radical flank effect in San Francisco, and how it started to enter local policy development in an automobility dominated setting:

Dave Snyder, the former executive director of the San Francisco Bicycle Coalition, describes how these dynamics influenced his approach to advocacy in the wake of a notorious 1997 Critical Mass ride where police confronted 5,000 cyclists in the streets of San Francisco:

'The bicyclists' demand for safer streets for riding got more positive coverage in the media around the July 1997 meltdown than any other time in the past 100 years. Sure, it came with more negative coverage, too, but if you look at the coverage carefully, you'll notice that the negative coverage was about the ride. 'Crack down on the unruly bicyclists!' When the media got to covering our agenda, it was overwhelmingly positive. All the opinion columnists felt they had to take sides, and even the most rabid car advocates had to admit, 'sure, the bicyclists deserve more space on the roadway.' When your enemies cede you that point, you know you have won!' (Snyder, 2002, p. 112)

Snyder asserts that Critical Mass is one of the best things to happen to bicycle advocacy because he recognises how the media attention garnered by Critical Mass gives his organisation – and others like it – the unique opportunity to publicize an issue that is typically ignored by mainstream news in the United States. The perceived 'radicalism' of Critical Mass also gives formal cycling organisations a distinct amount of rhetorical leverage because they appear to be more 'moderate' in the eyes of the public. Critical Mass functions as a distinct pressure point for discourse, and this encourages transit and transportation agencies to increase their dialogue with 'moderate' cycling groups (Blickstein & Hanson, 2001, p. 360). Snyder says 'it was thanks to Critical Mass that we got to put such a bold demand [for a bicycle network] on the official agenda. Critical Mass forced the politicians to ask us "what is it you folks want?" (Snyder, 2002, p. 115), as cited by Furness (2007), pp. 311-312.

Despite a difference between the cyclists' coalition and the role of cycling in social movements such as CM, both employ 'communicative dynamics' within their overlapping policy goals. Furness (2007) exemplifies with an affirmation by Amy Stork, one of Portland's Shift advocacy movement co-founders he interviewed in August 2004: "I really appreciate Critical Mass because when you are going to change culture, it's good to have a radical wing, because that pushes folks towards the centre. If people see Critical Mass and that appears radical to them, then putting a bike lane in seems reasonable. In places where they don't have Critical Mass, they think bike lanes are radical" (Furness, 2007, pp. 311-312).

To operationally encourage and persist upon change in a difficult setting, Pinder (2004) identifies a common position regarding the need to challenge the dominant ideology and poses some questions regarding the role of policy brokers and other influential actors who work to maintain the *status quo*: "the frequent denial of the validity of alternative perspectives by those in powerful political positions... The ability to challenge dominant ideologies about cities in these circumstances is therefore crucial for a politics of hope. What other stories can be told about urban spaces? How can alternative possibilities and different trajectories be uncovered, whether this is in relation to present or historical urban developments?" (p. 792)

Oosterhuis' (2016) and Cox & Bunte's (2018) claim for a broad context of analysis regarding change in social practices points to the relevance of contextual policy elements and "the ways in which these are historically constructed" (Cox & Bunte, 2018, p. 122; Oosterhuis, 2016, pp. 247-248). Emerging issues within the contextual specificities can be used for increasing collective action.

2.5.7 Sparking advocacy group action in face of emerging issues

According to Rubin (2018), work on advocacy for social change points to four different ways of sparking action (p. 11): 'Operational programmatic issues' which affect member organisations' normal functions, designating rule

changes as an issue affecting advocacy program management for instance; '*Reactive issues*' advanced to advocacy organisations by problems which their members face, for instance when social movement activists or interest group associations communicate their problems to interest group umbrella organisations. For both these response-activators - '*operational*' and/or '*reactive issues*' - Rubin (2018) points to coalition members as the policy '*initiators*'. On the other hand, for wide-ranging '*structural social policy or political matters*' it is the larger interest-group coalition, or umbrella organisation, that transmits these issues to coalition-members (p. 11). These can be identified in the cyclists' coalition at a European level, with the ECF's intense activities, and to a very limited extent in Portugal, with Estrada Viva the Portuguese vulnerable road users' umbrella association which includes pedestrians', child safety, family, urban cyclists', and sports cycling organisations.

Rubin (2018) analyses '*signature issues*' created by formal interest groups as another way to spark collective action, and maintain it, by means of advocating and campaigning to mobilise broad-based membership, strive to improve capacity for influence in legislation and regulation-making, address persistent problems faced by the coalition, respond to the evolving political climate, and reach out to members to strengthen and unify the coalition. According to Rubin (2018) these '*signature issues*' are a core task addressed by policymakers, media, and coalition members to address interest groups, where internal negotiation over the issue's scope is required to avoid conflicts with other potentially allied coalitions. Considering the cyclists' coalitions these allies may be pedestrian and public transport-user groups, but also heritage and neighbourhood associations, environmentalists, climate activists and other groups struggling with complementary issues. Wider social, economic and political principles are brought into play when including these issues in the political-agenda, as is the interest group's role in raising issues and influencing policy change (p. 11).

Excluding aligned values

Considering '*values*' as a '*lens*' employed for analysing change (Stewart, 2009, p. 31), the reasoning behind the problematic distinction between private and public realms is pertinent, especially when considering the wide array of each citizen's personal convictions as being relative: a personal opinion relegated exclusively to the private sphere, so as to not disturb dominant social orientations or a search for generalised consensus. González' (1999) diagnosis of contemporary society's diversity provides relevant insights into accepting and working with differences while operating within a common political framework. Despite being the current *status quo* in liberal democracies, where a diversity of beliefs coexist with conflicts integrated into the institutional process for an apparently peaceful governance, criticism of citizens' sincere views risk being '*cloistered*', only to be revealed in the private sphere of their life, a position which could be legitimately questioned by a thoroughly communitarian perspective (p. 39). Furthermore, by relegating personal beliefs to an excluded status, off the public agenda, social stigma and group polarisation could be occurring.

So how can aligned values unravel and optimise without excluding, as has been the case with cyclists? How can the cyclists' coalition gather aligned values for a '*better city for people*', where people of any age or social condition can walk or cycle to school, work, their daily needs, or any of their activities? Considering policy values, Stewart (2009) resumes conceptual paths for change as follows:

Policy paradigms have been defined as sets of ideas that make sense of the world, and, along with power, organisation, and policy itself, one of the four constitutive dimensions of governing arrangements in a specific issue area (Wilson, 2000). Paradigms can change in response to many factors – being overtaken by events

(Hall, 1993) or complex processes of knowledge-brokering (Howlett, 1994). Paradigms can also alter because of advocacy coalition formation (Wallis & Dollery, 2001). ..."

Much policy-advising and decision-making takes place within an assumed set of values or paradigms. These paradigms permeate established practice, and orientate the thinking of professionals within particular policy communities. When paradigms clash (as they often do in professional bureaucracies such as hospitals or educational institutions) the response is often to separate them into distinct spheres of action (medical staff and administrators; academics and general staff). But paradigms, by their very pervasiveness, can do their work by subverting or overwhelming dissident ways of thinking. ...

"By 'technicisation', I mean the tendency, partly inevitable, partly chosen, for value conflicts or even differences, to be dealt with by technical means – the 'instrumental rationality' Max Weber saw as one of the hallmarks of bureaucratic governance. In some situations, technicisation works by 'crowding out' other values. (pp. 42-43)

As citizens organise themselves among the wide diversity of policy actors working to advance the policy community's focal issues and its relevant interactions, counter-coalitions, policy-brokers, and other relevant actors may respond negatively. The coalition's struggle to gain ground in the political agenda may suffer various setbacks associated with the exclusion of aligned values, either for practical matters (programmes and plans already underway, budgets already approved, etc.) or due to ongoing influence from dominant coalitions striving to maintain the *status quo*.

From policy brokers and governance mechanism setbacks may occur by means of political portfolios (for instance different government ministers or local government deputy mayors or councillors) and government departments (different ministries or municipal departments) working within the institutional realm. These different policy brokers and their departments may omit the policy issue or segment policy action regarding the specific issue, delegating it upon technical spheres with little motivation, knowledge, or expertise on the policy issue. These '*deep state*' departments and organisms may also work farther away from citizen accountability, activist scrutiny, policy entrepreneurs, and epistemic groups researching and seeking innovation.

Considering the exclusionary implications resulting from either practical or intentional reasons, González' (1999) '*strategies for survival*' brings to light the applicability of generally forgotten, or even socially obturated behaviours, such the '*therapeutic effect*' of stoicism in living a car-free life as a means for offering a stable life structure, questioning dominant lifestyles, and finding the '*small joys of life*'. Even if these social practices aren't accepted in the dominant policy agenda, and may not be entirely fulfilling as a complete explication to the political exclusion of cycling (and walking) as a policy issue, they require a view well beyond those circumstances (pp. 120-122). Shove (2012) advances a perspective "... *that requires understanding parallel, intersecting processes not only of innovation but also of persistence, partial continuity and reinstatement*", also opening new paths to the possible resurgence of old social practices, as cycling had been in many cities during the first half of the twentieth century (pp. 365, 369-372).

Without a fully inclusive approach to stakeholders, interactions denoting aligned values can take shape in several fields of public investment. Office buildings and administrative services, for instance, can be influential by means of decisions taken, with outputs embedded in the design and programme of elements with significant influence on the daily mobility choices of affected population groups: *i.e.*, a school with its students, families, and school staff, an office building with its employees, suppliers, and clients, etc. In this respect, the central Dutch government building, where hundreds of national government public servants were employed provides a relevant comparison to a large Portuguese government building built even more recently: The Dutch central government's former Ministry of

Housing, Environment, and Physical Planning (VROM) building open in 1992, and remodelled between 2014 and 2017 for a complete update and to house new national ministries (OMA, 2017), is located right next to the Hague's central train station with rail connections throughout the Amsterdam Metropolitan Area and the rest of the country, in a central location served by good walking and cycling infrastructure and incorporating environmental features including its location, integrating employee travel choices as a siting decision. The building has no car parking spaces therefore employees walk, cycle, or use public transport (train) to work; location and urban integration is a mobility design incentive. At the time of inauguration the government also provided public servants the opportunity to purchase a bicycle at government expense as an incentive to cycle (Beatley, 2000, p. 388). The multiplicity of functions available to the building and its location are inclusive of numerous activities which condition and are conditioned in the urban location (Rossi, 1984, pp. 32-33, 50-51).

In comparison, and keeping in mind Rossi's (1984) affirmation that cities are the form of their politics and signs of their collective will (p. 162), in 2009 the Portuguese government relocated its National Road Safety Authority (ANSR) and its Border and Customs Service (SEF) headquarters from Lisbon's city centre to a peri-urban area in the municipality of Oeiras, in the sprawling AML. The building's peripheral location is isolated, disconnected from urban areas, far from public transport hubs, and with no cycling or walking provisions available. The ANSR/SEF building, in practice, excluded aligned values aiming at liveable cities and sustainable mobility options while implicitly reinforcing the role of automobility, pushing for car-use as the only viable access for employees, citizens, suppliers, or visitors who have to deal with these administrative functions.

Programmatically, it is relevant that SEF delegations, for instance deal with foreigners obtaining visas, or non-EU foreigner wishing to reside in Portugal, and this is its national office and principal delegation. Equally significant is that ANSR is the traffic policy authority, with important policy decisions and formulation regarding traffic laws and road-space issues, staffed by public servants who commute there by car on a daily basis. In these cases, exclusion of cycling, walking, and public transport users is implicitly passing the message of the non-viability of these means, an implicit practical issue determined by policymakers, but foremost an explicit exclusion of any means of transport besides automobility, perpetuating car-dependence and implicitly self-reinforcing it among government staff or anyone requiring access to the headquarters of these public services. Interestingly, when relocation was implemented, employee discomfort was such that four years after the building was inaugurated public servants were avoiding working at these new installations requesting transferability to other localities, with large sums of public funds spent on outsourced workers and consultants required to assure several functions (Jornal i, 2014b).

2.5.8 Agenda setting and policy-issue framing

From the communicative impacts of coalition action working through activism, collectively-sparked initiatives also influence agenda setting mechanisms, *i.e.*, introducing a policy issue which grabs the attention of government (Stewart, 2009, p. 35). Coverage of large CM cycle rides and other street-level initiatives providing a critical perspective of automobility exemplify such possibilities for political attention (Blickstein & Hanson, 2001; Furness, 2007, 2010a), playing a seminal role in what follows. Weible & Carter (2017) note the limited capacity of governments and governance networks in addressing problems and how they don't use all the available options in the policy process, and furthermore, they suggest that *"agenda-setting outcomes are not deterministic, but rather the result of a combination of factors, most likely conditioned by the public policy area and broader context. For example, agendas are susceptible to windows of opportunity marked by timing and the coupling of the right*

problems (e.g., focusing events), political dynamics (e.g., elections, national mood), and policy options and alternatives (e.g., the technical feasibility of policy ideas...)" (p. 30).

But policy is not enough for agenda-setting, and the issue requires a broader frame, involving a greater number of factors addressing numerous related issues. Junk & Rasmussen (2018) underpin the importance of framing the issue, operationalising it collectively among the coalition and aligned groups, and the how different approaches affect the political discussion with different results. Grafl, Bunte, Dziekan, Haubold, & Neun's (2018) compilation of grey literature aiming at framing the third cycling century include various references of local cycling cultures' histories and social practices so as to adequately characterise the tools for framing the role of cycling in cities (Cox & Bunte, 2018, pp. 122-124; Nogueira & Gonçalo, 2018, pp. 90-93). Oosterhuis (2016) suggests that the history of cycling has been ignored in most policymaking, despite the importance of history to explain cycling today and the applicability, effectiveness, and failures of current cycling policies. Furthermore, he argues that insights gathered from historical and cultural perspectives involving the subsystem bridge the gap between historical and policy-oriented research, and advance knowledge on the limits of what effective outcomes cycling policy outputs can realise in the short term (pp. 233-235, 242-245, 247-248).

Going deeper into the realm of operationalisation, from their sociohistorical analysis of numerous European cities, Oldenziel et al. (2016) frame the cycling subsystem and its relations in each of their case-study city's policy setting over the last century, with Oldenziel & Albert de la Bruhèze (2016b) defining five factors that help explain cycling's performance in these different contexts (pp. 8-13), further replicated and refined for numerous cities analysed and with more expected in the near future, including a Lisbon case study city (Foundation for the History of Technology, 2016a). These are adapted as contextual factors in the coalition analysis of policy process in section 3.2.4 - Operationalising contextual factors within coalition analysis of policy process. The five factors are 1. Urban development, landscape and cycling distances, 2. Automobility's and public transport's role in relation to cycling, alternative mobility options, 3. Policymakers' relation with cycling, traffic policy, social movements, and cycling's cultural status, 4. Social movements and their impact, and 5. Cycling's cultural status in the setting.

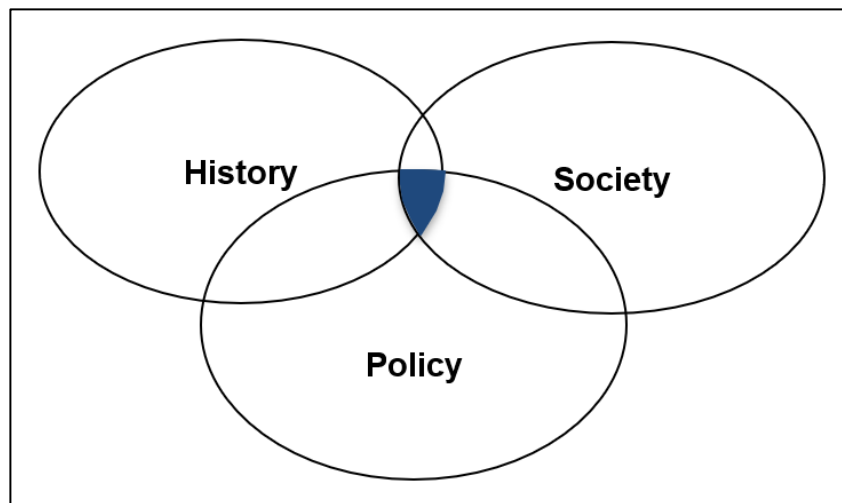


Figure 12
Simplified conceptualisation for framing the policy issue at the 'nexus'

Figure 12 provides a simplified graphical conceptualisation of this thesis' framing of the policy issue using a Venn Diagram, applying Weible & Carter's (2017) policy issue framing, illustrating the 'nexus' of the policy issue (Weible & Carter, 2017); *i.e.*, policy change for increasing cycling is observed within an ACF analysis from a historical, social and policy setting. Geographical features aren't considered within this level of conceptualisation since they are observed as a contextual factor within the policy process. The case-study in Chapter 4 integrates this 'nexus' as it is operationalised, while overlaps related to the issue are dealt with conceptually as an ACF issue in this chapter, and more specifically with comparable examples in the Chapter 3 general analysis of cyclists' coalitions. On a third and comparative dimension policy outputs and outcomes are analysed as fundamental elements related to the coalition's level of action intensity. Underlying the notion of framing the specific policy issue, from the social and historical perspectives of interactions within society and between society and governance, policy conflicts emerge with different intensities, positionings and interrelations, as identified by Weible & Heikkila (2017) in their policy conflict framework (PCF) approach, closely related to the ACF, but specifically focused on the relations which start the process itself.

From Heikkila & Weible's (2017) application of the PCF on an investigation of the intensity of policy conflict regarding oil and gas development in Colorado, the conceptualisation and operationalisation of cognitive characteristics of policy actors and how they relate to conflict episodes concludes that conflict over a specific policy issue involving a subsystem *"cannot be represented monolithically or simply as highly contentious"* (pp. 190-191). Significant variations between subsystem actors reveal, for instance, that in Colorado's oil and gas issue *"policy actors with more conservative ideology also are more likely to be willing to compromise"* (p. 191).

The characteristics analysed in the PCF reveal themselves in a range of behavioural characteristics, addressing framing (Weible & Heikkila, 2017, p. 23), but also lobbying and network building which are interrelated in strategies for coalition building and collective action from outside mainstream institutions. Heikkila & Weible, (2017) define the role of 'outside strategies' in agenda-setting and framing the policy issue: *"Outside" strategies are activities that indirectly influence decisions of government often through mobilising the general public, building and maintaining advocacy coalitions, litigating, orchestrating social media campaigns, engaging in framing and narrative debates, electoral campaigns, and organizing and participating in protests and demonstrations.* (p. 31)

Carlsson (2017) argues that in contrast to the traditional Weberian approach, it is within network analysis that a wider variety of concepts are found (p. 152). This is especially relevant for framing the cycling subsystem and the policy issue of change for increased cycling, since insights into the effectiveness of networks and how these have influenced change are central to the line of research: *i.e.*, How the cyclists' coalition has engaged with the policy realm through learning, influencing for change through impacts and pushing for effective outputs and optimal outcomes.

From research on organisational behaviour and manifestations of collective action, Carlsson (2000) contends that, despite the influence of policy networks, the virtues and efficiency of these within policymaking are rarely addressed (p. 516). Dowding (1995) considers the conceptualisation of policy networks as being closer to a metaphor than a model, as per section 2.1 - Introduction to the conceptual approach (see Figure 2 illustrating the graphic positioning of conceptual constructs, above). Within this perspective, policy networks are viewed as working towards agenda-setting from socially constructed networks as they frame the policy issues at play in the political realm. The policy networks frame the issue and operationalise the advocacy coalition's means for connecting policy change with the hypothesis for collective policy action by incorporating and formalising the aspirations of social movements into the political and institutional realm of policy, as discussed previously, through linking.

The divergence of how policy is framed as either successful or failing as described by McConnell (2010), with cases for success being framed, for instance, by the way language is employed by politicians (pp. 126-128), or by using evidence to support policy decisions (pp. 128-130). These examples root from government public policy, but may be employed by 'outside' coalitions also, as instruments for clarifying learning and change amongst policy actors in a subsystem (pp. 207-211). Junk & Rasmussen (2018) explore upon how framing affects lobbying success across a variety of policy issues, arguing that collective framing from like-minded advocates increases the possibility of success, with collective mechanisms supporting the power of coalition framing as a tool for advocacy (pp. 1, 8, 23-25).

Regarding the specificities of the cycling subsystem and the networks established by the cyclists' coalition, from a recent report on the current status of the cycling subsystem (Grafl et al., 2018) the role of framing is engaged from different perspectives by various researchers in the field, and touching upon issues regarding the sociohistorical context, policies, and politics. These dimensions include the subsystem's role in 'reverse innovation' (Neun, 2018, pp. 16-18), the transformative power of cyclists, researchers, and epistemic practices (Jensen, Cashmore & Elle, 2017; Neun, 2018a, pp. 19-20), family cycling proposals (Markvica & Rudloff, 2018, pp. 45-52; Rau, 2018, pp. 54-55), analysis of policies and governance for promoting cycling in a megacity with significant cultural and political ties to Portugal (Nogueira & Gonçalves, 2018, pp. 89-96), a comparison of two different European contexts and social practices (Cox & Bunte, 2018, pp. 122-130), and the promotion of cycling initiatives for health on a European-wide scale (Schabus, 2018, pp. 149-154). The diverse findings regarding framing of the cycling subsystem touch upon various dimensions of agenda-setting either successfully influencing the policy process and achieving different levels of change or failing to do so.

2.5.9 Events

Policy change as a concept is central to this ACF analysis of the cycling subsystem. Understanding the policy process itself, as a key to the ACF, provides clues regarding policy actors, how they relate and interact, and their specific objectives as they participate in collective action around the policy discussion. Baumgartner (2013) clarifies the importance of analysing events to disassemble the *status quo*: "*One of the most important ideas in politics is an emerging consensus that the status quo is unacceptable. Of course, such periods are rare. ... However, events do sometimes align so that the vast majority of serious actors in the political system have to admit the obvious: The status quo may have no defence.*" (Baumgartner, 2013, p. 252)

Knutsson (2017) points to the importance of analysing rational bottom-down implementation of ideas and bottom-up perspectives and interactions with government, particularly local government but also national parliament and government agencies (p. 180). Lisbon's cyclist coalition, for instance, has interacted on a wide-range of issues between 2009 and 2021, both at the local level with municipal governments, local climate agencies (e.g. Lisboa ENova — Lisbon's energy and environment agency, Almada's AGENEAL, and others), but also with national parliament, political parties (e.g. developing Portugal's traffic code), and governance structures, but not so successfully with national public organisms with appointed leadership and closed models of decision making, especially the national road safety authority (ANSR) and the national highway and railway infrastructure firm (IP), as detailed in Chapter 4, below.

When collective action emanating from citizens and activists, from civil society and social movements, from its most initial phases, a variety of vested interests vie over a multitude of policy issues, such as traffic legislation, urban

policy, environmental performance goals, and health issues. Knutsson's (2017) suggestion of the pertinence of event analysis takes us one step further in yet *"another analytical layer to be considered. The experiences from actions and their consequences must be interpreted and assessed"* (p. 180). A closer look upon policy events, actions, links, and reactions provides important assessments of the issue.

In this respect, despite, Wagner & Ylä-Anttila's (2018) research on Irish climate policy falling short of the longer time period required for a thorough analysis of ACF policy actor interactions in sparking formulation and the follow-up to implementation and outcomes, their findings are relevant regarding the role of advocacy coalitions in the policy process during the *'design stage'* of legislation, *i.e.*, during policy formulation *per se*. Wagner & Ylä-Anttila's (2018) four conceptual pathways of an ACF are a valuable tool for an analysis of policy change, namely their distinction of the following elements:

1. external subsystem events
2. internal subsystem dynamics
3. policy-oriented learning, and,
4. cross-coalition policy learning (p. 887).

Focusing on 1. external subsystem-related events as a starting point —cycling related events— these provide important conceptualisations for the methodological approach to data collection, both qualitative —interviews, note/document-, and scholarship-analysis— and quantitative data —cycle traffic counts and surveys available to confirm correlations associated to outcomes like higher cycling levels influencing the policy process. In that analysis quantitative data identifies and relates to the specific events and the relations these have with *'innovative'* policy process components and outputs in the specific setting. The term *'innovative'* is a term applied to the relative level observed at the onset, considering a setting where the policy issue started as being excluded and the subsystem's negligible presence in the overall (urban and mobility) systems in the city (Lisbon), and outlying municipalities (AML) are compared and correlated when analysing policy outputs produced and outcomes achieved.

From Weible's (2014) concepts which simplify the complexity of the policy process, the following definition of *'events'* applies: *"anticipated and unanticipated incidents ranging from elections to scientific discoveries to chronic and acute societal dilemmas and crises that may result from a public policy or provide an opportunity for achieving political objectives related to public policy"* (Weible, 2014, p. 5). Considering a large city-scaled policy setting, interactions between the diverse field of policy actors involved in the process struggling to achieve change identify the principal coalition actors and their specific roles in events. Knutsson (2017) argues that events are part of the policy system and not external to it, with research from public information, publications, media articles in newspapers, television, and the internet, and information collected in interviews, but also articles specific to the policy setting he underscores that *"Events are actual actions taken by an actor coalition, inducing change"* (p. 171). Significant insights informing a substantial number of areas addressed in the Lisbon case-study are obtained from the policy actor interviews, their specific role, complemented by a brief description of their interactions and experiences in specific policy events.

'Learning loop' distortions have been verified in episode developments over time, with the role of biases and heuristics leading to greater difficulties in deciphering complex systems (Sterman, 1994, p. 17). Research on how CM cycle rides have developed over time and influenced policy formulation and implementation, for instance, portray different perspectives of these as specific policy events *per se*, according to different explorations from different scholars; Blickstein & Hanson (2001), Furness (2007; 2010a; 2010b), or Konrad (2011), for instance, provide very different points of view and research approaches. The media can also contribute with distortions from oversimplified explanations of specific episodes, which in turn can lead to confusing transmission of information,

ignoring in many ways the cycling subsystem and how it interacts in the complex urban system. Furness' (2007), for instance, explains how oversimplified explanations lead to biases regarding CM cycle rides with a historical account of media spin:

Mass media has significantly altered the stakes of Critical Mass at different points in the past 14 years because they magnify and selectively distort the symbolic power of the event – particularly the idea that Mass participants are chaos-loving anarchists (Storozynski, 2004), criminals (Gutierrez, 2006), or potential terrorists worthy of undercover police surveillance (Goodman, 2005). Due to this situation Critical Mass directly impacts the efforts of bike advocacy, but the exact nature of this influence is, and has been, a contentious subject for debate among cyclists since the early 1990s. Interestingly, some of the most heated exchanges regarding the prospects/problems of Critical Mass have erupted not on the streets, but online, via message board and blog posts by Critical Mass supporters and opponents. This feud is exemplified by a 1999 'flame war' (see Critical Mass Flame War, n.d.) that featured lengthy debates between proponents of Critical Mass (mainly participants) and proponents of vehicular cycling – a paradigm that argues 'bicyclists fare best when they act, and are treated in return, as drivers of vehicles' (Forester, 1984). Vehicularists, as they are often called, firmly oppose Critical Mass on the basis that it breaks laws and allegedly gives a bad name to cyclists (p. 310).

Street-level accounts regarding CM cycle rides in New York City during a contentious period confirm how distorted heuristics disseminated biases regarding the event (Shepard, 2005). These policy conflicts worsened 'relative to potential' and 'relative to optimal' opportunities for policy learning from events during the short term (Sterman, 1994, pp. 14-16), negatively affecting the cycling subsystem and the policy issue of change for cycling. Yet in the longer-term, evidence points to a dramatic shift in policy change, especially at the institutional level of the municipality and local governance mechanisms (Sadik-Khan & Solomonow, 2016, pp. 230-231), suggesting some form of impact from the cyclists coalition's persistent struggle. Questions remain regarding longer-term impacts. Similar episodes analysed in greater detail in Lisbon also unravel difficulties and barriers which have impeded optimum levels of policy learning and change to overcome barriers in different settings, including insufficient change for encompassing city-wide measures favouring the cycling subsystem.

2.5.10 Learning

Policy learning is another central stimulus sparking interest in the policy issue and change (Knutsson, 2017, p. 180). Jensen, Cashmore & Elle (2017) argue that the link between knowledge-producing activities and governance of the sociotechnical system has been underestimated in the scholarship on transitions aiming at sustainability (p. 474). In policy-oriented learning, *fora* play an important role for policy actors to interact, stimulate policy learning, and change with those they contact with. According to Knutsson (2017) policy-oriented learning is most fertile when an intermediate level of conflict is present as coalitions struggle, contend and/or negotiate over specific issues related with and prior to government decisions regarding rules and resources defined by public policy (p. 168). In this respect, various mechanisms are at play within an extremely complex and dynamic process, where *fora* could be regarded as the specific locations and moments of policy events. These *fora* could be places in time and physical locations such as a specific municipality, a greater city area, a region, a country, or an international community. Regarding '*polices*' as a seminal concept in these forums and the events touching upon these, some of the most simple factors are identified as '*policy incentives*' such as '*carrots*' inducing behaviour changes (in target

populations, for instance) and 'sticks' for coercion and persuasion into behaviour change (Bemelmans-Videc, Rist, & Vedung, 1998; Weible & Carter, 2017, p. 25).

Considering the greater complexity of policymaking's distinction between Lowi's (1970) conceptualisation of policies as 'distributive'—giving, spreading out, expanding to cater for all— and 'redistributive'—sharing, reallocating, altering the distribution to cater for greater [social] equality— (pp. 320-323), the concept of distribution and redistribution can be applied to numerous areas of public policy. This includes framing policy coercion and incentives for behaviour change applicable to the choices made by policy brokers regarding the types of politics that drive these same choices, emanating from interest and ideologically-driven change (Lowi, 1972, pp. 298-300, 303-307).

Politically driven policy choices also apply to the use of public space, especially how it is valued and organised, *i.e.*, how many meters of width per mode of transport or use are *distributed* in street space—thoroughfare widening, including the need for property expropriation, and building demolition— or *redistributed*—using the available space, reallocating it and controlling or restricting uses for greater social and environmental justice, for instance. To exemplify, space allocation for trees, seating, pedestrian space width, commercial activities, cycleway width (or even existence), public transport corridors and general road lanes catering mostly to automobility, etc. could all be analysed as value-elements by the way treatment is either *distributive* or *redistributive*. Similarly, the quantities involved in *allocation and distribution*, or *reallocation and redistribution* of public resources, including budgets, space, and technical staff attributed to each policy subsystem, illustrates the value placed on addressing the policy issue and realising effective change, but also the level of political relationships and coercion for behavioural change being sought through fiscal policies and government programmes. These relations reveal, to a certain extent, the political willingness to achieve the policy goals being defined (Lowi, 1970, pp. 320-321).

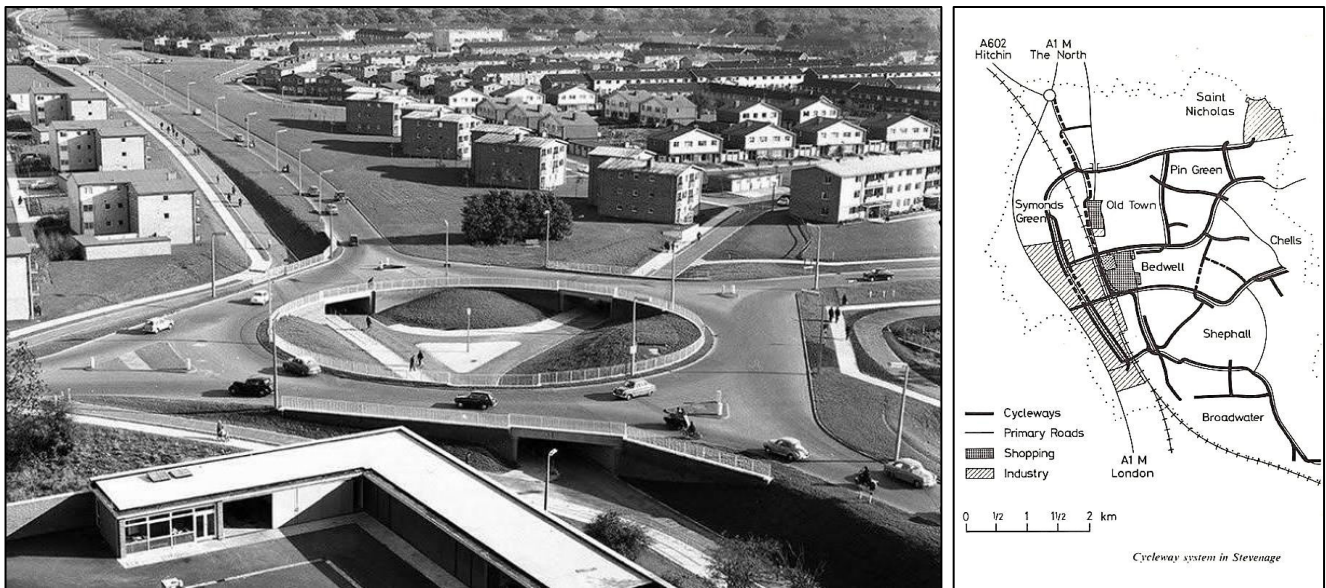
One example of policy issues in face of space allocation and the choice of either redistributive or distributive policies regarding cycling infrastructure implementation is illustrated by an anonymous former policy broker interviewed in the Lisbon case study. One of the problems this policy broker had identified was that it was complicated to include a sidewalk for pedestrians beside the Cascais-Guincho cycleway, which ends up being a relatively narrow shared path used by both cyclists and pedestrians, generating unsafe situations and conflict. The cycleway was the AML's first, built in 1996 by replacing a highway shoulder with one side bordered by a road-traffic lane and the other by fenced private properties. The former policy broker interviewed explains how a typical dilemma of redistributive *versus* distributive policy approaches are posed in environments of almost no policy brokerage on the issue at stake:

You have to take space from the car... some (cycleways) have to be structuring... Everyone thinks it's understandable that land is expropriated to build a road, but it does not occur to anyone to expropriate land to build a dedicated cycleway. But why not? Why can't it be? It's also a route for mobility... When it's for cars, hey, no problem, expropriate it and that's it, and everyone thinks it's very normal for there to be an expropriation to build a road. But if you're going to build a cycleway, hey, what's that, what a fortune, what nonsense! (Interviewee #10 – Former Policy Broker)

A case in point exemplifying how *distributive* policies are incorporated into similar planning priorities is that of Stevenage, England, a well-documented failure in attempting to bring about policy change to increase cycling rates in a local mobility system (Reid, 2017a, pp. 164-178, 2017b). A comparison of Stevenage's *distributive* mobility policies and the impact of cycling in that setting provides a limit analysis for comparison with other cities with different intensities of *distributive* and *redistributive* street-space policy applications and levels of policy brokerage.

The policy learning dimension should be kept-in mind regarding the policy process itself, both by means of how outputs are formulated (discussed and designed) and implemented by involving or, in Stevenage's case, excluding public inputs or the existence of a broader cyclists' coalition. It is noteworthy that the governing model behind the development of Stevenage as a New Town is part of a British national strategy, programmed between 1946 and 1978 at the peak of Britain's welfare state era, with goals inscribed in centralised governing for service provision in housing, public services, and comprehensive urban mobility infrastructure based on delegating public policy upon a Development Corporation and its specialists 'rowing' for public service provision. This process may be connected to the crucial failure of not managing to promote cycling as an effective subsystem within this new town's overall urban design. Stevenage's development planning was criticised for emanating from centralised policymaking and excluding public participation; Mullan (1980) concludes that "*public participation and protest were basically irrelevant to the decision-making process*".

Despite Broady's (1981) rejection of Mullan's analysis of Stevenage and the new town Development Corporation's apparently monolithic methods of policy formulation and implementation, his research does not adequately explain "*the constraints under which urban managers operate*" which "*would require a much more incisive analysis of the reasons for the Corporation's policies*" (p. 354). Similarly, McGuire, Clarke, & Wall (2016) suggest that while "*most of the scholarship that has examined the development of Stevenage has viewed it as a top-down process, conducted by planners, engineers and politicians*" the participation and protest of trade-unions did influence the policy process in Stevenage (pp. 229-230). Nonetheless, the examples reported by McGuire et al. (2016) regarding street space and avoidance of road danger, as *per* the tendencies of the 1950s and 60's were also typically *distributive* measures catering to car-traffic's needs, creating temporary pedestrian bridges over traffic arteries and pushing and succeeding for a new traffic bypass around Stevenage (pp. 230-232). The trade unions did in fact participate in protests for safer streets, but the solutions they defended were in line with '*in-the box*' institutional policy of the time, and broader policy learning mechanisms were still not addressed in the government's or the Development Corporation's policies and capabilities at the time.



Figures 13 and 14 - Stevenage

Figure 13 – Stevenage modal organisation and 'bear-pit', and Figure 14 - Stevenage's cycleway network
 (Sources: Stevenage Museum (2015) and Stevenage Borough Council, c. 1975 in Reid (2017b))

Notably, Eric Claxton, Stevenage's chief engineer from 1963-1972 was a cyclist with renowned knowledge and experience on cycling infrastructure (Reid, 2017a, pp. 165, 172). Yet as Cox (2015a) highlights about Claxton's efforts and Stevenage's development for the promotion of cycling, "*the existence of both knowledge and examples of good practice were of little avail when it came to most decisions on urban development*" (p. 8), and most significantly, automobile-use was not constrained in any way (Reid, 2017a, p. 173). Thus, the role of learning limited to that existing between experts and policymakers, even if including corporatist or collectivist coalitions such as the workers' unions but excluding crucial inputs from social movements and the public, civil society, and policy actors situated '*outside*' the institutional framework of the time, including '*outside*' coalitions. This exclusion limited the possibility for optimal responses. Likewise, during the same time frame regarding Justice Layfield's 1973 report of the Public Inquiry into the Greater London Development, of which Stevenage is a satellite town, Cox (2015a) cites the document, which indicated that "*Scant attention is paid to the pedal cyclist ... He seems to be regarded as a virtually extinct species.*" (p. 8)

The distributive mobility policies implemented in a '*please all, harm none*' approach, as implemented in Stevenage (Figure 13) reveals a landscape, where implementing a cohesive, connected cycleway network is not enough for effective policy change results. Regarding learning, as a policy analysis element, various degrees are exemplified, ranging from ineffective '*distributive*' mobility policies seen in Stevenage and elsewhere, to impacting '*redistributive*' measures focusing on walking, cycling and public transport. The difference between these two approaches is indicative of the policy values and process decisions taken. But how exactly do cities learn and transfer this knowledge and appropriate it to their specific setting? The answers are complex, highly diverse, and multipronged, considering the following:

1. Citizen involvement: Including the first steps of coalition building for collective action by means of citizens' practices, activism, organising into associations, and providing useful contributions to city officials, governance structures, and policy brokers.
2. City officials: Interacting with local citizens, activists, and organised associations, participating in policy learning venues with interest groups of all levels —from infra-local to national and international—, epistemic communities researching their specific context, other cities with similar policy issues being addressed, researching and learning for and from best-practices, applying them locally and sharing acquired knowledge and best-practices implemented locally at the regional, national and international levels.
3. City governance structures: Open to citizen participation, promoting interaction between local citizens and stakeholders, activists, and associations, and integrating these policy actors with policy brokers in policy formulation and implementation at the local and regional levels, and information gathering and sharing with other cities —nationally or internationally—, while informing neighbouring municipalities and networking with regional and national structures.
4. National and international governance structures: Interacting with city governance structures and officials, open forums to listen and scope for information from local structures, citizen involvement, and feedback from associations, and information gathering and sharing from policy issue venues at the national and international levels.

Within the process of policy learning, citizens, activists, associations, local stakeholders, city officials, and city governance structures interact transferring ideas and getting them on the discussion table in decision-making structures, evolving from the decisive initial spark caused by citizen practices, interaction with social movements, organisation into associations and the pivotal role these entities play sustaining involvement and activating other means of interaction with local governance structures —especially municipalities, but not only—, and coordination

with epistemic actors —experts and researchers— and the broader institutional framework of politicians and policy makers at all levels.

Policy learning in city governance structures

At the institutional level, policy learning and transfer in cities develops from a number of different sources, beginning with local policy officials conducting ‘*unsystematic searches*’ (Marsden et al., 2010) by means of initial browsing and informal information gathering, increasingly aided by consultants which may expand or limit the level of learning achieved, depending on their specific beliefs and policy orientations. An evidence based approach for change has been observed by the scholarship, especially dominated by cities aiming at promoting their achievements, but keeping two significant caveats in mind: 1) the possibility of other more effective solutions which may not be obvious to individuals involved seeking information —single officials or experts; and 2) the likeliness of cities to inform of their successes or successful project features instead of discussing failures or problems (Marsden et al., 2010, p. 510). In response to these caveats, benchmarking has been observed as an effective tool for evidence-based learning in city governance structures. Marsden et al. (2010) claim that “*if conducted effectively, [benchmarking] can enable cities to compare their performance with cities in similar circumstances, identify areas in which they are performing less well than their peers, and seek evidence of policy interventions which might help them improve.*” (p. 510)

The concept of benchmarking is operationalised in city governance structures by means of policy learning through different mechanisms, between different cities and by interacting with local and visiting policy actors. Peer-to-peer exchange is one of these mechanisms, examples range from workshops aiming at transferring best practices learnt from successful programs (Marsden et al., 2010, p. 510), city twinning —sister city— projects aiming at program, policy minded city networks —addressed below in 3.5.2 Meta issue networks— and implementation transfer from what is learnt from experiences in one city and transferred to other cities engaging with similar problems (Beatley, 2000, pp. 344-345). Peer exchange can foster coalition action in diverse ways and can be further summed in three operational areas: 1. Sister cities / City twinning, 2. Cooperation between cities, and 3. National programmes, leadership, and cooperation:

1. Sister cities / City twinning has been a particularly effective mechanism for activating cooperation between cities in environmental policy learning, with cities that have led the way with already successfully implemented ecologically minded policy measures in their own territories. Beatley (2000) points to programs from cities mostly in the centre and north of Western Europe aiming at assisting sustainability initiatives in other cities worldwide, with technical advice and moral support, often in less developed countries. Projects and relationships emanating from these interactions between different cities vary widely, including educational exchanges and programmes, mutual visits, technical assistance for environmental and community projects, and dialogue (pp. 344-345).
3. Cooperation between cities, operationalised through peer city networks, have emerged regarding numerous environmental policy networks. The intensity at the European level has leveraged several resource structures, including Eurocities, Energy Cities, International Council for Local Environmental Initiatives (ICLEI), Car Free Cities, Green Capital Cities and Green Leaf Award towns —originating from The Sustainable Cities and Towns Campaign and the EU Commission. At a global level, the Institute for Transportation and Development Policy (ITDP) and the Bloomberg C40 Cities network have also provided cooperation resources for policy sharing for cities developing sustainable mobility and climate policy at the

urban level. Interactions within these city networks focus on information and technical knowledge sharing, but also on political and moral support (Beatley, 2000, p. 359-360), even if indirectly.

Awards such as the annually held European Green Capital Award (EGCA) for cities and European Green Leaf awards for towns certify and disseminate the success of environmental policy implementation at the urban level, developing healthy competition between many European cities, and useful to advance city leadership in environmental and climate action. Similarly, the ECF Velo-city conference (VCC) series aiming at increased cycling in planning, policy, advocacy, and citizenship issues, has also become a highly coveted event sought by cities and their local policy actors where these have a relatively high-level of involvement with their local cyclists' coalition. VCC series have functioned as '*city changer*' events, pressing a deadline for policy implementation and exposing the cities to greater scrutiny from local and foreign cyclists' coalition actors.

These awards present considerable political value, enhancing the position of local stakeholders promoting sustainability at a local level and easing the implementation of difficult measures in cities (Beatley, 2000, pp. 425-426). The EGCA and the EGLA have been used as city accelerators to achieve targets on the initial levels of implementation, and as promotional tools by municipal governments. Lisbon and other EGCA cities, Torres Vedras and other EGLA award small cities, are considered references in the '*green*' policy domain for many Portuguese municipalities. In fact, since Torres Vedras became the first Portuguese EGLA town and Lisbon the first Portuguese EGCA city, greater pressure, and opportunities for effective learning from greater exposure to ecological policy issues have also helped place cycling on the local policy agendas through media and social network coverage. Both Lisbon and Torres Vedras have above average cycling infrastructure implemented in comparison to other Portuguese cities: both have relatively extensive cycleway networks, large bikeshare systems, and growth associated to their EGCA and EGLA involvement.

European cities have demonstrated enormous potential from the role that municipal governments have in redefining numerous environmental priorities, including regarding public space, and by doing so, municipalities have provided a clear and immediate potential for change, one recent program revealing this capacity is the EU Mission Cities Climate-Neutral and Smart Cities programme launched in November 2021 and with 112 cities chosen to fulfil this commitment in 2022, including the Portuguese cities of Lisbon, Porto and Guimarães. This EU Mission demands vast and quick implementation measures aiming at decarbonising of each participating city, inevitably affecting their mobility systems and some degree of addressing cycling. Regarding cycling policy and planning, some of these EU Mission cities are also '*green*' European cities known for benchmarking on urban policy and planning for cycling also (Buehler & Pucher, 2011; Pucher & Buehler, 2008), and infrastructure in particular (Furth, 2012).

The intensity of supportive networks among cities is widely available in the EU, with policy communities and benchmark cities associating for policy change in several environmental and climate mitigating subsystems, including cycling. These organisations have been identified as activating several functions, namely lobbying, providing technical assistance, publishing, and disseminating information about what different communities are doing regarding related policy issues, and working with EU-funded networks and programs to increase technical assistance and collaboration between cities.

Some of these networks emerge from the European Commission (EC) and its funding programmes for innovation, such as the FLOW program funded by the European Innovation and Networks Executive

Agency (INEA), and other CIVITS Cleaner and better transport in cities programmes with limited time frames. FLOW aimed at “less congestion by creating opportunities for more walking and cycling” among a network of six cities in six EU countries, with a four-year operational time frame, between 2014 and 2018. From this network of cities exchanging experiences, practices and technical expertise, a resource of publications was produced (FLOW.eu, 2018). Lisbon was one of the partner cities in the FLOW program, bringing in specialists and advocates from European consultancies and organisations while developing its own pedestrian and cycling policy, and networking these developments with numerous public square recovery projects which were being implemented in the city during that time frame. Meanwhile experiences were being exchanged with workshops, visits, and meetings between cities showing practices and ideas, and analysing technical solutions while these were being implemented. These developments in Lisbon, as well as experiences in other cities, provided information for developing an impact assessment tool guidelines for municipalities and consultancies in involved in planning for cycling and pedestrian networks (Szabo & Schäfer, 2016). Similarly, Lisbon also participated in the Park4SUMP CIVITAS programme during its 2018–2022-time frame, aiming at introducing effective urban car-parking management policies in 16 European cities by organising meetings, studies, workshops and interactions between city structures, producing benchmarking recommendations and guidelines to integrate this subsystem as part of a broader sustainable urban mobility policy (Schmalholz, Rye, Tully, Auwerx, & Cré, 2022).

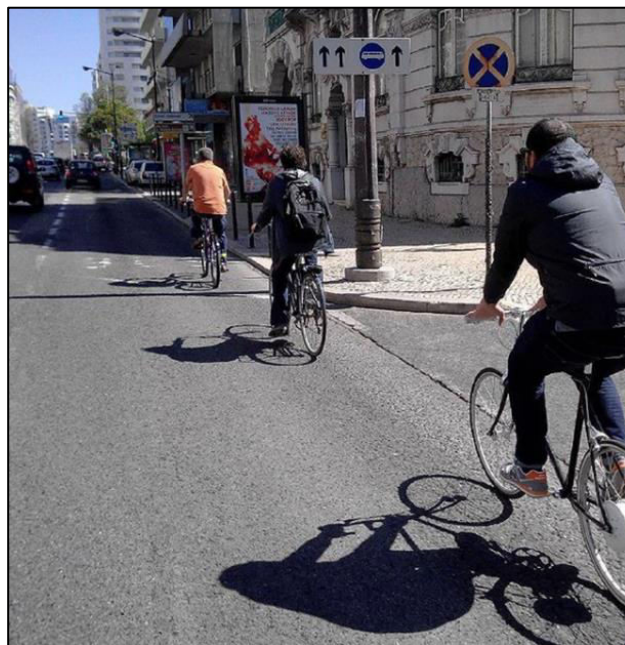


Figure 15 – Expert group site visit to Lisbon

Central traffic artery visit at Avenida Fontes Pereira de Melo on 30 April 2016, the week before cycleway construction started. Several expert visits and meetings were held with Lisbon. In this picture Pedro Reis (Engimind) is at the front, followed by Gerrit Faber (Infrastructure Expert at ECF), and João Camolas (Lisbon Municipality)².

² ECF cycling infrastructure expert Gerrit Faber and German Chancellor Fellow Graham Cavanagh (in collaboration with Rupprecht-Consult with experience on the implementation of cycling infrastructure in New York City) were in Lisbon for several meetings focusing on exchange of experience and learning with municipal officials and policy entrepreneurs promoted under the EU FLOW programme, during the last week of April 2016.

3. National programmes, leadership, and cooperation are also an opportunity for policy learning mechanisms to boost the recognition of a city's or town's accomplishment in implementing environmental policy outputs. Beatley (2000) mentions the effectiveness of annual 'ecological city' prizes and national rank programmes, held by national environmental groups in Germany (*Deutsche Umwelthilfe*) and in Denmark (*Danmarks Naturfredningsforening*) for instance (pp. 426-427). In Portugal, *Associação Europeia Bandeira Azul* (ABAE) hosts a similar annual ECO XXI 'green flag' sustainable municipalities award since 2005, currently assessing 21 sustainability indicators, providing workshops and meetings focusing on technical expertise and best practices in the field of urban policy and management (addressed in greater detail in section 3.5.3 –Policy transfer mechanisms). One of the indicators (*i.e.*, sustainable mobility) requires that participating municipalities provide a structured assessment of sustainable mobility measures, with a detailed evaluation of outputs being conducted by an epistemic group jury covering each of the following sub-theme areas: walking, cycling, public transport, traffic management, and municipal strategies and plans. Despite coverage not being universal to all of Portugal's 308 municipalities, since only interested municipalities participate, involvement is quite high, with 62 municipalities competing for the award in 2020, 58 in 2021, and 59 in 2022, representing 19% of Portugal's municipalities and covering approximately one-third of the country's population.

A caveat regarding the use of city ranking systems applies to their effectiveness as policy learning mechanisms in city governance structures. Meijering, Kern, & Tobi (2014) point to methodological evaluation issues in all six European green city rankings they researched, with specific recommendations for evaluators developing the evaluation methodology for each system and for 'end-users', namely local decision-makers —policy brokers—, citizens, and the media reporting these. In all cases, Meijering et al. (2014) conclude that the effectiveness of each ranking system depends upon how methodology is reported and the robustness of results (pp. 140-141).

To clarify the roles of policy transfer as mechanisms of exchange and learning in city governance, Kern (2019) distinguishes between the various forms of transfer types; namely that voluntary actions and direct relations between leading cities —horizontal upscaling—, differing from interdependent relations between cities and higher levels of government which shape vertical upscaling, while hierarchical upscaling implies harmonisation of national and/or EU-level policies setting mandatory standards for all municipalities. She claims that 'hybrid' or 'embedded upscaling' is a more encompassing approach for multi-level government policy 'upscaling' interactions, involving knowledge exchange, transfer, and learning (pp. 129-130). While horizontal upscaling is most relevant for leading cities, capable of starting local experiments and replicating them first throughout the city, then to surrounding municipalities and cities in the same country, followed by cities in other countries, Kern (2019) notes that "these experiments are place-based, their transfer depends on polycentric networks that help experiments to cross territorial boundaries and travel to other places", leveraging exchange of experiences, transferability of knowledge advanced, and learning between and among different cities (p. 128).

Lisbon is an example of a city with horizontal and hybrid upscaling learning and transferability, from being a city with low rates of cycling in 2009 to transforming into Portugal's leading national level 'cycling city' with various interactions at play by 2021. The implementation of Lisbon's pilot cycleway implementation project in the uptown city neighbourhoods between 2016 and 2021 brought new policy entrepreneurs, detailing and solutions developed with Lisbon Municipality's Mobility Studies and Planning Division (DEPM), later published in the city's street design manual (Câmara Municipal de Lisboa, 2018b), and from there copied by various Portuguese municipalities (e.g. Oeiras' 'Ciclovia Empresarial' cycleway between Paço de Arcos train station and Porto Salvo; cycleways in Torres Vedras, Caldas da Rainha, Benavente, sharrows in Loulé, etc.).

The possibility for even broader national and international replication is even further augmented by Lisbon's scale and significance as national capital with participation in urban system and policy-issue aligned networks such as ICLEI, C40 Cities, but also different networks where specific subsystem policy alignments haven't been so thoroughly developed but provide possible opportunities for expanding knowledge exchange, transfer, and learning. One such example is the Union of Portuguese Language Capital Cities (UCCLA) —a global-scale network of Portuguese speaking cities with 43 member cities from 10 countries on 4 continents: Europe, South America, Africa, and Asia. Suggestively, UCCLA endorsed its support for both of Lisbon Municipality's bids to host the cycle planning and policy VCC conference bids for 2017 and 2021 (Câmara Municipal de Lisboa, 2018c, pp. 13, 90-91, 106).

According to Kern (2019), the advantages of hybrid/embedded policy transfer upscaling results from the combination of 'leader-follower-laggard dynamics' which through their networking scheme —polycentric, including regional, and EU level 'metanetworks', but also policy focused functional and territorial networks— provide new opportunities for leading, following, and lagging cities to effectively "close the gap between leaders and laggards".

Hybrid/embedded upscaling also responds to important challenges, solving numerous issues of experimentation, differentiation, and regulation (Kern, 2019, p. 130). Leading city governments and policy actors work intensely with general city networks such as UCCLA or Eurocities, but also with specialised networks such as ICLEI, the Climate Alliance and C40 Cities, the latter founded by former New York City mayor Michael Bloomberg and including relevant policy actors, namely New York City's former transport commissioner Janette Sadik-Khan. Kern (2019) cites a City of Freiburg official she interviewed, who confirms that "leading cities tend to join various networks at the global, European, and national levels, even if these networks fulfill similar functions" (p. 131).

Multi-level policy transfer

Beatley (2000) argues that pull and push measures from higher level government, particularly strong national initiatives, have played an important role in activating experimental municipal government initiatives. The measures, actions, and initiatives formalised from national to local government policy transfer have directly or indirectly backed local collective action. The intensity of this collective action processes according to the level of ambition inherent to the national programmes being implemented, measurable by means of the goals they advance and the financing they earmark for implementation and assistance provided to municipal governments seeking change for the policy goals being advanced. National climate policy plans and sustainable development orientations under Agenda 21 — and more recently Agenda 2030— have pushed for bolder local policy action in some cities, which reflects on local policy initiatives developed. Likewise, and on a more focused-scale, national strategies have played a role including speeding-up cycling in local public policies where it was missing or being stalled. Portugal's national cycling strategy ENMAC and 'Portugal Ciclável 2030' (PC2030) are a case in point, with several new intermunicipal cycling links being promoted as part of the goals of these national policy initiatives due to the availability of financial resources they are supposed to provide to local government with (Castro, 2021; Junceiro, 2019; Lusa, 2020a; Presidência do Conselho de Ministros, 2019c).

On a broader scale, policy transfer between national and local development strategies has been applied effectively in urban policy in the Netherlands, where national compact cities strategy has been implemented over time, providing a framework for regional and municipal planning (Bertolini & le Clercq, 2003), influencing policy outputs in spatial development, and outcomes with social implications (Harms, Bertolini, & te Brömmelstroet, 2014). Various articulated measures work at different levels, with the Dutch A-B-C transport/land use strategy reinforcing basic conditions for establishing stable sustainable development regulations and patterns (Beatley, 2000, pp. 426-427),

and integrating cycling and public transport at all territorial scales within the country's mobility system; local, regional and national, over a relatively prolonged period of time (Kager & Harms, 2017). Coordination between different levels of government has integrated land-use and mobility policy in the Netherlands, with formulation and policy outputs produced (Kager & Harms, 2017, pp. 15-23; van Wee, 2021, pp. 149-154).

Contrarily the absence of coordination mechanisms hinders policy transfer objectives, placing municipal land-use instruments in a vulnerable position, with the probability of anachronic or uncoordinated policy options being a possibility, depending directly on political mandates and policy brokers' discretion or self-interest. This volatility is mandate-prone and therefore short-term and politically vulnerable. In a mayor-based political setting, for instance, this fragility can become exacerbated with impacts on land-use patterns and subversion of institutional arrangements. A comparison of Cascais' and Oeiras' municipal masterplans (PDM), for instance, both approved in 2015, advance conflicting interests regarding national space-planning and land-use legislation already in effect that same year (Assembleia da República, 2014a), revealing off-target implementation regarding urban and national policies applicable at the time, with negative impacts on numerous sustainability issues. Both municipal masterplans ignore national mobility recommendations (IMTT, 2011a) and the national walking cycling strategy —theoretically— applicable during the 2013-2020 time frame (IMT, 2012). Strategic documents already approved and disseminated at the time of policy formulation were ignored in practical terms, including the national environmental and climate programme, already in an advanced stage of development when the masterplans were approved (Presidência do Conselho de Ministros, 2015). This lack of coordination between national recommendations and goals, and municipal implementation in two prominent Portuguese municipalities, reveals either a significant knowledge-lag between the municipal political and technical mechanisms or the prevalence of conflicting interests. Similarly, lack of coordination from the national government and institutional mechanisms reveals serious gaps in using multilevel upscaling mechanisms to 'steer' away from policy lags by boosting knowledge transfer between different levels of government.

The role of learning in the policy process

Other levels of policy development occur and complexify policy interactions as the role of learning sets in, especially when legislative and best-practice outputs are produced and updated in policy-related documents, or even unwritten but implicitly understood and applied locally by municipal, regional, and national government bodies or other public agencies with responsibilities in the subsystem. Biases from dominant social values also interfere in the process of learning. These biases —or even commonly accepted heuristics— may be inherently incorporated into operational levels of functioning and the structured interactions between policy actors. Ostrom (2009) conceptualises these interactions as '*rules-in-use*' or '*working rules*' which as Weible & Carter (2017) suggest create public service dilemmas regarding how street-level bureaucrats deliver the policy (Lipsky, 1980; Meyers & Vorsanger, 2007). The scholarship has identified that research on public policy dynamics has noted that '*rules-in-use*' or '*working rules*' applied in practice can either conform to or diverge from written policy (Carter, Weible, Siddiki, & Basurto, 2016, pp. 174-175; Ostrom, 1986, pp. 6, 19; Weible & Carter, 2017, p. 25). Evidence regarding public space allocation for pedestrians and cyclists in the Lisbon case-study confirms divergence in street-level enforcement by police officers regarding traffic laws and illegal parking in pedestrian crossings, walkways, and cycleways, but also interference in higher levels of decision-making regarding the implementation of national pedestrian accessibilities legislation, municipal masterplans regarding cycleway implementation, and numerous other situations where automobility is tacitly prioritised, and in many cases, active mobility is placed at risk. To varying degrees these divergences between written policy and its practical implementation on the terrain is analysed in the Lisbon case-study, and

commonalities can be analysed in other localities elsewhere. In this respect, Carlsson's (2017) observation is worth keeping in mind: policy process are traditionally described as: “*an orderly sequence of separate activities, such as ‘agenda setting, problem definition, formulation, implementation, evaluation and termination... and ‘a dominant paradigm of the policy process’*” (Carlsson, 2017, p. 149).

Yet the dynamics are fuzzier with actors, their interactions and resulting levels of influence resulting also from contacts situated well ‘*outside*’ high-level institutional arrangements, at the local level. Wagner & Ylä-Anttila, (2018) cite Sabatier & Jenkins-Smith (1993) assertion that “*policy innovations normally occur first at a subnational level and then may get expanded into nationwide programs*” (p. 17) (Wagner & Ylä-Anttila, 2018, p. 887). Hypothesising this bottom-up multilevel government interaction claim, from insights into policy innovations influenced by Lisbon’s cyclists’ advocacy coalition and how they’re expanding beyond the city limits this path of research provides a promising key for knowledge exchange and policy transfer for shaping change for growing cycling outputs and outcomes.

Innovation and transfer

Innovation and transfer work as learning mechanisms upstream from institutional policy events such as drafting and approval of strategic plans. While drafting plans are procedures which can have an impact upon the dynamics of the policy process, learning also emanates from innovation and knowledge transfer. These two basic components of learning function in tandem and can enter the institutional process by means of a series of policy actor and organisation interactions during the formulation and/or implementation phases. Accordingly, scholarship has increased attention on the significant role of cities “*as agents of change capable of exerting influence across a range of administrative governance scales from regional to supranational*” (Marsden, Frick, May, & Deakin, 2010, p. 501). European funding for public programs, for example, has been noted to promote governance partnership arrangements outside the traditional institutional spheres of government, providing encouragement for local governments to work collectively at the regional level since national-level learning has also revealed various frailties (Bulmer & Padgett, 2004, pp. 116, 122). On the other hand, the effectiveness of rationally structured policy learning between subnational governments is questioned by Betsill & Bulkeley's (2004) research on transnational networks and environmental governance.

Betsill & Bulkeley's (2004) findings identify policy learning from their research on the prominent network structure of the former International Council for Local Environmental Initiatives, currently ICLEI - Local Governments for Sustainability (ICLEI) global Cities for Climate Protection program. Learning is leveraged by the programme, and involvement from local authorities, coalitions, and individuals, by what they describe as discursive means (which are institutionally harder to associate and follow) instead of a rational structured (institutional) process. Their findings point to the importance of the financial and political resources associated to these initiatives and the legitimacy of the ICLEI programme norms, more than that of the information disseminated. According to Betsill & Bulkeley (2004) policy learning results from these ‘*discursive struggles*’ between actors and their interpretations of the policy issue as these are operationalised at a local level (p. 471).

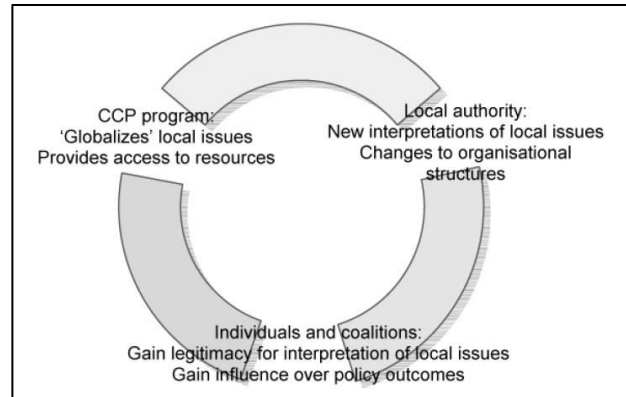


Figure 16
Discursive policy learning process
 (Betsill & Bulkeley, 2004, p. 487)

Regarding city governance and their relations and interactions within a setting of larger transnational government bodies, Marshall (2005) has pointed to the opportunities for *‘thinking outside the box’* with the additional resources provided by the EU playing an opportunity for local change (pp. 676, 680-681). Marsden et al. (2010) underline the value of the *‘extra legislative layer’* provided by the EU, especially where cities engage in policy influence as effective *‘agents of change’* (p. 501). Dolowitz & Marsh (2000) suggest upon the greater success of policy transfer involving actors such as interest groups who will be affected by policy transfer, for greater success, and greater probability of failure or a flawed transfer, if policies are transferred directly from abroad without a clear understanding of the transfer process (p. 8). In this respect, Wagner & Ylä-Anttila (2018) suggest the need for more research into the *“circumstances under which cross-coalition learning occurs between coalitions in different countries or between those at different levels of government occurs”* (p. 887).

To exemplify, cyclists’ coalitions from different cities and countries have worked within a variety of transnational programs addressing diverse features of the policy issue in different countries, through associations, local government, and between local and national government in certain episodes. Several Portuguese municipalities have experienced these types of interactions regarding contacts with different national and European associations, but also with the EU-funded projects and other European Cyclists’ Federation (ECF) initiatives such as the EuroVelo trans-European cycleway network and VCC series cycle planning and policy conferences. In this respect, Dolowitz & Marsh (2000) address four conceptual levels of policy transfer, revealing different degrees of engagement, namely *“copying, which involves direct and complete transfer; emulation, which involves transfer of the ideas behind the policy or program; combinations, which involve mixtures of several different policies; and inspiration, where policy in another jurisdiction may inspire a policy change, but where the final outcome does not actually draw upon the original”* (p. 13).

These different degrees of policy transfer are constrained by the actors involved in the process —policy brokers, policy entrepreneurs, epistemic groups, activists, and citizens—, as their level of intensity in decision-making and brokerage materialises. Urban tactical implementation which can effectively help rebalance the mobility equation involves emerging discussions such as those observed when pop-up cycleways were introduced in Lisbon in 2020 and 2021, and before that, in Loulé municipality when a pop-up cycleway was introduced in Quarteira’s central avenue in February 2019. The concept was introduced and drafted with entrepreneurship and involvement from the same expert consultants in both localities, but the policy process evolved differently in the two places, with a

commonality identified regarding local policy actor attitudes observed in face of the political debate which ensued output implementation. This policy formulation basis and the ensuing discussion around implementation is conceptualised by Dolowitz & Marsh's (2000) insights on policy transfer, underpinning the possibility that "*while politicians tend to look for "quick-fix" solutions and thus rely upon copying or emulation, bureaucrats, on the other hand, are probably more interested in mixtures*" (Dolowitz & Marsh, 2000, p. 13). In this respect, implementation detailing is key and many of the discussions before and after implementation focus on this aspect of the output produced.

Scholarship on the transfer of policy ideas indicates the need to study context where policy processes occur within the broader social system, taking into consideration adequate time frames for the policy process to become visible as advisable for research design (Heichel, Pape, & Sommerer, 2005, pp. 819, 829-830), in line with the ACF's temporal limitations requiring a time frame spanning at least one decade. Issues of innovation achieved from '*social learning by doing*', or experimentation, are addressed in the scholarship (Nonaka, Toyama, & Konno, 2000, p. 10; van den Bergh, van Leeuwen, Oosterhuis, Rietveld, & Verhoef, 2007, pp. 247-248, 258-259), while engaging in policy network analysis, and including a perspective upon the institutional settings influencing the policy process itself (Marsden et al., 2010, pp. 502, 508-509).

Another feature in the exchange of ideas is that of cross-coalition learning. For instance, in many cities, including Lisbon, cyclists' coalition actors work with actors outside the cycling subsystem, from different coalitions —*i.e.*, pedestrians, public transport, community groups, family groups, school communities, environmentalist groups, etc.—, but also counter-coalitions —automobility—, thus enhancing the possibility for cross-coalition learning even among antagonist fields. In this respect, Wagner & Ylä-Anttila's (2018) suggest that cross-coalition learning does not occur and cannot occur when there's only one coalition operating stably in a network (p. 887).

Evidence of how policy innovation and transfer has contributed to policy learning by means of diverse networks of relations is schematically structured in policy conflicts between different coalitions (Weible & Heikkila, 2017, p. 27; also section 2.5.11 Policy conflict). These networks function with policy brokers, *i.e.*, local politicians, including their policy entrepreneurs —for instance, advisors and expert consultants— and municipal officials looking for useful sources of information by means of peer-to-peer contacts, peer networks, and trust relationships (Marsden et al., 2010, p. 508), and also through implicit knowledge and exchange networks for innovation regarding idea transfer among policy actors within organisational dynamics. These links include the decisive role of policy entrepreneurs, or '*change managers and consultants*' (Boonstra, 2004, pp. 468-470) and social '*boundary objects*' acting as conceptual anchors or bridges —even if only temporarily— between different social worlds (Star & Griesemer, 1989, pp. 393, 414).

Organisational and collective learning

From Cyert & March's (1963) seminal scholarship on behavioural theory learning also advances from procedures and routines, steering through the decision-making process in organisations as an adaptive process by which institutional organisms govern according to their operational settings. Knutsson (2017) argues that this level of organisational learning responds to short-term feedback; *i.e.*, expectations are kept within a *status quo* level of the policy process and resulting development, as compared to his reasoning that within the ACF analysis '*expectations are embedded in the rules, procedures and routines of the organisation*' since beliefs are key, and combined with their experiences shape expectations (p. 168). Gerlak & Heikkila (2011) argue that policy actors crossing various fields within a policy issue —*i.e.*, policy entrepreneurs— are crucial in processing collective learning by relating with

many diversified policy actors and their networks, especially during the initial period of information dissemination, considering two propositions they conclude as being functional starting points, namely that “*learning is more likely in a collaborative that has a more open and decentralised structure, while also maintaining actors in positions who are linked and connected across multiple members of the collaborative*”, but also that “*learning is more likely in a collaborative where (a) actors interact frequently, (b) members have or can establish shared goals, and (c) leaders are engaged in nurturing shared goals and frequent interactions*”. (Gerlak & Heikkila, 2011, p. 636)

Within these propositions, acquiring new information on the subsystem and policy issue, programme reports, dialogue, experimentation aiming at specific goals, as well as processes for sharing and disseminating information are collective learning processes identified within a specific setting. Trust, building interactions, and leadership are identified by Gerlak & Heikkila (2011) as playing structural roles in the social dynamics for change, working as policy brokerage links between groups —or, at a more encompassing base, ‘*coalitions*’— and obstacles to learning originating from lack of information sharing or, possibly, exogenous variables impeding learning; internal coalition structures, social dynamics, and technical realm hindering the process of information acquisition (pp. 628, 634, 639). Boonstra (2008) argues that inter-organisational systems influence relations among organisations and individual actors who use these systems, affecting the division of power inside and between organisations, *i.e.*, power redistribution as it impacts decision making. Ingold & Varone (2012) claim that researching collective learning in collaborative arrangements could be a promising approach to effectively “*isolate the specific impact of policy brokers from the influence of additional variables impacting both, learning processes (i.e., change of some element in coalitions’ beliefs system), and learning outputs (i.e., change in policy instruments)*” (p. 340), underpinning the key role of policy brokers in collective, and organisational, learning. When these policy brokers are aided by expert policy entrepreneurs working with multi-level information and contacts, policy brokers can further stimulate learning, and thereby activate change.

Organisational learning as an issue surpassing the *status quo* approach can be considered, bearing in mind the increasing engagement of contemporary environmental issues as dealt with by stable, enduring institutions also. The Roman Catholic Church for instance, integrates an immensity of actors within a complex organisational learning structure while working within its millenary role of social intervention based upon analysis that goes far beyond circumstantial ‘*quick-fix*’ solutions. Drawing upon organisational policy oriented-learning as inferred in the Pontifical Academy of Sciences’ (PAS) ‘*Study Week on A Modern Approach to the Protection of the Environment*’ for instance, innovation and inclusion of more encompassing policy influences can be inferred, as described in Tatay’s (2018) work on the Church’s environmental perspectives:

Distinguishing from various levels of analysis - global and local, environmental and social - the difficulty in finding simple solutions was recognised, given the complexity and uncertainty of the processes unleashed, as well as the lack of operational global institutions (Marini-Bettòlo, 1989, pp. 583-585). Despite this, it was forewarned that the solution to these issues implied a joint approach to the problems of extreme poverty, populational growth and mismanagement of natural resources, paying special attention to the preservation of traditional knowledge, ethical learning and educational processes (Marini-Bettòlo, 1989, p. 589), as cited in Tatay (2018, p. 94).³

The feedback from a variety of different actors plays a significant role in other complex structures where the ACF provides insights regarding policy change, especially considering the stimulus sparking collective action, and the level of conflict generated between different coalitions, with feedback emerging by means of policy events and

³ My translation

learning. Ultimately, successful policy formulation and implementation for change emanates from political and citizen support. Regarding cycling, sustainable practices for instance, play an important part in disassembling the incoherencies of automobility-dominated urban systems, the incentives for change touch upon organisational and collective learning while garnering citizen support.

Beatley (2000) argues that the recognition of a city's accomplishment by achieving coveted awards has proven to be an important incentive for European cities seeking to activate policies for change towards greater urban sustainability (p. 349). Several prominent cycling cities have competed for the EGCA, small cities and towns for the EGLA, and directly related to the subsystem, the VCC series which demand '*city changing*' policy outputs aiming at increasing cycling, engagement with local, regional, national, and international stakeholders, and involvement from activists, associations, and policy-related organisations. Beatley (2000) identifies three types of effective mechanisms for collective learning and transfer to citizens and society in European cities involved in these types of networking incentives (pp. 349-352), and twenty years later these have grown as effective guides for change, with the respective adaptations and updates:

1. Public awareness campaigns, aimed at citizens and social involvement, educating, and promoting individual actions aligned with the policy issue —e.g., increased bicycle-use for mobility needs. These campaigns disseminate information through social networks, but also media and by other means such as displays and pamphlets. Media are key partners for information dissemination. An open, publicly accessible headquarters, or '*subsystem house*' can promote policy change by showcasing examples, promoting dialogue between coalition members —activists, associations, media, and citizens— and it can be partially financed by local municipal governments, potentially in partnership with private funds or other level of government funds (Beatley, 2000, p. 349). Aveiro's advocacy-run *Casa da Bicicleta* (Bicycle House) is a recent Portuguese example of such a measure. Inaugurated on 31 October 2020, this street-level space was renovated and is run by the local cyclists' advocacy group CiclAveiro. *Casa da Bicicleta* is funded by its members and local businesses, hosting several programs, promoting cycling as a mobility mode for daily needs, promoting workshops, events, meetings, with a thematic library and gallery available, a co-workspace for cycling related projects and visiting cyclists, with a community bicycle repair shop (*Cicloficina*) and involvement from several businesses, and the promotion of other initiatives and community-level campaigns (Ciclaveiro, 2021).
2. Partnerships are fundamental for coalition-building, working with municipalities at various levels. Partnering with influential local policy actors is achieved by working with local media, nearby universities, associations, community-based stakeholders, and grass-roots movements who are willing to align and able to mobilise a greater number of citizens. Partnerships with local schools, libraries, and commercial establishments —stores, restaurants, cafés, bars— are also important for greater dissemination among different population groups.
3. Community outreach and education are important roles activities where public policy can provide a significant boost for greater impact. Community outreach and educational programs focusing on the policy issue serve to demonstrate practical principles being promoted by the coalition, with instructive tangible actions. For promoting cycling these could address the possibilities of cycling for family mobility or for logistics using cargo-bikes, bicycle parking features, grassroots bikeshare programs, bike repair and maintenance workshops, CM or leisure cycle rides, bike-to-school trains and bike-to-work-initiatives, accompanied by organised cycle rides, cyclist mentors for the less experienced, and public sessions with local university programmes, researchers, and epistemic groups. Several cities have sponsored community

programmes promoting Bike-to-School initiatives, for instance, functioning in Lisbon from 2014 to 2015 as a programme developed by Lisboa Enova - Lisbon's municipal energy and environmental agency with the urban cyclists' association MUBi, later evolving into citizen-based bike-to-school trains. In 2020 cycling was introduced by Lisbon municipality as a curricular activity in Lisbon's elementary public schools, and a growing number of home-school-home commuting bike-to-school trains have been implemented in the city since then.

Beatley (2000) suggests that the more decentralised the approach for citizen involvement, the more effective these programmes are in the long-run since they provide social engagement, addressing and working with many community-level policy actors promoting interaction between policy brokers, officials, and professionals with local leaders, community groups, and ultimately, general citizens. Citizens disseminate the message at a social level, developing community or neighbourhood-based forms of communication, sometimes involving local businesses and associations, providing an effective exchange of experiences and ideas among vast sectors of local culture (p. 352). Contrastingly, Peter Walker (2021) concludes that in face of current lifestyles associated to the dominant sociotechnical system, regarding effective physical activity programme implementation, public policy is key, namely that *"If you want true, population-wide benefits, relying on charities is not enough. This is the work of governments."* (p. 252)

2.5.11 Policy conflict

Heikkila & Weible (2017) consider the socially encompassing perspective of advocacy coalitions emerging from a network of interactions among different policy actors —formally or informally organised— and not necessarily engaged in recognised political organisations or institutions. These networks also overlap with different policy subsystems, in some cases from previous issues with previous events and a longer history in policy conflict (p. 183). These overlaps emerge from aligned values and complementary goals, for instance, issues involving conflict between automobility interests and the pedestrian's coalition have common struggles with the cyclists' coalition's claim for public space-use and the city (Ramos & Alves, 2010), and some key activists are involved in both coalitions. Contrastingly, aligned coalitions can also vie among each other for the same reasons.

Regarding policy conflicts and interactions, McAdam, McCarthy, Zald, & Mayer (1996) refine the concept of political opportunities made available to social movements, and the role of *'expanding cultural opportunities'* that may increase movement activity (p. 25). Tarrow (1988) points to the concept of *'political opportunity'* as a cluster of variables (p. 430); McAdam, Tarrow, & Tilly (2008) suggest the need for an occasion of threat to beliefs or values and/or an opportunity to mobilise for policy actors to engage in collective action, even if this requires some form of *'social appropriation'* whereby coalition *"group members successfully redefine the central aims of the group to include sustained contentious action"* (p. 325). Signs of social appropriation around policy issues are present in cyclists' coalitions in different cities regarding the interactions between social movements and the materialisation of the goals advanced by the cyclists' coalition. In Lisbon's signs of these interactions with cyclist coalition members are identifiable from information obtained from interviews and documents. The specific policy conflicts observed during the 2009–2021-time frame in Lisbon reveal increasing collective action around the policy issue in the city, and to lesser extents in the AML and several other Portuguese cities. In this respect, Heikkila & Weible (2017) hypothesise that *"individuals affiliated with organisations that have taken advocacy positions (e.g., environmental*

groups or industry associations) will exhibit higher levels of conflict characteristics than non-advocacy-oriented organisational affiliations (e.g., government and academia)” (p. 183).

Insights upon policy conflict as described by ACF research explains some coalition interactions, involving feedback, learning and influencing change, as a key part of policy process (Jenkins-Smith et al., 2014). Weible & Heikkila (2017) further note that policy conflicts are “measured through an underspecified combination of value differences, polarised networks, and the ‘devil shift’, which is a tendency for policy actors to demonise opponents by exaggerating their power and maliciousness” (p. 24). Simplifying the concept of policy conflict as an information-gathering moment for policy change, Weible & Heikkila (2017) illustrate the ‘policy conflict framework’ as a close relative and part of the ACF. Their flow diagram resumes how episodes of policy conflict relate to the policy setting and influence outputs and outcomes (Figure 17).

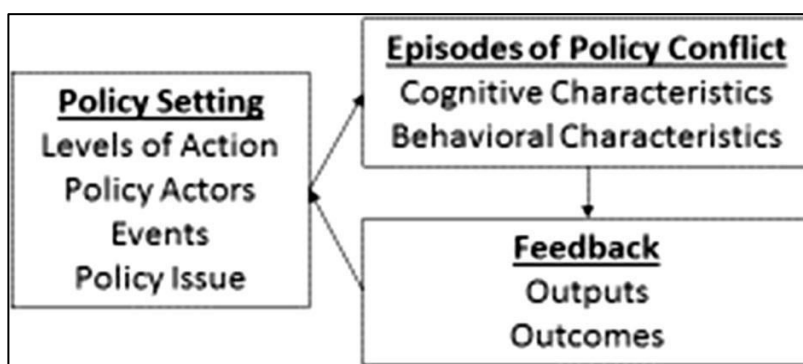


Figure 17
Policy conflict framework flow diagram
 (Weible & Heikkila, 2017, p. 27)

Weible & Heikkila's (2017) policy conflict framework flow diagram addresses the policy settings and episodes of conflict interacting with their concept of ‘feedback’: outputs and outcomes. These same *fora* are employed in cyclists’ coalition policy conflicts at the institutional level in face of legislation, regulations, budget, and resource allocations. Public street space is a key resource for the cycling subsystem, where this struggle is observed, *i.e.*, a physical forum for what is —among a complex policy issue— a spatial policy conflict also. The conflict around the cycling subsystem’s role in the mobility and urban systems is in many ways a conflict for rebalancing public resources, and especially a finite public resource in cities: street space. In outlying city areas and major links this conflict applies equally to road space and infrastructural policies This conflict revolves around specific issues such as these, always intertwined with various others —e.g., car parking. Sadik-Khan & Solomonow (2016) for instance, deal with examples of this policy conflict in their account of ‘Street fight’ as policy change was implemented in New York City during Janette Sadik-Khan’s mandate as the city’s transport commissioner between 2007 and 2013 (especially pp. 1-22), assured by firm political support from the city’s leading policy broker, Mayor Michael Bloomberg (Bloomberg Associates, 2021; Sadik-Khan & Solomonow, 2020, pp. 93-94).

The ‘underlying stimuli’ conceptualised by Knutsson (2017) can be attributed to the cyclists’ coalition policy struggle as being triggered by the right to the city, environmental concerns, health, road safety, quality of service, data collection and knowledge, and attribution of public funds, among numerous other features which can anchor policy arguments. These stimuli may spark conflicts and open new discussions unheard of where a stable coalition has kept the subsystem and its policy issue —cycling and increasing cycling rates— off the political agenda, within a

specific geographical and cultural policy setting —i.e., in a specific city—, and/or questioning dominant views and an uninformed ‘anchoring bias’ (Knutsson, 2017, p. 176). Portuguese cities have generally high automobility and residual cycling modal share for instance, with recent policy conflicts involving cycling infrastructure being common.

In this respect, a sociohistorical perspective provides new insights which replace the existing dominant or ‘anchoring bias’ with new data relating to previous social choices that were either mainstream or more common in the past but have been ignored over time by revealing that cycling was normal, mainstream, and had high modal-shares. ‘New’ knowledge can be obtained from analysing alternative historical perspectives, applying Brooks’ (1918) concept of ‘usable pasts’, which are particularly applicable to the policy process when researching different perspectives of the past (p. 337). Zamora (1997) suggests that historical awareness from ‘usable pasts’ implies a need for “the active engagement of the user or users, through whose agency collective and personal histories are constituted.” (p. ix)

There are, however, caveats regarding possible biases associated to a selective view of ‘usable pasts’ if other dimensions of the phenomenon are ignored, producing a one-sided view of the issue —i.e., “What is usable -a culture’s available artifacts- will be useful when it corresponds to the desires and directions of users.” (Zamora, 1997, p. ix) These artefacts can be further researched by use of photographic elements, interviews, and data collected regarding the cycling subsystem, providing new perspectives, where these histories have been thoroughly ignored (see section 4.6 Cycling’s social status in Lisbon, and Figure 63). Relevant information is obtained from policy conflict events and the feedback that is generated can address when the subsystem —cycling— was suppressed, when it entered the political agenda, and when its affirmation in the urban and mobility system entered in conflict with the dominant subsystem; questioning automobility’s position in urban policy.

2.5.12 Tipping points

From the ‘science of change’ the concept of ‘tipping points’ can be adapted to research on policy change, i.e., periods defining critical transitions in complex systems (Scheffer, 2010), adapted to understand the critical periods of policy change. The ‘tipping points’ are researched as events within the policy setting, analysing levels of action and actors involved working on the policy issue, and the episodes of policy conflict as they relate with outputs and outcomes working as feedback during the study time frame, as in Figure 17 above, from Weible & Heikkilä (2017)). That said, ‘tipping points’ are critical moments to be addressed in an ACF analysis of change, requiring a sociohistorical perspective to adequately address the moment in time and what was happening during this period, preceding it and the robustness of outcomes. Kingdon’s (1984) ‘windows of opportunity’ for policy change and agenda setting are related to ‘tipping points’, conceptually associated but different. Baumgartner (2013) explains the role of ‘windows of opportunity’ as a condition closely related to the required ‘push’ for the ‘tipping points’ which we analyse in this thesis: “Kingdon (1984) developed the concept of “windows of opportunity” in his discussion of agenda setting and policy change in U.S. politics. In thinking about the importance of events or developments that discredit the status quo, it helps to keep his formulation in mind. A window of opportunity does not necessarily create a change; it may be a necessary condition for a major push in a new direction, but it is not sufficient.” (p. 253)

Relatedly, ‘windows of opportunity’ could be viewed as moments or circumstances of critical change preceding ‘tipping points’, acting as correlational factors leading to these. Examples of ‘windows of opportunity’ may or may not be taken advantage of in the different policy settings where they occur and may be addressed or ignored by policymakers. When policymakers are able to take advantage of these moments, change can lead to ‘tipping points’ depending on the different responses a given locality or society provides to face the challenges posed by the

circumstances being dealt with. *'Windows of opportunity'* can be viewed as disruptive historical moments with direct or indirect interrelations which shift and force the change, as exemplified by the different responses to the energy shortages prompted by the oil crises of 1973 and 1980, EU debt crisis —Portugal 2011-2014—, the COVID-19 pandemic in 2020, or the Russian war upon Ukraine in 2022, for example.

The conflicts and instability of the Middle East during the 1970s augmented by the cartel from the major oil producing nations coordinated under the Organization of the Petroleum Exporting Countries (OPEC) correlates to a *'window of opportunity'* for increased cycling caused by energy crises, as does the growth in energy costs resulting from the the Russian invasion of Ukraine in 2022. These *'windows of opportunity'* for change apply to highly energy-dependent urban arrangements and mobility systems. The 1973 and 1980 cartel related Oil Crises are related to the reframing of cycling as a legitimate mobility mode in the Netherlands during the 1970s up until the start of the 1980s. Other *'windows of opportunity'* triggering a reframe of policies related to *'tipping points'* can be ignited by other disruptive factors also. Financial crises also create *'windows of opportunity'* for social and policy change. The bailouts of several Southern and Western European economies following the 2008 global stock market crash, including Portugal's bailout between 2011 and 2014 were *'windows of opportunities'* for change, whether they were fully taken advantage of and achieved *'tipping points'* provides a potential field for further study among a series of research areas. Portugal's 2011-2014 financial crisis was observed as a potential push for change in consumption and travel behaviours —including increasing cycling in Lisbon— according to Interviewee #6 - Activist. Likewise, the global emergence of the COVID-19 pandemic in 2020 was impacting at several levels and also related to a potential *'window of opportunity'* for moments of growing cycling rates according to several sources, including this thesis' research (see section 3.7.8 The COVID-19 pandemic and 4.9.1 Cycle traffic moving counts).

Applying sociohistorical perspectives in policy development

Historical perspectives provide important insights into the past —how events evolved— using those *'windows of opportunity'* and *'pushing'* the political agenda into achieving the crucial *'tipping points'* which help explain how policy transformed over time and the social implications experienced during the study period. This approach is particularly valuable to understand less documented, marginalised, or excluded social practices such as cycling in cities where the subsystem has low levels of cultural status and modal share. While other urban mobility subsystems have played an important role in the political discussion and still do so in the public agenda and corresponding investments —automobility, public transport— there are numerous localities where cycling has been excluded from the policy debate and from impacting outputs. Yet historical analysis reveals that cycling was much more present than commonly thought or depicted as proven by traffic data. Cycling was more than a *'usable past'*, but a fact mostly forgotten for many years in numerous cities, including Lisbon and its metropolitan area (AML).

From Albert de la Bruhèze & Veraart's (1999) powerful graphs revealing an inverse correlation between cycling trends and automobility in Western-European cities during the twentieth century (pp. 33-39, 181-184; also Figure 63 in section 4.6 below), and Oldenziel & Albert de la Bruhèze's (2011) research on the history of cycleways and contested street space in urban Europe during the twentieth century, research upon the history of cycling has shed light upon a latent, pre-existing policy issue in different cities, interrelating over time with a series of different contextual factors (pp. 40-42). An urban mobility agenda was advanced from knowledge researched from past experiences, refining contextual factor analysis, and including policy development to *"embrace cycling practices to ensure a more sustainable future"* (Oldenziel & Albert de la Bruhèze, 2016b, p. 13).

From Oldenziel & Albert de la Bruhèze's (2016b) five factor historical and contextual analysis (pp. 9-12), numerous case studies were and are being realised under the 'Cycling Cities' collection, with the 'Sustainable Urban Mobility' research programme working parallelly at the Eindhoven University of Technology (TU/e) (Foundation for the History of Technology, 2016b), plus numerous related activities and research outputs produced (Eindhoven University of Technology (TU/e), 2021). The sociohistorical perspective as adapted in this thesis explains relevant facets of the policy process, including coalition actions in 'comparable cities' in Europe, and Lisbon with its surrounding AML municipalities.

Issues such as how street space, infrastructural and regulatory policy was reallocated towards automobility is approached differently when researched from a broader social perspective of history (Norton, 2008). This historical perspective exposes commonly unaddressed knowledge of how automobility influenced the collective memory of street space and policies involving who had priority over it, and how it has influenced the policy process with impacts upon landscape, the level of authority each transport mode wields over the mobility system, policymakers' decisions, and also the cultural status of 'urban alternatives to cycling', *i.e.*, of each travel mode (Oldenziel & Albert de la Bruhèze, 2016b, p. 10; Oldenziel et al., 2016). This approach also sheds light on the policy process as it addresses policy actors involved in the subsystem and how issues are dealt with and evolve over time, but also institutions as they engage with, address, or side-line the subsystem, and how society itself has related differently to the developments they interact with and change over time.

The sociohistorical perspective is particularly useful for resetting policy goals by informing of the different social and cultural statuses that cycling has played within a specific study context, while demystifying common fallacies and disinformation, such as, for instance, unfounded claims of cycling's inexistence in the past of a certain locality, that cycling was never a travel option in a certain city, or the misconception of past—or current—low rates of cycling, which could be contested by raising awareness of cycling's past and recent history and social practices.

Equally important is the historical perspective identifying the successes and failures of different policy struggles occurring in different epochs, managing or failing to establish effective coalition-building with lasting policy impact as occurred in the Netherlands in the late 1960s and 1970s. Alternatively, a historical perspective can inform about extremely promising 'bike booms' such as the one experienced in North America in the early 1970s (Grove & Pflieger, 1973), but foremost how these revivals were sidelined into a silenced persistence, as occurred first in North America and later also in the UK (Reid, 2017).

Cox's (2015) social movement theory explorations of cyclists' activism in the UK in the 1930s is elucidative of what these sociohistorical insights advance knowledge-wise considering collective action, mechanisms employed by policy actors, and the resulting influence these interactions have on the policy process regarding the cycling subsystem. Cox (2015) highlights the shortcomings of not being able to realise coalition influence in the policy process and deal head-on with the policy issue at stake; that of safeguarding cyclists' rights in public throughfares:

The failure to transform discontent into a more meaningful movement for change at this period needs to be sought in further factors. Foremost among these might be the (perhaps understandable) inability to find any means beyond the established methods of politics. Cycling organisations whether CTC or NCU had their 19th century roots firmly in bourgeois gentlemen's leisure. Despite the rise of mass cycling as proletarian transport having fundamentally transformed the activity on the roads, the organisations remained largely framed by their separation from these masses. ...As bourgeois organisations, the only legitimately understood paths to action were those that operated within the confines of conventional politics. (p. 6)

Another form of shelving a potential policy issue occurs through the omission of data on existing bicycle use. By ignoring current and historical data—which proves of the existence of relatively high rates of bicycle use in a certain location's past—the subsystem and its history is relegated to oblivion. Historical data may displace ill-informed 'anchoring biases' and promote increasing actions favourable to the cyclists' coalition's goals, for instance a greater acceptance of behavioural change by local populations or support for pro-cycling policy. This data serves as an interesting point of moderation, or reference point, offsetting omissions from public investigations and documents which had excluded focal information on the policy issue, *i.e.*, traffic counts, surveys and census, mobility studies and plans, and media coverage. These omissions occurred repeatedly with cycling in European cities since the second half of the twentieth century (Berkers, Botma, & Oldenziel, 2018; Berkers & Oldenziel, 2017; Albert de la Bruhèze & Oldenziel, 2018; Oldenziel et al., 2016; Reid, 2015b), and well into the twentieth-first century in several settings. In Portugal, for instance, cycling was not included as a mode in the national census before the 2011 edition—it was aggregated with motorcycling—and the national road management authority IP removed cycling altogether from road traffic counts since 2005.

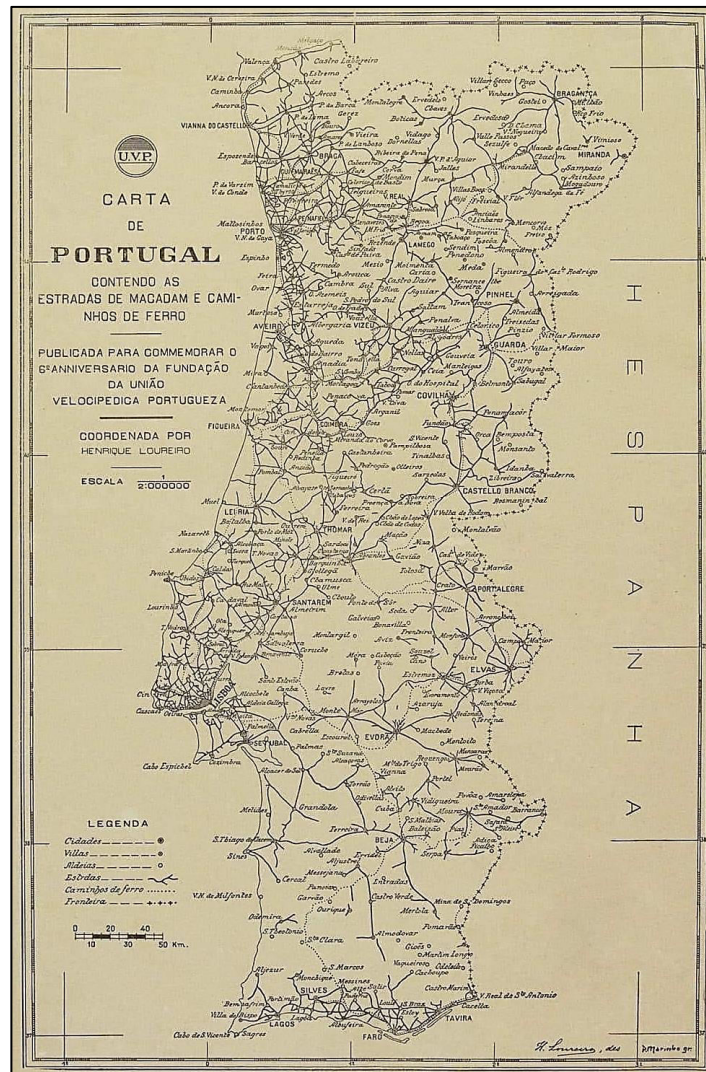


Figure 18
1905 road map of continental Portugal by the cyclists' union (União Velocipédica Portuguesa, 1905)

Tipping points and cycling as policy issue

Schipper (2020) exemplifies how '*tipping points*' have worked as periods of critical transition, analysing Rotterdam's urban culture as its policy setting changed from a technocratic institutional process to an era of increasing public participation in the late 1960s and 1970s, describing how it was sparked by several events with broad social impact. The interrelated events described by Schipper included a television documentary condemning the city's modernist centre —"*City Without a Heart*" by Jan Schaper in 1966— when there were only two TV channels and limited broadcasting, thus reaching a greater share of the audience than current programmes, followed by "*The Inner City Experience and Rotterdam*" report by Rob Wentholt in 1968. These programmes influenced the implementation of the "*Communication '70*" pilot project involving experimentation and interactions with citizens, with the Institute for Household Research conducting a survey revealing that citizens preferred densification and a human-scaled city centre instead of the depopulated central business district model inherited from North American automobile-based city planning principles which were common at the time (Veraart & Schipper, 2020). Simultaneously, cyclists' organised and actively advocated for change while establishing '*loose connections*' with social movements (Fahlenbrach, Klimke, & Scharloth, 2016, pp. 3, 8).

These alliances between '*supporting coalitions*' (re)aligned protest and political movements working for a city transition (Marletto, 2014, pp. 166, 173-174), receiving support from community associations, neighbourhood movements, and university students. Berkers, Schipper, Bek, & Oldenziel (2019) indicate key moments in Rotterdam's 1970s '*tipping point*', with the automobility aligned Royal Dutch Touring Club (ANWB) initiating various actions promoting recreational cycling, including a bicycle photograph competition in 1973 and leisure cycling days starting in 1974, later growing to four cycling days in 1978, and from there evolving to a cycling month. Rotterdam's principal policy broker in 1977 —Labour Party (PvdA) city mayor André van der Louw— was a former journalist and activist in the libertarian socialist New Left movement. That same year he inaugurated an art exhibit with the bicycle as its thematic subject, and a year later he was participating in Rotterdam's four days of cycling event. Meanwhile a local newspaper was publishing regular cartoons on cycling and disseminating the message of cycling's prominence to the public (Berkers et al., 2019, pp. 38-47, 58; Veraart & Schipper, 2020). At the institutional and polity level, key policy actors such as André van der Louw in Rotterdam, or Max Van den Berg in Groningen in the 1970s, are political figures —and policy brokers— which connect the links stimulating change in the policy process working with different actors and events to make the transformations possible, and when sufficient in number and intensity, these work in direct relation to the '*tipping points*'.

These '*tipping points*' relate with '*windows of opportunity*' in the policy process from several interconnected motives, illustrated by a social and historical analysis of the period in which they occur. Rotterdam's '*tipping point*', for instance, involved the conjugation of activities triggered by social movements in the late 1960s and 1970s, as described above, but also took advantage of the '*windows of opportunity*' provided by significant exogenous issues, namely the 1973 Oil Crisis and an increased public awareness of environmental, road danger, and urban problems sparking greater citizen participation, working in episodes of policy conflict and corresponding political feedback. With the entry of programmatically aligned policy brokers, influence for change increases dramatically, with feedback taking form and policy outputs being produced at a quicker pace.

The multipronged events in the policy system —cycling, city change, Rotterdam, 1970s— are what the '*tipping point*' consists of: a specific point in time when policy outputs and initial outcomes function within a series of events, which combined, are part of a self-reinforcing process for the coalition and the goals it wants to achieve. The events

in Rotterdam illustrate the first steps of city governance steering for effective outputs and the encompassing outcomes where change is materialised, reinforcing change through outputs and outcomes as a product of political feedback.

Policy outputs and policy outcomes

Drawing from outputs and outcomes, as they produce feedback in cases where they shape the policy setting, the contrary also applies, *i.e.*, feedback can fail. Weible & Carter (2017) point to policy process scholarship falling short of examining the consequences of policy development as reflected in outcomes (p. 32), a research gap which this thesis bridges by analysing cyclist coalition policy influence upon outputs and the relations with policy outputs produced, both qualitatively through diverse means, and quantitatively with analysis of data collected.

From Weible & Carter's (2017) insights into the limitations of policy process research, outputs that omit planning for policy outcomes are indicative of an important research gap (pp. 22, 32-33). This applies to coalition interactions also, especially regarding very active periods of activity, followed by a snoozing or much lower period of coalition activity because of impacting outputs. This hypothesis may be validated in a case-study analysis of cyclists' coalition activities in a specific city and the output being the development of pro-cycling policy, people-oriented planning, and infrastructural implementation, etc.; *i.e.*, traffic calming and reduction, more cycleways, implementation and/or expansion of bikeshare systems, but also broader impacts upon urban and territorial policy regarding a variety of issues —spatial planning, energy policies, public transport, budget allocations, etc.. The resulting outcomes can be conceptualised as a problem of output analysis vs. outcome analysis. Outcomes may represent increasing cycling in prominent central city areas where measures have been implemented, for instance, but with meagre influence, low or no level of coalition activities and no ideological shift in surrounding metropolitan areas. Impact upon the broader, metropolitan-scale mobility system may be reduced, and overall outcomes relatively low, which can be analysed by correlating outputs with outcomes.

Robichau & Lynn (2009) underscore the shortcomings of public sector performance theory research focusing only upon outputs rather than analysing outcomes, the lack of empirical models recognising or incorporating an '*outputs-cause-outcomes logic*' and the need for more research upon how outputs influence the outcomes of policy implementation (p. 24). Kerwin & Furlong (2018) warn that '*it is unwise to consider rulemaking as a process that has a definite start and finish*', and sequence policymaking activities "*reversed in order*", noting upon possible divergences during the implementation process (pp. 76-77). This is particularly important for studying a bounded ACF time period, since the impacts felt during the study time period have influences from rules that preceded that period and those that apply following it. Once again, the sociohistorical perspective is important to understand contextual factors influencing policy outputs and outcomes, not only during the study time frame, but where these factors came from and where will they stand in the future. Interviews and documents informing the Lisbon case study attest to the importance of events and developments preceding the 2009-to-2021-time frame, but also contextual factors embedded in the local social practices.

Policy issues between outputs and outcomes —also regarding the cyclists' coalition— reveal complexities. Output decisions and details tend to be contested at initial stages of policy implementation while a common perspective of policy outcomes is that of the contentious issues emerging from implementation —for instance, regarding cycleways redistributing street space— as attested in specific episodes in the Lisbon case-study below and researched considering various dimensions in localities elsewhere (Oldenziel & Albert de la Bruhèze, 2011; Reid, 2017, pp. 146-160, 211-215; Sadik-Khan & Solomonow, 2016, pp. 143-178).

Keeping in mind, that in an ACF analysis of policy process, the outputs of decision-making aren't dependent on single individual choices but on numerous interactions involving different policy actors as they advance with solutions for collective problem solving (Ingold & Varone, 2012, p. 321), and these advances have impacts upon outputs achieved. Ingold & Varone's (2012) ACF case study on Swiss climate policy during the 1990-2008 timespan, for instance, opens relevant questions regarding the role of specific policy actor actions —*i.e.*, policy broker mediation and decision-making— in a subsystem, namely: *“How can we explain unpredictable policy change...? Did policy brokers influence the policy output? If so, which institutional rules allowed them to mediate between the pro-and contra... coalitions?”* (p. 326). Resuming the conceptual terms for research, Weible & Heikkila (2017) define policy outputs as *“changes or deliberate continuations of public policies, institutions of policy action situations, or actors holding elected positions of a political system, a policy subsystem, or policy action situations”* and policy outcomes are *“effects from outputs and policy conflict characteristics on a policy setting”* (p. 28).

Fiscal and infrastructural investment at a national level can result in impacting policy outputs, for instance, by taxing consumption (Beatley, 2000, p. 73), and reducing the disproportionate amount of public investment aiming at road and highway widening and building, and integrating land-use policy and local impacts. At a local level fiscal policy can also be impacting, with differences for taxing space and resource consumption. Macro-level policy outputs to avoid urban sprawl can have significant influence while local level policy outputs for traffic and parking management and tariffs can integrate other regional and urban planning policies also (Nivola, 1999b). Infrastructural expenditure and investment priorities also explain the status of cycling as reflected by the policy outputs produced; investing in cycling infrastructure and reclaiming road space for pedestrians and cyclists instead of building more carparks or widening road infrastructure to assure fluid car-traffic reflect public policy values and reveal how public policies and budget allocation relates with politically driven behavioural influence.

2.6 Conceptual conclusion: omitted factors and research overlaps

What other factors affect how advocacy coalitions work? Limitations emerge from omitted factors in the ACF, helping to illustrate how advocacy coalitions and their subsystem function with overlapping research theories working beyond the technocratic model. These overlaps, or *'nexus'* to *“be integrated within the structure of an appropriate existing framework”* (Weible & Carter, 2017, p. 34), are especially relevant to integrate unexpected information, which emerges from interviews with different policy actors and document analysis. Integrating omitted factors into this line of research brings new insights into unforeseen issues related with the subsystem, and from there with the depth of analysis achieved and potential for further study. While these overlaps bring greater potential for replicability to other ACF case studies on the cycling subsystem being researched and policy change in general, they are also a starting point for policy subsystem research working beyond the disciplines of public policy and into deeper critical thinking on the social and historical implications of coalition action both socially and historically. In effect, these limitations may provide material for more robust ACF research in the future, but also for investigations beyond the scope of the ACF or traditional public policy.

Omitted factors are addressed from research overlaps with different areas of policy influence such as social history, social movements, aligned coalitions, counter-coalitions, and general citizens, providing new insights obtained from

documents and interviews. Weible & Carter (2017) argue that omitted factors, regarding the advancement of knowledge around the policy process will always occur due to numerous influences and causal mechanisms '*linking*' inputs inserted during policy development to policy outputs and outcomes, *i.e.*, "*no single framework, theory, or model will ever encapsulate all of the factors necessary to describe and explain its phenomena comprehensively*" (p. 34). Yet there is much more to mapping change than just the policy process itself.

New insights into policy development provided from the overlaps discovered in the different areas of study that are touched upon emerge from various sources —*i.e.*, different actors in interviews, diverse areas of the social and political realms, and not necessarily restricted to social movements, institutional frameworks involved, or aligned actors. Critical thinking within the mindset of public policy but beyond the scope of policy process also enriches governance, improving outputs, and, interrelatedly, enhancing outcomes, and providing a series of social benefits. Weible & Carter (2017), for instance, argue upon the benefits of working at the '*nexus*' for "*improved understanding across disciplinary boundaries*" (p. 41). Kirilin (1996) inquires upon the role of government within the complexities of collective action, how different degrees of engagement are institutionalised, and the role of public administration in improving and enhancing social learning by means of a diversity of policy instruments working within different '*arenas*' (pp. 416-420). The ACF research on policy development in different settings can engage with these different '*arenas*' to better inform policy studies from different empirical lenses —historical, social, technological, cultural, political— but also provide quantifiable data for greater insights. Keeping in mind the limitations of this approach, the next chapter details in on the cyclists' coalition interactions and what has been produced in different contexts, providing greater insights on policy change in different, yet comparable, cities and periods of significant policy change, underpinning the efficacy of policy influence from local cyclists' coalitions.

3. The cyclists' coalition

This thesis hypothesises that cyclists' coalitions have shaped city policy in the urban and mobility systems where they interact most intensively, with much of the scholarship researching 'benchmark cycling cities' which have evolved into such contexts but less so in contexts with low rates of cycling. An ACF perspective reveals the variables for their engagement within a public policy perspective, not only in 'champion' or 'benchmark' cities, such as Amsterdam or Copenhagen, but also in 'lagging', 'starter cities', 'low cycling maturity', or more objectively, 'cities with low rates of cycling'. The fundamental research question of 'How do advocacy coalitions shape (or not) urban cycling?' applies. Yet before 'an analysis of contemporary policy development in Lisbon from 2009 to 2021' could be advanced, the role of policy and contextual factors is analysed in 'comparable cities and regions.' Drawing on this approach, and keeping in mind the impact produced by the cyclists' coalitions, with the hypothesis is that:

Cyclists' coalitions have influenced cycling rates in cities. The level of their influence is a product of the intensity of their activities and relations.

Thus, considering that cyclists' coalitions operate within their cities and regions, the dependent variable is that of policy outcomes, namely that of the increase in cycling, either in cycle traffic volumes or as a percentage of modal share in a city's mobility system. This methodology works when data and a historical account of developments is available, which will be the point of focus —on a general level— in this chapter. The case-study researched in Chapter 4 addresses a specific city where data is scant, and points to methods for obtaining relatively precise information, and attempt to corroborate available evidence with the policy process and change. Research on policy process and corroborating between outputs and outcomes contributes to the advancement of knowledge for change in cities with challenging social and political contexts working within a comparable institutional framework.

3.1 Comparable cities and regions

The main reason for differences in the level of bicycle use is public policy. In the United States, very little has been done to promote bicycle use. ... In the Netherlands, Denmark, Germany, and Switzerland, by contrast, various levels of government have constructed extensive systems of bikeways and bike lanes with completely separate rights of way... In short, bicycling has been thriving precisely in those countries that have adopted policies to make bicycling, faster, safer, and more convenient. ... Bicycling remains at low levels in U.S. cities because cyclists are treated as second-class travellers, somehow not worthy of their legal right to share streets with cars. At the same time, there are few separate bikeways where bicyclists would be better protected from inconsiderate motorists. (Pucher, 1997, p. 44).

In Portugal, at a national level, I don't know if there's been any (significant) change outside of Lisbon. In European cities yes there's a change. (Interviewee #1 – Citizen)

Moreno (2020) cites former Denver Mayor M. Wellington Webb stating that "The 19th century was a century of empires, the 20th century was a century of nation states. The 21st century will be a century of cities," to place

emphasis on the crucial role cities play in human life and the future of the planet, developing policies and setting choices for how we, as people, live our lives (p. 25). As elements of change sparked in their cities, various municipalities brand their cycling infrastructure as a specific city edge or “*institutional fix*” (Stehlin, 2019, p. 13). A review of comparable cities is conjectured to identify breaches in the dominant system, where cyclists’ advocacy coalitions have engaged in city governance, with greater intensity at the local level but also with multilevel interactions at the national and regional levels, and infra-locally, achieving effective policy change well beyond the concept of a city marketing itself as ‘*bicycle friendly*’.

Research on cyclist coalitions in comparable cities and regions provides relevant knowledge regarding common policy interactions witnessed in different geographical locations with similar population, size, and physical characteristics, where cycling has increased substantially, with a view upon policy events, influence, learning, formulation, and implementation that affect the subsystem. Common issues are referred to in scholarship focusing on cycling in cities, observed from different perspectives (Bruntlett & Bruntlett, 2018; Oldenziel et al., 2016; John Pucher & Buehler, 2012; Reid, 2017). Even if these cities present diverse levels of cycling development maturity (Dufour, 2010; R. Félix et al., 2019). Policy formulation, implementation, outputs and outcomes focusing on large comparably sized metropolitan area cities are analysed using Dufour’s (2010) typology of cycling levels in cities (pp. 7-9). With a view to comparable cities and regions the **research hypothesis** investigates that:

A city’s policy change is shaped by the cyclists’ advocacy coalition during a (bounded) time period depending on specific actors and their relations.

The information obtained from comparable cities and regions provides knowledge for comparison and use in a detailed case-study analysis with potential for conceptual replication in other cities. Dufour’s (2010) categorisation of the Presto ‘*starter, climber, and champion cycling cities*’ of development towards optimum cycling conditions — poor, moderate, and good, respectively— provide a useful starting point for establishing a definition of comparable cities and regions. The PRESTO Cycling Policy Guide defines cities’ level of cycling using an approximate modal share scale for the cycling subsystem, considering *starters* between 0 and 10%, *climbers* between 10 to 30% and *champion cities* as those with cycling representing 30% or more of the modal share in the overall mobility system (Dufour, 2010, pp. 7-8), as illustrated in Figure 19.

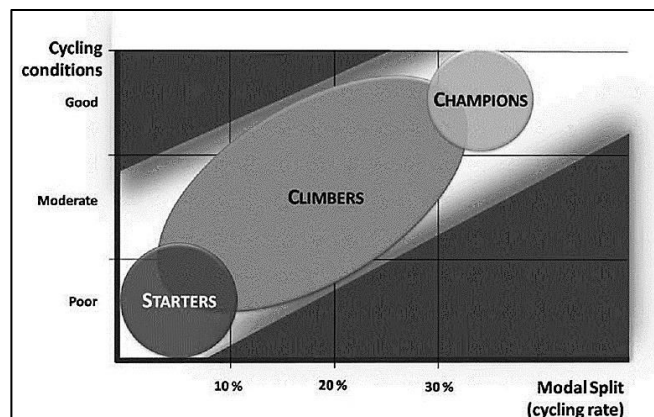


Figure 19
PRESTO Cycling policy guide - starter, climber, and champion cycling cities
 (Dufour, 2010, p. 7)

The PRESTO guide differentiates city types according to their conditions for cycling and rates, originating from the BYPAD audit's seminal categorisation for implementing cycling policy. This categorisation was established from empirical evidence, based on the most adequate measures implemented and analysed by the BYPAD epistemic group's interactions with participating municipalities, as addressed by Asperges (2008) in the concluding project results and lessons report (pp. 40-41). This thesis' focus is on contexts with low cycling modal share in their mobility system (below 10%), and with little tradition, technical know-how and political backing for implementing cycling policies and measures.

Building from the lessons learnt in the BYPAD project regarding contexts with low cycling rates, the PRESTO assessment for disseminating the most effective policies at a general level, observes that:

“STARTER CYCLING CITIES are faced with the hardest challenge. There are few cyclists, there is little infrastructure and there is no cycling culture. Facilitating cycling is like going against the stream. Since there is little apparent demand, political support and funding are hard to come by.” (Dufour, 2010, p. 9) Regarding low cycling rate contexts, Silva, Teixeira, & Proença (2019) observe that

These cities find themselves in a particularly disadvantaged situation. In fact, despite the political discourse in favour of a modal change towards cycling, political and technical scepticism around change is still dominant in these cities. In this context, most cities have had but timid incursions towards cycling, limiting actions to fewer effective measures, such as, building cycling infrastructure only in parks or waterfronts (leisure oriented) or providing symbolic bike-sharing systems. Regardless of the widespread use of these symbolic policy actions, arguments on sociocultural barriers or even simple priority to the car have prevailed in many cities worldwide. There is clearly a need to overcome the cultural and political resistance to cycling in starter cycling cities if we are to expect effective change. (p. 638)

Considering the caveat applicable for comparing cities, Moreno (2020) claims that *“what is true in Paris is not necessarily true in Rio, Mumbai, Seoul, Sydney, Lagos or Cairo. Hence the need for the identity of the citizen in his own territory. There are no city models, there are only sources of inspiration.”* (p. 31) In fact, the BYPAD methodology applied to 55 of the European municipalities audited reveals a weak correlation between cycling and BYPAD score, with Asperges (2008) concluding that *“this correlation exercise shows that it is impossible to compare cities from different countries, but it is interesting to compare cities within one country.”* (p. 38)

Dufour (2010) observes that the BYPAD audit reveals that different measures should be applied according to different stages of cycling development in each locality, with cycling conditions —which in policy is closely related to the variable ‘*outputs*’— and rates —in policy: ‘*outcomes*’— being the two principal indicators to start analysis at a local level. Yet, general guidance is possible (p. 7). On the other hand, local knowledge is fundamental to obtain a clear picture of the case-study city, and other cities of comparable scale involved in policy networks working for the same goals. Comparisons in the same country have the advantage that issues related to cultural setting, social traits, the same administrative rules, political parties, and national policymakers all play a role in the complex policy process of introducing cycling measures, but the general basic indicators also serve for valid comparisons with cities in different countries and guidance. Furthermore, the AML's scale is closer to several other European cities than it is to the Porto Metropolitan Area (AMP), Portugal's second-largest city, which are the closest comparators used in this thesis' city indicators methodology for identifying cyclists' coalitions and policy change (Table 6, below).

3.1.1 City indicators

Employing Dufour's (2010) PRESTO categorisation of cities according to cycling modal share and conditions, and limiting our search to large metropolitan area cities located in the European Union, with FUA's with a population between 1.5 million and 4 million inhabitants (OECD, 2013, p. 4), to avoid comparison with mega-cities and assure similar demographic scale, an indicator analysis of these '*comparable cities*' provides a basic idea of change related to the status of cycling within different urban mobility systems. The elements of the policy process for change from an ACF conceptual toolbox is disaggregated and detailed to identify policy formulation, with implementation and change applied in a simplified form with tangible indicators for '*comparable cities*' in Table 6, below. The indicators are compared to identify general elements hypothesised for replicability from commonalities on how cyclists' coalitions interrelate in different geographical and cultural —yet comparable— city settings. Comparable considering the population of their FUA. This descriptive comparison is also useful to narrow down analysis in analogous methodologies using similar sized cities with successful and not so successful recent histories of policy change regarding cycling, to understand the importance hypothesised for the specific role of each city's cyclists' coalition, and the permeability of a city's policy structures to an urban cyclists' social movement at an international level (Bielak, 2016, pp. 5-10). Future research can be replicated for these cities, as it is for Lisbon in Chapter 4, or at a general level, for other parts of the World or other comparable groups of cities or different scaled urban arrangements: small cities, mega-cities, cities situated in the same region or country, etc.

Various caveats apply, namely that there is significant scholarship and research on central and northern European cities, as there is on English speaking cities, but less so on eastern, southern and the westernmost European cities. Lisbon is the westernmost large metropolitan area in Europe, presenting particularities associated to its geographical location, social and political history with relevant contrasts to central European '*comparable cities*', and greater commonalities with possibly smaller, geographically, and culturally closer cities located in Portugal and the rest of Southwestern Europe. A second caveat to bear in mind is that analysis in Table 6 focuses on data in core cities with large outlying metropolitan areas, yet data is covered focusing only on the core cities themselves and not the outlying metropolitan area municipalities or their functional urban areas (FUA), since these may not always coincide with the administrative arrangements among different city regions. This analysis is based on the premise that core city municipalities are the most relevant study areas for policy influence and potential for change from cyclists' coalitions within the FUA, an approach reinforced by the detailed comparison between Lisbon's central and peripheral areas, namely its outlying municipalities, addressed in the Chapter 4, interpreting Table 6 within the AML's context and in greater detail in Table 10.

A third caveat is also to be considered on a conceptual level: not all '*comparable cities*' may be identified with complete precision, available data is not fully uniform regarding important elements such as the year of data collection, each city's administrative delimitation and if the data source is a national, regional, or municipal survey; *i.e.*, the different municipal definitions from country to country imply that some cities only provide data for the core city area, while others include a greater city area since municipal administrative limits are defined as such. In this respect few, if any, data sources include the entire FUA of a city, or it may not fully correspond to the large metropolitan area where official data regarding cycling modal share does exist. Lisbon, for instance, has one core municipality in a metropolitan area consisting of 18 municipalities, which does correspond to its FUA (OECD, 2019a), yet the core municipality only accounts for 19% of the FUA population (INE, 2021). Porto on the other hand is included as an exception, since it is Portugal's second largest metropolitan area and despite officially having a metropolitan area (AMP) with 1.74 inhabitants (INE, 2021) —therefore higher than the 1.5 million population

minimum considered for Table 6—according to the OECD (2019a) Porto's FUA only has 1.27 million inhabitants (p. 3). Another observation regarding Table 6 is that data regarding modal share was obtained from the European Platform on Mobility Management (EPOMM, 2020) modal split tool when more precise and updated data was not found from other sources.

Within the group of '*comparable cities*' analysed, and accepting the above mentioned caveats and observations as research limitations, a basic set of criteria does provide a structure for investigating indicators which are useful to identify cities with low rates of cycling, corresponding to Asperges' (2008), and later Dufour's (2010) '*starting*' and (slow)⁴ '*climbing cities*'. These cities where cyclists' advocacy coalitions do not exist with sufficient depth, and therefore do not develop sufficiently intense collective policy action results, provide preliminary information to identify the possible status of local cycling cultures, which—despite differing from locality to locality—do have some commonalities, *i.e.*, cities of similar scale, with comparable demographics, and where similar performance indicators regarding cycling can be observed. Despite differences in data-collection and several limitations, at least on a general level, these indicators define the operational area for an ACF analysis, and from there a more detailed case study provides a more robust analysis of a specific cyclists' coalitions and its role in policy change at the local level. This kind of research can be replicated in other cities using the same methodology or expanding upon it for details on different variables of interest depending on the area of focus being sought.

The explanatory variables in Table 6 are descriptive of the policy setting—*i.e.*, the existence of signs of a cyclists' coalition in each city, with policy outputs gauged being the scale of the cycleway network while the dependent variable is the evidence of increase in cycling modal share in the time frame between 2009 and 2021, or close to it according to the available data.

Following Table 6, Figure 20, provides a graphical comparison of cycling's modal share in the core municipalities of the different metropolitan areas addressed. From this representation, significant differences provide paths for further research which can be applied in any city. In the Lisbon case-study this approach is replicated comparing the different modal shares in the extremely low-cycling modal share case-study setting—see Chapter 4 section 4.9 Outcomes, Figure 84. Similarly, one of the key explanatory variables addressed in Table 6 is each city's cycleway network, with variations as illustrated in Figure 21, below, and replicated in the Lisbon case study for the entire AML, but instead of comparing cities the comparison is between municipalities—see Chapter 4, section 4.8 Outputs, Figure 71. In fact, this thesis may be the first research text assessing the dimension of the entire AML's cycleway network as a product of coalition action and assessing the general differences in all of Europe's comparable sized large metropolitan areas, with FUA between 1.5 million and 4 million inhabitants.

⁴ The word "slow" is my addition.

Table 6 - City indicators regarding policy change for cycling in European cities with large metropolitan areas in 2021 (FUAs between 1.5 and 4 million inhabitants)⁵

Context				Formulation		Implementation	Change
				Actors / Associations	Events / Learning	Outputs	Outcomes
	Explanatory variable	Explanatory variable	Descriptive annotation	Explanatory variable	Explanatory variable	Explanatory variable	Dependent variable
Metropolitan Area (Core City when metropolitan area name differs) ¹	Metropolitan Area Population ²	Cycling modal share ³ (core city municipality)	PRESTO category ⁴	First evidence of cyclists' coalition association (Critical Mass (CM) cycle ride or another event) ⁵	Policy transfer mechanism involvement. Year of membership, involvement, or formulation bid ⁶	Indicative output (basic cycling infrastructure: cycleway network in km [implemented], core municipality).	Evidence of increase in cycling modal share 2009-2021 at city centre municipality (if available)
Lisbon, PT	2.87 million ^{2a}	1.3% ^{3a}	Starter	2003 ^{5a}	2001 ^{6a}	162 km ⁷	+650% ²⁶
Porto, PT	1.27 million ^{2a}	0.8% ^{3a}	Starter	2003 ^{5b}	2007 ^{6b}	35 km ⁸	+400% ²⁶
Amsterdam, NL	2.75 million	48% ^{3c, 3d}	Champion	1965 ^{5c}	1965 ^{5c}	579 km ⁹	Yes ^{5c}
Athens, GR	3.61 million	2%	Starter	1986 ^{5d}	2015 ^{6c}	87 km ¹⁰	Yes ²⁷
Brussels, BE	2.62 million	2%	Starter	1975 ^{5e}	1975 ^{5e}	598 km ⁹	n.r.
Budapest, HU	2.97 million	2%	Starter	1993 ^{5f}	1993 ^{5f}	350 km ⁹	n.r.
Cologne, DE	1.95 million	15% ^{3e}	Climber	1979 ^{5g}	1976 ^{5g}	800 km ¹¹	n.r.
Copenhagen, DK	1.97 million	30%	Champion	c. 1973 ^{5h}	c. 1973 ^{5h}	396 km ⁹	Yes ⁹
Dublin, IE	1.83 million	7%	Starter	1993 ^{5i, 5j}	1993 ^{5i, 5j}	170 km ⁹	n.r.
Dusseldorf, DE	1.53 million	14% ^{3f}	Climber	1990 ^{5k}	1994 ^{6d}	300 km ¹²	n.r.
Frankfurt Main, DE	2.57 million	13% ^{3e, 3g}	Climber	1998 ^{5l}	1992 ^{6e}	750 km ¹³	n.r.
Glasgow, UK	1.78 million	6% ^{3h}	Starter	2005 ^{5m}	2010 ^{6f}	310 km ^{6f}	Yes ^{6f}
Hamburg, DE	3.18 million	15% ^{3e, 3i}	Climber	1981 ^{3h}	2006 ^{6e}	280 km ¹⁴	n.r.
Katowice, PL	2.55 million	n.a. ^{3j}	Starter ³ⁱ	n.a. ³ⁱ	2018 ³ⁱ	56 km ³ⁱ	n.a. ³ⁱ
Leeds, UK	2.58 million	1%	Starter	1996 ⁵ⁿ	2009 ^{6g}	172 km ¹⁵	n.r.
Lyon, FR	1.95 million	2%	Starter	1995 ^{5o}	1994 ^{6h}	860 km ^{6h}	n.r.
Manchester, UK	3.28 million	3% ^{3k}	Starter	1972 ^{5p}	1985 ^{5p}	120 km ¹⁶	n.r.
Marseille, FR	1.74 million	1%	Starter	1996 ^{5q}	2001 ⁶ⁱ	65 km ¹⁷	n.r.
Munich, DE	2.82 million	17% ^{3e}	Climber	1962 ^{5r}	2005 ^{6e}	1,200 km ¹⁸	Yes ^{5r}
Naples, IT	3.26 million	n.a. ^{3l}	Starter ^{3j}	2012 ^{5s, 5t}	2012 ^{3j, 6j, 6k}	20 km ^{6j, 6k}	n.a. ^{3j, 6k}
Prague, CZ	2.25 million	2% ^{3m}	Starter	2006 ^{5u}	2008 ^{6l, 6m}	173 km ¹⁹	Yes ^{6m}
Rotterdam, NL	1.81 million	31% ^{3d}	Champion	1966 ^{5v}	1971 ^{5v}	600 km ²⁰	Yes ^{5v}
Stockholm, SE	2.16 million	3% ³ⁿ	Starter	1972 ^{5w}	1974 ^{5w}	965 km ⁹	Uncertain ^{5w, 28}
Stuttgart, DE	2.66 million	5% ^{3e}	Starter	2010 ^{5x}	2005 ⁶ⁿ	180 km ²¹	Yes ²⁹
Turin, IT	1.74 million	3% ^{3o}	Starter	2001 ^{5y}	1990 ^{6o}	207 km ²²	n.r.
Valencia, ES	1.65 million	4%	Starter	1995 ^{5z}	2015 ^{6p}	194 km ²³	Yes ^{6p, 30}
Vienna, AT	2.78 million	7% ^{3p}	Starter	1979 ^{5za}	1985 ^{6q, 6r}	1398 km ²⁴	Yes ²⁴
Warsaw, PL	3.09 million	3% ^{3q}	Starter	1994 ^{5zb}	1996 ^{6s}	457 km ^{5zb}	Yes ^{5zb, 31}
West Midlands, UK (Birmingham, UK)	2.93 million	3% ^{3r}	Starter	2007 ^{5zc}	2011 ^{6t}	278 km ²⁵	Yes ^{6t, 32}

⁵ See section 6.1 for Table 6 sources.

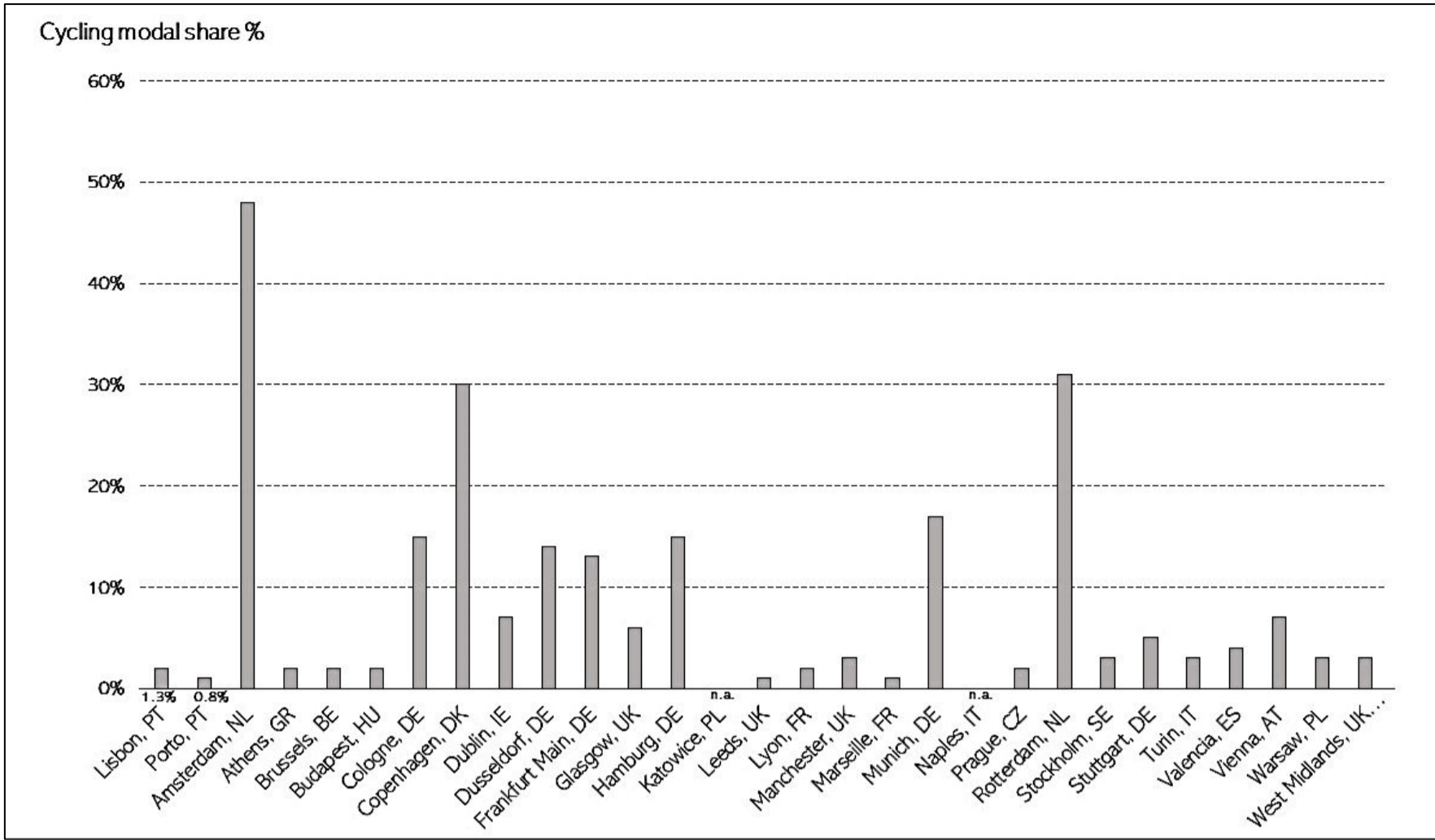


Figure 20
Core municipality cycling modal share in European cities with large metropolitan areas in 2021

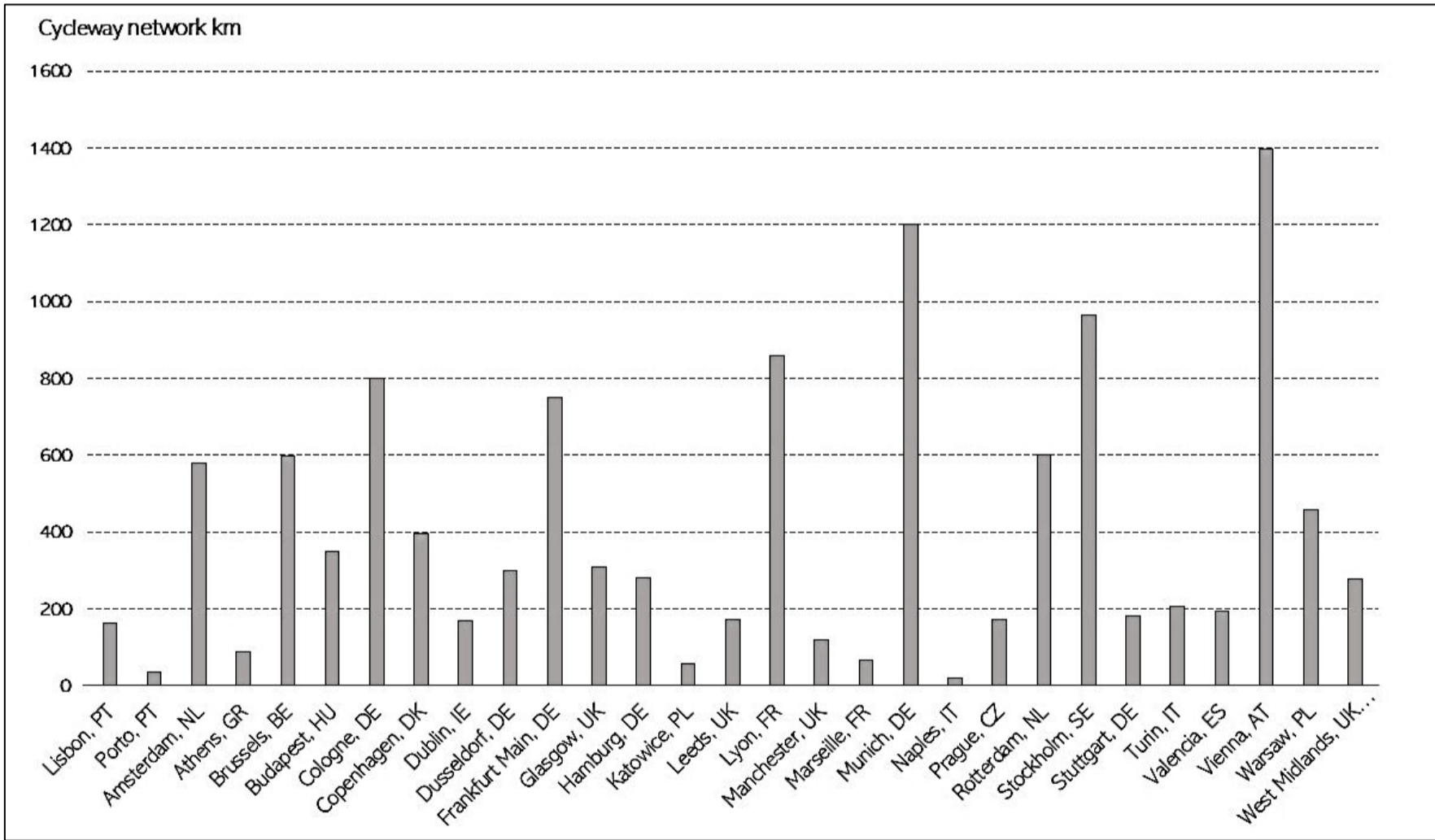


Figure 21
Core municipality cycleway networks in European cities with large metropolitan areas in 2021

3.1.2 Cycling and policy outputs

Beatley (2000) described the importance of increasing rates of cycling in Munster's mobility strategy as a form of promoting modal shift from cars to more sustainable mobility modes. The virtues of individual transport, free of schedules and set routes was evaluated as an advantage to cycling, not available in bus service (p. 173). Large cities where governance structures and policy actors attribute significant importance to cycling include it in different urban landscape features, working beyond the scope of cycling as a subsystem, and integrating it into the policies driving the mobility system, land-use, commuting distances, infrastructure, macro programmatic features in spatial policy and masterplans, but also at the micro-level with detailing in neighbourhood planning and projects. A habitual neighbourhood spatial planning feature is reflected in comprehensive walking and cycling connections and integration at the most local level also. Beatley (2000) points to “*a conscious effort not to block or close off pedestrian/bicycle movement between housing blocks and neighbourhoods, but to permit and encourage it as a general planning rule*” (p. 169).

Varied approaches have suggested the significant impacts of local policies, such as rehabilitating neighbourhoods to integrate and ease walking and cycling connections, and integrated micro-level, or infra-local measures—for instance creating cycling and pedestrian short-cuts as one of the measures for diversifying low-density, monofunctional neighbourhoods—aligned with other programmatic and building measures to make these localities denser, more diverse, more liveable, and better integrated within the broader metropolitan area policies at both the urban and regional scale. These measures also include broader policy processes regarding social issues, gender-related factors, and community participation (Hayden, 1984; Muxí, 2013).

Moreover, increases in the political weight of cycling in cities has led to greater political awareness of cyclists' needs, regardless of city size. The policy process in ‘*champion*’ cycling cities reveals interactions with local cyclists' coalitions to accept and introduce measures promoting cycling at all scales, including simple micro-level measures at the neighbourhood scale, and connections between residential areas and the rest of the city. In the *Südstadt* suburban development of the Vienna metropolitan area, for instance, cycling was integrated where it had previously been prohibited—and originally ignored in 1970s development plan. Cycling citizens and activists were heard by local politicians, measures implemented by local government, and celebrated by citizens and cyclists' associations (Radlobby Niederösterreich, 2019). Simple measures such as changing signs to allow cyclists to use pre-existing paths complemented with measures to improve the cycleway network have made cycling more practical and competitive both at the infra-local neighbourhood scale, but also city-wide with cycleway provisions assuring seamless door-to-door links, with no prohibitions.

Macro-levels of policy interaction are another equally important feature for increasing coalition action in ‘*champion*’ cycling cities, with epistemic groups revealing greater involvement in the policy process. Jensen et al. (2017), for instance, claim that when Copenhagen Municipality published its first ‘*Bicycle Account*’ in 1996 the visible benefits of cycling policy had a crucial impact on the political agenda, resulting in coalition involvement and increasing policy outputs, including the systematic monitorisation of cycleway pavements, new cycle-pedestrian bridges built across the harbour to reduce trip distance and time—and increase cyclists' convenience—the introduction of the traffic light ‘*green waves*’ accommodating the system to bicycle travel speeds (20km/h) on established cycling routes accompanied by green traffic signals, setting back stop lines for cars or establishing a ‘*pre-green*’ period for cyclists at traffic lights, and implementing ‘*green cycle routes*’ as feasible alternatives to the arterial road-side cycleway network, aiming at reducing travel times for cycling between numerous localities while providing greater comfort and different travel options through parks, a former railway line, river- and lakeside, in areas where car-traffic was prohibited (p. 471).

The political weight of cycling as a context and landscape issue is also observable in the policy mechanisms by examining the rationale used to support decisions leading up to the policy outputs realised. In Copenhagen there was an environmental and health-producing rationale, informed by local epistemic action —with the ‘*Bicycle Account*’ providing measurable information associated with health and environmental sustainability meta-issues— and interactions between epistemic actors, experts, policy entrepreneurs, and local officials in the city. Jensen et al. (2017) suggest that the political rationale associated to the ‘*Bicycle Account*’ —revealing relevant data on the relation between public investments and health impacts— and the repositioning and rescaling of governance arrangements, led to various favourable policy outputs for the cycling subsystem, with the metropolitan area’s ‘*cycle superhighways*’ being the key policy output produced, connecting Copenhagen’s centre with the 22 surrounding municipalities. Copenhagen’s first ‘*cycle superhighway*’ was inaugurated in 2012 with the projected health benefits generated by this infrastructure calculated and communicated to the general public (p. 473).

Low Emission Zones (LEZ) and Ultra-Low Emission Zones (ULEZ)

One common initial action which can indirectly be associated to the political weight of cycling is the establishment of Low Emission Zones (LEZ) —*i.e.*, specific city areas where higher-polluting vehicles are prohibited— mostly implemented in central city areas (Wolff & Perry, 2010), but with significant impacts in the suburban metropolitan areas also when adequately implemented (Wolff, 2014, pp. 503-504). Even more stringent Ultra Low Emission Zones (ULEZ) can also be implemented, further restricting automobility. Despite the measure not requiring any direct mention of cycling *per se*, depending on the formulation of the specific features of a LEZ or ULEZ, with adequate formulation, it can become an extremely effective measure to reduce air pollution quickly (Wolff, 2014, pp. 509-510), and one of the most impacting infrastructural moves towards promoting local modal shift from automobility to active mobility. Walking for shorter distance and cycling for longer distances and local logistics — and integration with public transport— quickly appear as natural alternatives to automobility. In fact, for LEZ to be effective Georgiev (2018) considers public transport, shared mobility, and the reallocation of public space for active mobility as one of the three crucial measures necessary for effective implementation, by providing alternatives to polluting vehicles (pp. 13-14).

The size, scope and level of restrictions imposed by each specific LEZ or ULEZ can determine whether cycling is or not boosted as a mobility choice, and the level of connectedness by means of cycleways and seamless intermodal and multimodal integration between cycling and public transport can provide even greater impacts. These measures are especially important for larger cities, and connections to sprawled areas, with complementarity between cycling and public transport being extremely relevant (Braun et al., 2016, p. 177; Oldenziel et al., 2016, p. 194).

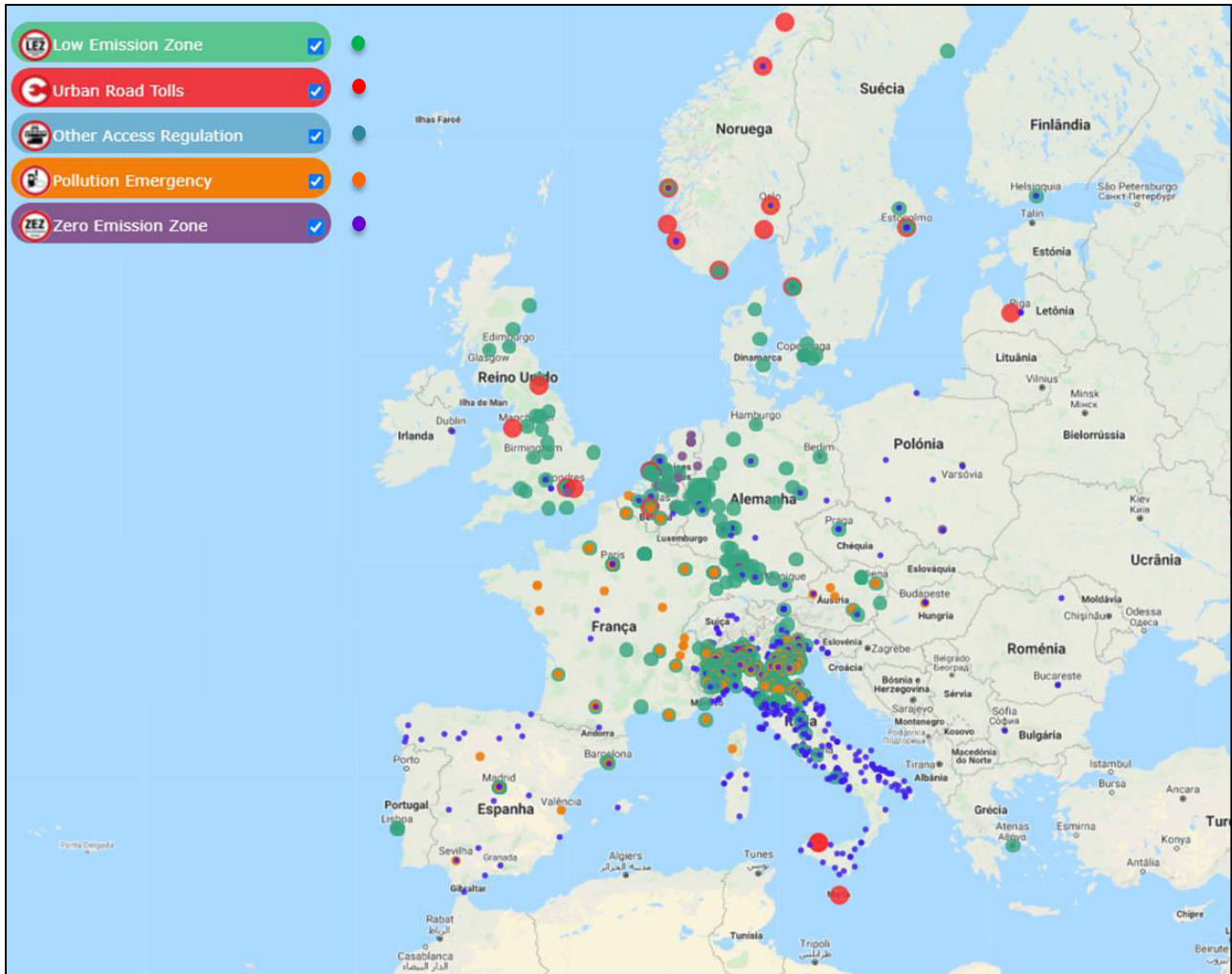


Figure 22
Map of automobile access regulations in urban areas in Europe in 2021
 (Sadler Consultants Europe GmbH, 2021)

Pablo-Romero, Pozo-Barajas, & Sánchez-Braza (2018) note that the EC's Clean Air Directive enacted in 2005 established that local governments are to develop clean air action plans when exceeding the maximum allowable limits for specific air pollutants, and that these plans consist of range of possible actions, including the implementation of LEZ. Two possible consequences emerge from the implementation of LEZ: reduce polluting vehicles—with local governments shifting mobility offer to walking, cycling, and public transport—and depending on the characteristics and rules defined for the LEZ these can either create an incentive for shifting to lower-emitting vehicles—including electric vehicles (p. 171)— or the creation of incentives for cycling as a legitimate mobility option. The policy design of each LEZ depends on the priorities chosen by policymakers. In any case, the implementation of LEZ is an early indicator of policy measures and can be associated to numerous environmental and climate action outputs realised without mentioning cycling, thus providing an opportunity for implementation without some of the policy conflict associated with 'bikelash', i.e., automobility's antagonism to cycling. LEZ implementation with effective car-restricting policies can provide a series of opportunities to discuss numerous urban issues and to prioritise walking and cycling. If well-designed—with participation from the cyclists' coalition— cycling can enter the political agenda to solve a series of mobility and logistical problems with LEZ implementation, with outcomes depending on the formulation and the details of the outputs produced.

Green infrastructure and greenways

Ecological networks, also known as green infrastructure, have tendentially been created and expanded within and between urban centres and connecting these to rural areas, playing a significant role integrating regional cycleway networks between different contiguous municipalities while simultaneously boosting cycling and walking infrastructure connecting different municipal and regional areas (Sustrans, 2016). Chenoweth et al. (2018) observe that green infrastructures function in urban areas as carbon sequestration areas, as pollution control, and as practical applications of the natural capital they seek to preserve and enhance, emphasising the importance of ecosystems and their networks, making these available to local populations (pp. 140-143). Horwood (2011) confirms the economic benefits of green infrastructure to local communities when developed at the regional level, while providing a win-win '*policy fix*' in climate adaptation, helping to solve environmental '*pinch points*' such as flooding and heat islands (pp. 969-970), but these also work as climate mitigation measures when introducing walking and cycling networks. Regarding green infrastructure policy process, Harrington & Hsu (2018) suggest that governance structures enhance interaction between local and higher-level policy networks by driving, coordinating, and introducing capacity building actions in face of climate change and environmental challenges (pp. 112-114). Pasimeni, Valente, Zurlini, & Petrosillo (2019) point to the benefits of green infrastructure in assuring greater resiliency in face of the increasing climate risks —flooding or extreme heat—posed upon critical infrastructure and point to the key role of integrating green infrastructure with cycling and walking routes to improve urban mobility system performance. Furthermore, greenways are aligned measures with broader issue policy networks —such as CoM, ICLEI, or EcoXXI awards— aiming at GHG emission reductions while working with citizen participation to enhance local social capital (pp. 24-25). Lwasa, Buyana, Kasaija, & Mutyaba (2018) conclude that developing green infrastructure in urban areas can create inclusive opportunities for all social groups, enhance ecosystems, and work as an operational part of broader climate adaptation and mitigation strategies which can address numerous social issues (p. 56).



Figures 23 and 24

Greenways in Lisbon and Cascais

Part of the green infrastructure connecting central urban areas to neighbourhoods and outlying natural spaces.

As an urban landscape policy issue, the level of greenway implementation within green infrastructures reflects different levels of walking and cycling policies at the metropolitan area-scale, connecting different localities and in many cases interconnected between different municipalities at the regional level, providing important links at several levels. Dutch cities, for instance, have a strong tradition of developing extensive green infrastructure at both the national and provincial levels, with a national ecological network established in the Netherlands as early as the 1990s (Beatley, 2000, p. 200; Phillips, 1996), and implemented in the early 2000's by regional governments,

evolving into the introduction of cycling superhighways as a principal mobility innovation concept within these green infrastructures and an element of experience for cycling as a mobility practice (Liu, te Brömmelstroet, Krishnamurthy, & van Wesemael, 2019, pp. 3-4, 6). Copenhagen's metropolitan area cycle highways and green infrastructure are interconnected as part of a broader mobility plan, numerous other cities have worked connecting different centres using their green infrastructure network by implementing cycleways linking city centres and outlying urban centres, with the cycleways doubling also for daily cycling connections between home, school, the office, to vaster green areas, wetlands, or environmentally restored spaces. Furthermore, greenways can be used to access urban farming areas and to transport local food production to nearby markets and stores using cargo bikes. Greenway solutions are a common factor in most '*champion*' cycling cities and their outlying areas. The importance of integrating metropolitan regions by means of urban parks, agriculture, and rural areas, but also by equipping these natural space tentacles with connected cycling infrastructure networks provides important competitive advantages for cycling (Jensen et al., 2017, p. 473).

Greenways are effective support environmental restoration mechanisms, but also active mobility walking and cycling arteries connecting central city areas and the surrounding outlying suburbs, peri-urban, rururban—territories on the edge of cities or peri-urban areas, where new urban housing or business activities are placed— and rural areas. Besides introducing the option of active mobility where pre-existing conditions for walking and cycling were inadequate, as a policy output, greenways also provide the advantage of functioning as new recreational facilities for the population, providing impacting measures which raise little or no policy conflict. These measures are popular, effective means for improving the quality of the urban environment and linking it to the rural and natural areas while promoting cycling, for both for leisure and mobility purposes, and when integrated with urban agriculture, for logistical functions also—cycle logistics, micromobility— since at the urban scale bicycle-use can cover relatively large distances quickly. Greenways are an effective '*start from scratch*' measure promoted in low-cycling contexts, providing several immediate and broader-range benefits (Manton, Hynes, & Clifford, 2016, pp. 433-435).

Lisbon Municipality exemplifies the greenway start from '*scratch strategy*' by introduced cycling into its local policy agenda through its green infrastructure outputs (Barone, 2013). Lisbon's original green infrastructural plans date back to 1993, conceived by the prominent landscape architect, activist, politician, Roman Catholic, Gonçalo Ribeiro Telles. Politically the process was only initiated fifteen years later, in 2008, by a left-coalition government headed by Socialist António Costa when he negotiated with José Sá Fernandes as the new independent deputy mayor for energy, environment and green infrastructure. It was through the green infrastructure measures that cycling was effectively introduced into the city's policy agenda—with José Sá Fernandes as the key policy broker—and his advisors as crucial policy entrepreneurs guiding the process, untangling the preceding years of the city's prioritisation of automobility and neglect for walking and cycling.

Other highly car-dependent cities starting from practically zero percent cycling modal share have followed similar strategies, and have expanded their greenway networks to metropolitan and regional areas, successfully initiating integrated active mobility networks as regional level policy outputs—sometimes guided by larger-scope integrated mobility plans such as Atlanta's regional '*Walk.Bike.Thrive!*' programme (Atlanta Regional Commission, 2017) and Houston's '*Bayou Greenways 2020*' (Houston Parks Board, 2020), or as quick starts from advocacy coalitions leveraging on non-profit based investments such as the '*Detroit Greenways*' (Blue, 2014, p. 59). These starter initiatives are distributive programmes aligning a series of policy objectives for integrated change in urban patterns, including introducing cycling as a leisure activity for the mainstream non-cycling population, but also introducing a cycling network to help transfer leisure cyclists to habitual bicycle-users for mobility reasons, aiming at redistributing mobility system mode share towards active mobility and more sustainable modes. Broader issues such as environmental recovery and awareness, walking and cycling infrastructure to get to places in the metropolitan area—be it for leisure or daily mobility needs— all align with the policy objectives of reducing automobility's

predominance (Bruntlett & Bruntlett, 2018, p. 169), despite being prone to criticism from opponents for costing more money than redistributive street space cycleways (Blue, 2014, p. 55; Manton et al., 2016, p. 428).

At the continental level, the EuroVelo trans-European cycle route network (Figure 27) has functioned as both a supportive policy measure for ‘*champion*’ cycling contexts where implementation has been speedier and more intensive and as a ‘*starter*’ policy tool for implementing active mobility paths where these are lacking, while introducing policy change for reasons beyond cycling such as tourism, local economies, regional cohesion, and in varied landscapes, both rural and urban. For localities which have EuroVelo routes crossing their jurisdictions the level of implementation of the EuroVelo guidelines illustrates the importance regional and municipal policy brokers attribute to the network, and the involvement of related amenities within its programme—not only for recreational, leisurely or touristic purposes— but also for local populations’ mobility needs (Trendscope, ECF, & ADFC, 2018). EuroVelo routes pass through some of Europe’s most prominent metropolitan areas—and many comparable city areas— including Lisbon. In several cities with dedicated and well signed cycleways (as in some parts of Southern Portugal) in others signage is non-existent (as in the AML). The existence of signage itself can be viewed as a detail of coalition articulation intensity, revealing a coordinated effort between municipal, regional, and national authorities, and cycling organisations such as ADFC in Germany, *Club des Villes et Territoires Cyclables* in France, Sustrans in the UK, and FPCUB in Portugal.



Figures 25 and 26
Off-season cycle tourism in Trafaria (Almada) and Lisbon

Since the National EuroVelo Coordination Centres’ and Coordinators’ (NECC/Cs) meeting preceding VCC 2013 in Vienna, FPCUB began negotiating for a major expansion of the EuroVelo 1 (EV1) route, approved in 2016. A comprehensive information site providing signage and user information, section details and maps for the entire 950km long Portuguese section was developed and is available online (FPCUB, 2021a). EV1 crosses nine AML municipalities (FPCUB, 2021a; OpenStreetMap.org, 2021), yet no EuroVelo (EV) signage has been placed on the routes in any of the AML municipalities to date (2022) and most EV1 sections in the AML aren’t on dedicated cycleways, but instead, on routes shared with car traffic, and in most cases quite intense and with speed limits well above the 30km/h recommended maximum. While in Lisbon municipality 100% of the EV1 route’s 10km long section is on dedicated cycleways, only 40% in Oeiras are on dedicated cycleways—3.6km out of 9km— sharing a significant area with high car-traffic intensity and speeds (50 to 70km/h) on a 5.5km underdeveloped gap, 33% on dedicated cycleways in Cascais—8km of 24km— and even less in the other six AML municipalities (FPCUB,

2021a). A similar scenario applies to most Portuguese municipalities where EV1 passes, and to date, signage is mostly lacking, insufficient, or limited to stickers placed by local cycling citizens and activists.

As a policy output, compliance with the EV route certification provides another indication of the importance attributed by local governance towards cycling, be it for tourism, leisure, or daily mobility purposes. EV certification requires an analysis of infrastructural conditions along the route, connections to public transport, urban centres and local amenities, signing, local information, on-line information, marketing and promotion (Trendscope et al., 2018). An in-depth analysis of how each of the comparable cycling cities has dealt with the EV route in its territorial jurisdiction is an area for further investigation beyond the scope of this thesis, related in that such research can confirm the role of the EV routes regarding local cycling cultures and how —or if— these routes interrelate with the different populations and landscapes they serve and cross through.



Figure 27
EuroVelo schematic diagram
(Trendscope et al., 2018)

‘Green streets’ and ‘woonerf’ concept

Green infrastructure can be used to transfer certain environmental restoration measures from the broader regional landscape to the local, residential level also, connecting important cycleways at the capillary level, plugging these into local street networks by implementing green infrastructure measures, extending the use of natural regeneration, depaving surfaces, increasing the number of trees and vegetation on the street and converting these to ‘green

streets' into better shaded, cooler, and more permeable access roads in the built environment, while simultaneously reallocating public surface area occupation from car-traffic to natural elements. Green city streets can be made safer and more comfortable to walking and on-street cycling when converted into either car-free or car-lite areas, and even more so with trees and shade as effective climate adaptation measures. The removal of through car traffic combined with a significant reduction of car traffic volumes and low traffic speeds—generally below 30km/h, and recommended at no more than 20km/h— has significant beneficial comfort and safety impacts (CROW, 2016).

The Dutch '*woonerf*' concept, meaning '*living yard*', aiming at '*living streets*', and defined as a residential home zone associated with housing and public space policies (Kraay, 1986), is also a built environment output resulting from the political weight of people-based policies, not only cycling, but where cycling is, in fact, one of the by-product outcomes. Despite the '*woonerf*' appearing as an institutional output produced by the Netherlands Association of Local Authorities (VNG) in 1975, and receiving a national legal status one year later (Kraay, 1986, p. 20), the policy change issue behind the implementation of '*woonerf*' emerged previously from a much vaster social struggle which had already entered the political agenda years before. The social reclaim the streets movement, aiming at cities with a safer and more human-scaled urban environment—where families and children could live and get around their locality comfortably—is directly related to the '*Stop de Kindermoord*' ('*Stop the Child Murder*') street protests from families confronting traffic-danger in the aftermath of two decades of children dying and being maimed by car-traffic and car-centric planning in the Netherlands (Feddes et al., 2020; Habraken, Meijs, Schulpen, & Temmink, 2013; Reid, 2017a, pp. 197-202).

The first examples of streets focusing on slower car-speeds and regaining the human dimension appeared in Delft in 1968, and was eventually replicated in cities throughout the Netherlands, with trees being planted into the street traffic route, creating slow-down zigzags, permeable areas between car parking spots by planting trees and vegetation replacing what had been on-street parking spaces, and a series of small urban space details with significant impact. The urban street (re)design determined by the introduction of '*woonerf*' made lower speeds and less traffic an inherent feature applicable to entire neighbourhoods—reducing space for cars to drive and park—converting what may be planned as parking spaces elsewhere as green spaces in many of these Dutch cities, accommodating relatively high urban densities with less automobiles and more people, less permeable asphalt pavement and more vegetation, greater surface permeability, and reintroducing an additional key place for children to play—the street itself— (Beatley, 2000, p. 205).

Regarding the cycling subsystem, much better conditions for citizens of all ages to walk and cycle on their local journeys became available with extensive '*woonerf*' implementation in cities, relating this output directly to the policy issue of increasing cycling. As part of the permeable Dutch policy process, '*woonerf*' experimentation began from the '*outside*' with epistemic communities responding to social movement demands occurring in the late 1960s and early 1970s. The typology officially entered the institutional realm with a report prepared by the national local authorities' association (VNG) in 1975, and from there to the national legal framework in 1976, advancing to widespread implementation in cities all over the Netherlands, with epistemic follow-up research on technical specificities, behavioural responses, local inquiries and public participation, as new implementations and experimentation of the typology intensified (Kraay, 1986).

Cycling network policy

An inescapable factor of how a specific urban landscape reflects the political weight attributed to cycling is that of the cycling network's implementation policy. Cities with significant car restrictions provide different grades of intervention; the low-hanging fruit for implementing a cycling network may be the introduction of a series of different traffic concepts. In many cities with higher rates of cycling it is common for entire city neighbourhoods to have streets restricting motor traffic with exemptions for cycling, especially in residential and city core areas. Cycling, for

instance, is permitted on most streets designated as one-way for car traffic in many '*champion*' cities, and several '*climber*' and '*starter*' cities also. Namely those which have had relatively successful policies in increasing local cycling mode-share.

Another step further into quickly reducing automobility's pervasiveness while rapidly expanding the cycleway network is the introduction of integrated traffic circulation plans, restricting car access in entire city areas but allowing cycling, such as Groningen's Traffic Circulation Plan of 1977, even when overall public support for the policy output is not clear but policy brokers are sufficiently committed and firm to implement such measures (Hellemeier & Soltaniehha, 2010, p. 12). In cities with low cycling rates and no sign of cyclists' coalition policy influence, one extremely effective measure to reduce the prevalence of automobility and informally expand the cycleway network is the implementation of car-free zones. Yet despite the effectiveness of this measure in the car-free areas covered, policy details are important, since excluding the cycling subsystem from the policy process does not assure optimal outcomes for the mobility system. If a cycling network is not implemented connecting outlying areas, for instance, the policy output's effects stay limited to the scale and aim of the intervention area.

Without broader-based urban mobility policies integrating cycling, broader social and territorial issues may also be neglected. Pontevedra's city centre pedestrianisation plan implemented since 1999, for instance, has provided an effective impulse towards increasing active mobility in general, and cycling in the urban environment in the core city area also (Concello de Pontevedra, 2016, pp. 7, 41, 43). But after over twenty years of implementation the effects are still mostly limited to the scale of the city centre with few impacts reaching beyond this area, which raises questions regarding the effectiveness of addressing pedestrians only without comprehensive cycling-specific measures at both the central city-scale and the outlying urban areas.

Despite the introduction of a limited number of cycling and walking paths in Pontevedra's surrounding area in 2008, an overall speed limit reduction to 30km/h in 2010, and the implementation of many 20km/h coexistence streets in the city (Concello de Pontevedra, 2016, pp. 8, 40), the persisting disconnection between the pedestrianised city centre and the outlying urban areas are increasingly related with social inequalities in the mobility system, symptomatic of the lack of an integrated mobility policy addressing the full potential of the cycling subsystem (Mirón Malvar, 2016, pp. 243, 245). Mirón Malvar (2016) further observes that the lack of a cycling network and bicycle parking are some of the key improvements that are missing according to local citizens surveyed, and reports of conflicts between pedestrians and cyclists are also a recurrent problem in the pedestrianised city area (p. 113, 131, 144, 146-147). The lack of consistent cycling policy integration in the urban mobility system —as a specific subsystem— does not address a series of issues regarding cycling and the possibility it offers for many urban journeys.

Recent urban and mobility strategies in Pontevedra are aiming at correcting omissions, in part by implementing piecemeal cycling connections (Concello de Pontevedra, 2017, p. 25), but questions remain regarding the depth of the cycling policy planned and the opportunities it can provide to further reduce automobility in the larger city area. Issues regarding territorial coverage and the limitations of walking for longer distances, plus underbudgeting cycling policy outputs (Concello de Pontevedra, 2016, p. 114) point to drawbacks in mobility planning. Furthermore, the continuing lack of a municipal-wide cycling infrastructure plan and the low level of interaction intensity occurring between local government structures and the cyclists' coalition in drafting policy outputs are problems which could be explored to improve process and achieve optimal impacts aiming at reducing automobility beyond the city's central areas.

Considering traffic concepts, in February 2020 Lisbon mayor Fernando Medina announced the implementation of a new Low Emissions Zone programme for Lisbon (ZER ABC) with strong car traffic restrictions and an unprecedented opportunity to improve walking and cycling conditions in the city core, including an expansion of the city's cycling network in these central areas. Initially programmed for the Summer of 2020 many of the cycling routes

and restrictions to cars on various city streets and sidewalk widening occurred, yet the programme was not fully implemented. Car access to the city centre was not restricted. The onset of the COVID-19 pandemic served as an excuse not to proceed, but quick incremental implementations of car-free streets and pop-up cycleways did advance in the ZER ABC area (ECF, 2020b). In fact, pop-up detailed cycleways had already been implemented in Lisbon before the COVID-19 pandemic, and elsewhere in Portugal. In contrast to policies for the implementation of specific area-wide core interventions such as Pontevedra, the impacts of an incremental infrastructural approach such as Lisbon's still needs some time to be assessed beyond the impacts of policy conflict.

Comparatively, an increasing number of other methods for turning cycling faster and more competitive than car-use in cities exists and has been put into effect since the late twentieth century in many European '*champion cities*' where cycling has effectively replaced automobility or has kept its general dominance at bay. Policies aiming at giving bicycle users greater flexibility than that given to automobile drivers, such as generalised contra-flows, short-cuts, paths beyond dead-end streets, and access closer to central buildings and city areas are common examples. A positive correlation between comprehensive cycling infrastructure and high cycling modal share is confirmed by numerous studies (Buehler & Pucher, 2011; Dill & Carr, 2003; Heesch, Giles-Corti, & Turrell, 2015; Mertens et al., 2017; Segadilha & Sanches, 2014; Stinson & Bhat, 2004). An early FHWA (1992) report associates higher levels cycle commutes in US cities with cycling network policy incorporating more cycleways.

Dill (2009) compiled and analysed data on cyclists' behaviour in Portland, Oregon, finding that despite cycleways only existing on 8% of the total street network, commuting cyclists travelled 52% of their trips on those cycleways. These findings confirm how continuous interconnected cycleway networks are fundamental elements related to higher rates of cycling by a wider variety of bicycle users, with cycling infrastructure continuity and its connectivity to activities being crucial (Aldred, 2013, p. 257). Within the same line of thought, low-traffic and low speed streets also function as part of a broader cycling network policy, since these car-light links also have a positive impact on cycling's modal share in the mobility system (Dill & McNeil, 2012; Ma & Dill, 2015; Mertens et al., 2016; Mertens, Van Cauwenberg, et al., 2016; Mertens, Van Dyck, et al., 2016; Parkin, Wardman, et al., 2007; Segadilha & Sanches, 2014b). In fact, less exposure to motor traffic has been found to be the preference of all types of bicycle users, from the most inexperienced to the most experienced (Broach, Dill, & Gliebe, 2012). Cycling network implementation is a particularly effective policy approach in the overall urban landscape when it integrates the city centre and outlying areas, not being limited to a single city area, encompassing as many population segments as possible, and assuring greater social cohesion and an egalitarian approach to local mobility, serving all social areas of a city (Blue, 2014, pp. 122-124, 142).

'*Champion*' cycling cities have generally implemented encompassing cycling policy outputs focusing on connected cycleway networks serving city centres and their outlying areas. Pucher's (1997) analyses of how public policies have encouraged cycling in several German cities, for instance, confirms how integrated tool-box solutions have provided effective policy outcomes. Regardless of the city morphology —compact or more dispersed— for optimal results the common outputs include well-connected, safe, and comfortable dedicated cycleways, cycle highways and pervasive low speed limits complemented by car-traffic reduction measures on most streets. These cycleway networks provide a base for policy outputs implemented over broader territorial areas —including denser suburbs such as those observed in Dutch cities, or Münster and Freiburg in Germany— but also in highly suburbanised landscapes such as Davis California.



Figure 28

Pop-up cycleway implemented in Quarteira (Loulé municipality, Portugal) in February 2019

Pucher (1997) exemplifies with the city of Münster, an early adopter of the integrated cycleway network policy approach:

Its network of integrated bicycle paths was extended from 145 km in 1975 to 252 km in 1995, with most paths separated from both auto and pedestrian traffic. Münster even has a tree-lined bicycle expressway (7 meters wide, 6 km long) that encircles the city along the route of the medieval city wall. It provides direct connections with 16 major bike routes radiating to outlying portions of Münster, its suburbs, and the surrounding countryside, which is also crisscrossed by a dense network of integrated bike paths. The same bicycle expressway also connects with 26 bike paths leading inward toward the town centre and the Cathedral Square. In addition to 252 km of separate bike paths, bicyclists benefit from over 300 km of bike routes over lightly travelled roads restricted to local traffic. Finally, most residential streets in Münster can be safely used by bicyclists, thanks to traffic-calming measures that give pedestrians and bicyclists right-of-way priority and restrict auto speeds to 30 km per hour (19 mph). (p. 36)

Almost 25 years later, cycling policy outputs continue equally promising, with increasingly high rates of cycling in these 'champion' cities initially analysed by Pucher (1997): Münster currently has 39% and Freiburg 34% cycling modal share (ICLEI, 2021c) In settings with traditionally higher rates of automobility, the implementation of adequate cycleway networks generally correspond to higher cycling modal shares than in similar settings which haven't adequately implemented cycling infrastructure. The town of Davis in California has maintained the highest 'champion' level of cycling of any US city. Still, among other possible exogenous factors, cycling's drop from 30% to 20% modal share between the 1980s and 2015 reveals the need for well-connected and implemented cycleways, but also for more complementary measures (Reid, 2015a), including integrated urban and mobility policies and car restricting measures.

Infrastructure detailing and relative impacts

Infrastructure policy also reflects public policy values (Stewart, 2009, pp. 2, 196), with user type prioritisation being reflected not only in the typological solutions mentioned above, but also in small-scale details. Infrastructural elements such as level streets with no curbs, or softly ramped ones vs. high curbs and ‘*traffic safety*’ curbs, level pavements, bollard placement, narrow car-lane widths, relations with pedestrians, intersection treatment, bus-stops, markings, all reflect the importance attributed to each mode. The most reputable reference for cycleway network design and implementation recommendations are the Dutch CROW cycling infrastructure guideline manuals (CROW, 2011, 2016). CROW was developed as an organisation in response to the Dutch national government’s decision to delegate cycling governance to provinces and cities in the 1990s, the platform was established to fill the knowledge transfer and policy gap for these lower-level governance structures where applicable insights were missing (Oldenziel, 2022). Dekker (2022) explains the role of CROW as an effective policy transfer and learning mechanism in the Netherlands by disseminating cycling infrastructure expertise formally, involving cities, epistemic groups, provincial and national level governance and back down to the local level of smaller municipalities which had less resources for innovation or knowledge (pp. 320-324).

Likewise, Huré (2013) observes signs of cyclists’ epistemic actions emerging in Belgium and France since the 1970s with policy entrepreneurship, activism, and intense transnational networking working in parallel to Dutch developments at the time. A cycling expertise visit to the Netherlands in June 1978 is considered one of the key starting points involving municipal officials from the city of Strasbourg, related to the cycling plan being implemented in that city at the time. Other French cities followed suite, observing best-practices in Dutch street reorganisation at an initial stage, and later incorporating cycling-specific officials in their municipal governance structures since the 1990s. Knowledge learning from other settings where cycling already had a foothold in the technical and policy processes involved the policy entrepreneurship of the Belgian Jacques Dekoster and the cyclists’ association he founded in Brussels: GRACQ (Belgian Daily Cyclists Research and Action Group) who organised cycling expertise visits attracting several French municipalities between 1975 and 1983. This transnational policy learning provided a knowledge base for some French cities, acquired and stimulated by the visits to Dutch cities and participation in international policy networks, but also networking among different policy actors (pp. 108-110, 136-138, 282-283).

Within the Dutch policy sphere the CROW guidelines do not have a real legal status, but function as an important design reference in practice, thus being a milestone for bicycle planning first published as a comprehensive manual in Dutch in 2006 and reaching out globally when published in English in 2007, and Spanish in 2011. Before the existence of CROW, knowledge transfer occurred informally among governance organisations (Dekker, 2022, pp. 324-325). The CROW ‘*Cycling infrastructure guideline manual*’ was a project developed under the Dutch infrastructure, traffic, transport, and public space epistemic platform co-sponsored by the Dutch Bicycle Council (Fietsberaad), the Dutch cyclists’ union. Production involved specialists, being based on best practices applied throughout the Netherlands, simultaneously with the strategic national document ‘*Policy manual for bicycle traffic*’ in 2006 (CROW, 2011, p. 3). The CROW guidelines have functioned as an important document for policy transfer and learning on cycling infrastructure not only among Dutch municipalities and public organisms, but also for other organisms around the world, including the development of other manuals. Several of the solutions used in the low-cycling rate context of North American cities which are employed in the National Association of City Transportation Officials (NACTO) landmark ‘*Urban Bikeway Design Guide*’, for instance, observe recommendations from the CROW ‘*Cycling infrastructure guideline manual*’ (NACTO, 2011, pp. 64, 68, 81, 85, 97, 99, 146, 297).

From the examples established in settings with high and moderately high rates of cycling, guidelines for correct dimensioning and location were developed in most European countries, also including countries and regions with low cycling modal share —e.g. the national best practices guidelines in Belgium (CRR, 2009) and the Irish National

Cycle Manual (Údarás Náisiúnta Iompair, 2011). Similarly, Portugal developed national recommendations, albeit in a resumed brief format integrated as part of a broader mobility package, published in March, 2011 by IMT(T), the Mobility and Transport Institute (IMTT, 2011b, pp. 27-28). Coincidentally, the Portuguese government also produced a national walking and cycling plan 'CiclAndo' with comprehensive policy oriented recommendations (IMT, 2012), approved by parliament, but never implemented.

From other contexts with much lower-cycling rates, various simple details have also pointed to interesting and effective solutions which can favour cycling even in 'starter' cities where automobility is pervasive. The 'Idaho Stop', for instance, where cyclists don't have to stop but yield (Daigh, 2017), 'crossbike' signalised cycling crossing pavement markings (Bike Portland, 2021; TREC, 2021), advanced green lights for cyclists, Advanced Stop Lines (ASL) with bike boxes at intersections, contraflow or bidirectional cycling streets where motor traffic can only travel in one direction (Câmara Municipal de Lisboa, 2018b; IMTT, 2011c), and numerous variations of these solutions. In effect, these are in many locations considered innovative and experimental, and in many localities these measures improve cyclists' —and also pedestrian— safety, but habitually lack a legal binding framework to be implemented. In this respect, these outputs favouring cycling infrastructure place local governments as advanced agents for innovation which subsequently favours cycling and gives it a competitive edge at a broader scale, while providing numerous safety benefits and questioning car-centric standard-practice traffic rules (Appiah, 2021; Dill, Monsere, & McNeil, 2012; Elvik, 2009; ITF, 2013; Marshall, Piatkowski, & Johnson, 2017; Meggs, 2010).

Bicycle parking

Major public buildings and other large trip generating facilities such as schools, hospitals, libraries, government services, bus and train stations, are ideal focal points for large amounts of bicycle parking as part of their urban insertion in localities with higher rates of cycling, either at street level, in dedicated covered bicycle parking facilities, or both. Since transport intermodality plays an important role in first and last mile urban commutes and trips, the percentage of people cycling to and from train stations is high and good bicycle parking is an important interrelated policy issue. Furthermore, as transport intermodality becomes more attractive and seamless with increasing implementation of cycling policy outputs, demand for more bicycle parking increases. High rate cycling cities exemplify the growing need for bicycle parking associated to integrated pro-cycling policy output implementation: In Amsterdam in 1980 —when cycling conditions were still far from optimal— only 6% of rail passengers cycled to the station and 66% arrived on public transport, by 2008 cycling accounted for 40% of rail passengers arriving at the station and 40% on public transport (Oldenziel & Albert de la Bruhèze, 2016a, pp. 25-26).

As with the cycleway network, policies implemented since the 1990s in the Netherlands demanded better bicycle parking facilities in cities with high cycling modal shares. By 2000, Beatley (2000) observed that most 'champion' cycling cities were providing high-quality bicycle parking at train stations and key bus stops as part of their bicycle-public transport integration policies, and bike storage facilities were already being required in new multi-family developments (pp. 171-173). Contrastingly, the setting in Portugal reveals a pervasive lack of bicycle parking and few well-connected cycleway networks (Ciclovias.pt, 2022a). These are common difficulties adding to various others experienced by citizens who attempt cycling in cities with low cycling rates (Lois, López-Sáez, & Rondinella, 2016, p. 190). Meanwhile, in Portugal, FPCUB prepared comprehensive policy recommendations and project details for bicycle parking implementation (FPCUB, 2011), revealing a clear policy advance of advocacy in relation to official technical guidelines published in Portugal.



Figure 29
Bicycle parking at a hospital in Pamplona, Navarre

Lisbon Municipality installed numerous on-street bicycle parking locations using versatile and sturdy parking staples (*sheffields*) between 2016 and 2022, several bike hangers and corrals, and sheltered bicycle facilities in strategic locations, providing a total parking capacity of 11 317 bicycles at over 1 067 locations within the city limits by 2021 (Raposo & Banza, 2021). But in the outlying metropolitan area municipalities basic bicycle parking infrastructure remains extremely scarce, with some exceptions in parts of Almada, Oeiras and Cascais and generalised municipal-wide bicycle parking implementations in the AML only existing in Lisbon in 2022.

Despite basic bicycle parking facilities existing at most train stations, some public high schools, and a few locations, such facilities are very few in most residential and commercial areas, primary schools, bus interfaces and many public facilities such as hospitals, health-centres, town halls, libraries, shopping centres, local markets or supermarkets, and other large trip generating buildings. When bicycle parking does exist, in many locations outside of Lisbon Municipality it is commonly dysfunctional, substandard, and poorly located, one of the common Portuguese terms for low-standard bicycle parking facilities is '*entorta rodas*' (wheel benders), listed in cycling information open-source sites with parking infrastructure locations, namely [Ciclovias.pt.](http://Ciclovias.pt) and [CidadeCiclavel.MUBi.pt.](http://CidadeCiclavel.MUBi.pt) Public policy regarding bicycle parking as an integrated urban planning and management practice is missing from most Portuguese municipalities, and decision making reveals a general lack of technical knowledge of bicycle use and recommendations regarding bicycle parking or cyclists' needs, pointing to little contact with local bicycle coalition actors —especially with policy entrepreneurs and consultants or technicians with knowledge of the issue.

Appropriate bicycle parking facilities are more common where the cyclists' coalition has had more influence in decision-making, namely in Lisbon Municipality, but also at various locations in Almada municipality where the Local Agenda 21 Environment and Energy Agency (AGENEAL) worked with cyclists for a number of projects between 2005 and 2017. Similarly, the rail section of IP has revealed greater sensitivity to cycling with bicycle parking at most train stations, previous contacts with FPCUB and the relatively high quality and functionality, despite some questionable outputs or omissions at some stations. Lisbon international airport also reveals some knowledge of bicycle parking implementation with a high-quality facility prominently located beside the Terminal 1 departure area and close to the bus link to Terminal 2. Other interesting and functional small-scale examples also exist at the local level, revealing some knowledge of the practical aspects of bicycle use at some restaurants, stores, and beach facilities in the AML, despite a lack of integration with a local cycleway network since it is missing in most localities.



Figure 30
Bicycle parking at Guincho Norte beach, Cascais

Bikeshare

A visible element in a growing number of cities is the existence of bikeshare systems. The implementation of bikeshare is directly associated with an increase in cycling (ITDP, 2018; Murphy & Usher, 2015; Vogel et al., 2014), and well-designed systems are effective mechanism for modal transfer from automobility to cycling (Barbour, Zhang, & Mannering, 2019). Bikeshare systems have played an important role boosting cycling and increasing local awareness of the subsystem as a viable mode of transport in the overall mobility system (Huré, 2016; Shaheen, Guzman, & Zhang, 2012, pp. 199-200), especially when implementation is combined with a connected cycleway network (Félix, Cambra, & Moura, 2020, pp. 677-681) and as part of a comprehensive package of integrated mobility measures (Pucher & Buehler, 2012, pp. 352-353). Aldred (2012) suggests that cycling has gained attention in the policy process with the introduction of bikeshare systems, raising cycling's profile in cities with low modal shares (p. 98). In the Netherlands, the nationwide OV-fiets public bikeshare system —launched by the national train company N/S in 2003 as a last-mile solution— delivers nationwide coverage in all localities served by the country's extensive rail network. The two-way station-based last-mile solution is a successful innovation in the Dutch public transport system at the national and local level, providing a crucial last-mile extension to public transport, based upon round-trip use (van Waes, Farla, Frenken, de Jong, & Raven, 2018, pp. 1304, 1307).

Considering Lisbon's large metropolitan area and public transport integration process, the fact that an AML-wide public bikeshare system does not exist yet, and that the metro-area wide '*Navegante*' public transport pass does not include full access to Lisbon's large scale bikeshare systems on all of its modalities —metropolitan area and family passes, for instance— reveals the level of policy importance attributed to cycling as a legitimate transport

mode integrated within the overall system. Conceptually, Cascais' municipal 'Mobicascais' pass does integrate cycling in its municipal bikeshare system, yet the cycling mode was turned off between March 2020 and June 2021, and since October 2021 the bicycles disappeared. Furthermore, when the 'Mobicascais' bicycles were available the system's operating hours were very limited, from 07:00 to 20:00, meaning that the bikeshare system was not an option for late commuters, night- or early-shift workers, or for several uses such as dining out. Another AML municipality with a public bikeshare system was Barreiro municipality, with 'TCBikes' launched in 2017 and also integrated with its municipal pass, but besides the insignificant dimension of only operating 10 bicycles and three bikeshare stations (Distrito, 2017) it was shut down with the onset of the COVID-19 pandemic in 2020 and hasn't been reactivated, with no additional information provided (TCB, 2021). Most recently, Alcochete municipality also launched a tiny bikeshare system with 10 bicycles and two stations (Light Mobie, 2022).

Private Mobility as a Service (MaaS) dockless bikeshare and e-scooter operators have also existed in Lisbon and Cascais municipalities since 2018 and in Oeiras municipality since November 2022, but this business model and its operators have varied significantly as has the bicycle fleet size —pedelecs, e-bike— and availability, sometimes replaced by e-scooters. MaaS is an area requiring further research as the segment evolves.

Data collection and availability

Public information is also a policy output in itself, by monitoring and informing about the performance of outputs produced and the impacts —outcomes—achieved: Cycling networks, bikeshare system locations and availability, support facilities such as bicycle parking locations, user quantities measured and displayed in real-time in the public-space or online, cycling reports such as Copenhagen's Bicycle Account, are all outputs indicative of the importance attributed to the subsystem, pointing to its status within political choices, the impacts that are reflected in communicating policy formulation, and the will to inform the citizens. The availability or lack of monitoring data on cycling, for instance, is also a sign of interaction —or lack of— between policy structures and the cycling subsystem. Mobility surveys including cycling rates or cycle traffic counts conducted frequently and being up to date —*i.e.*, the availability of accurate data on cycling modal share and the number of sources for traffic counts— are indicative of the attention and importance paid by governance structures on the subsystem.

Considering policy outputs, information on the dimension of each city's cycleway network and the availability of support facilities can be equally suggestive, despite an important caveat applying: quantitative and qualitative aspects require greater attention at the detailed case-study level; the scale of the network measured in kilometres should also be associated to indicators such as population density and infrastructure location and the quality of service delivered by that network, considering design factors associated with infrastructure typology, width, intersection treatment and network linkage, but also directness, coherence, comfort, and other factors related to landscape and the relation with other modes in the mobility system. As for comparing data between cities, what is considered the specific first sign of a local cyclists' coalition is difficult to identify as concluded by Asperges' (2008) BYPAD cycling audit, noting that *"a comparison between cities of different countries is like comparing apples with lemons. The only basis of comparison which is completely correct is comparing your BYPAD-scores with the former scores in your city and this way using BYPAD as a self-evaluation tool."* (p. 47)

Yet despite Asperges' (2008) insights, there is a need for further in-depth research in this area: commonalities are identified between cities in much of the research conducted on cycling cities, and general patterns are identified regarding several dimensions of the variations in cycling, including the phenomenon of cyclists' coalitions and their influence on policy issues. On a general level, the descriptive insights in Table 6 illustrate an opening area for further research, enriching the specific case-study methodology applied, and within an ACF analysis of the policy process, this information may be applied to unravel insights in different cities, just as *"apples and lemons"* can be compared when thinking of the possible recipe to be prepared and the meal to be served. With or without all the

specific data, the insights should clearly keep this caveat of different contexts in mind, but they're also an applicable and important starting point to explore for new insights.

3.2 Overarching factors

Oldenziel & Albert de la Bruhèze (2016b) address overarching factors of cycling cultures in all types of cities, including those with low rates of bicycle use. Their five-factor sociohistorical analysis of the cycling subsystem as it relates with the different policy settings of the different cities researched touches upon significant policy level interactions. Regarding contexts with very low levels of cycling, Silva, Teixeira, & Proença (2019) support the importance of identifying the specific population groups with greater willingness to cycle and the influence of socio-economic and demographic factors exerted upon them—specifically age, student populations, levels of car-ownership, built environment, trip distances, traffic conditions, and cycling infrastructure (pp. 638-639). These factors also point to the possibility of local cycling cultures existing and their potential for growth—*i.e.*, change, increasing cycling—which in turn relates to the five-factor analysis applicable to cities and the most effective policies to be applied.

Other overarching factors can curtail the possibility of cycling cultures developing in a certain setting—in many localities with low rates of cycling, these coincide with a general level of poor conditions for practical alternatives to the automobile—not only considering alternatives for cycling, but also for walking and the possibility of combining cycling and/or walking with public transport. The fact that these mobility options are excluded from local contexts as viable means of mobility—not being easily and conveniently available to the mainstream population—points to mobility poverty as a crucial feature of low cycling contexts. In these cases—in policy terms—within an ACF analysis, citizens—the general public—are left out of cycling as a travel option, and likewise this policy omission is also reflected upon the choices people must face and value in their daily life. On a general conceptual level, this omission of choices can have an ingrained effect upon citizen's preferences, the electorate's discussions, and the '*electoral history heuristic*' valued by political parties (Jalali, 2017, p. 61-62). This heuristic is latent in many policy debates focussing on mobility solutions for citizens' most immediate needs almost exclusively focusing on road infrastructure and car-parking provision, excluding other modes as not viable.

3.2.1 Mobility poverty

Considering that cycling is the quickest means of urban travel for distances up to 6 to 8km (Dekoster & Schollaert, 1999, p. 11), the concept of '*mobility related exclusion*', '*transport poverty*', or '*mobility poverty*', provides a hypothetical basis underpinning this subsystem's viability in an urban system, as does its integration with walking, public-transport, and territorial planning in the policy process. In car-dependent societies cycling is generally excluded as an option for getting around a city by most people. In this respect, Kenyon, Lyons, & Rafferty's (2002) definition of mobility-related exclusion poverty should be kept in mind as an overarching factor, namely "*The process by which people are prevented from participating in the economic, political and social life of the community because of reduced accessibility to opportunities, services and social networks, due in whole or in part to insufficient mobility in a society and environment built around the assumption of high mobility*" (pp. 210-211).

Lack of universal, accessible, affordable and available modes of mobility is a key component of exclusion, not only from a reduced public transport offer or an environment that is unfriendly to walking (Kenyon et al., 2002, pp. 212-213), but also from the lack of adequate conditions for cycling as a mobility mode. Lucas (2012) argues that the

overlap between transport disadvantage and social disadvantage lead to transport —or mobility— poverty, and that while public transport can provide part of the solution, other forms of flexible transport services are necessary (pp. 107-108, 112), which is where walking environments at the infra-local level —short distances— and cycling for covering a greater diversity of distances —from short infra-local to large city-scale distances— play an increasingly important role.

Sustrans (2012) combines three indicators to map mobility poverty in England, identifying communities with either 'low', 'medium', or 'high risk' of transport poverty: low income areas where car and/or public transport use places a significant strain on household budgets; areas where a significant proportion of residents live further than one mile (1.6 km) from their nearest bus or railway station; and areas where it takes longer than one hour walking, cycling or using public transport to access essential goods and services (p. 2). Van der Bijl (2020) identifies mobility poverty as a multifaceted problem, requiring an activation of 'actors and factors' capable of finding social and practical solutions to the issue, and where cycling plays a central role in addressing the three core agendas he proposes: "*reduce car-dependency and offer alternative forms of mobility; improve public transport usability, that is, make public transport more affordable, understandable, and fair; unlock the bicycle system by creating bicycle facilities and by offering bicycle information, education, and training*" (pp. 166-167). Even in countries with well-developed sustainable mobility systems, limited transport options may exist in certain geographical areas. One well-documented example is Rotterdam's peripheral *Bloemhof*, neighbourhood (Van der Bijl, 2020, pp. 167-169), with similar conditions to many peripheral, peri-urban and semi-rural areas of other large cities worldwide.

Limited mobility options are identified using various indicators such as mode-share analysis where automobility is almost hegemonic, but also policy outputs identifiable by surveying the installed capacity for cycling and walking available in each locality. Positive features are compact urban patterns, diversification of activities at the neighbourhood level, the existence of extensive and interconnected cycleway networks, car-free or car-light streets, wide, comfortable, and continuous sidewalks, installed multimodal or intermodal public transport infrastructure and services, the availability of bikeshare systems, and the availability of local amenities such as street-level retail, green infrastructure and parks, etc. In highly developed countries, the lack of availability of these choices in specific city neighbourhoods, or in most of a municipality's territory can be associated to peripheral, low-income, or excluded populations —e.g., migrants— among other possible factors of exclusion (Bruntlett & Bruntlett, 2018, pp. 193-194). In other large city areas around the world, including many in North America, Australia, and some Western European cities such as Lisbon, Porto, this lack of feasible urban travel options could also be a part of daily life for several necessary trips to work, appointments, shopping, social life, etc. denoting a setting of systemic mobility poverty.

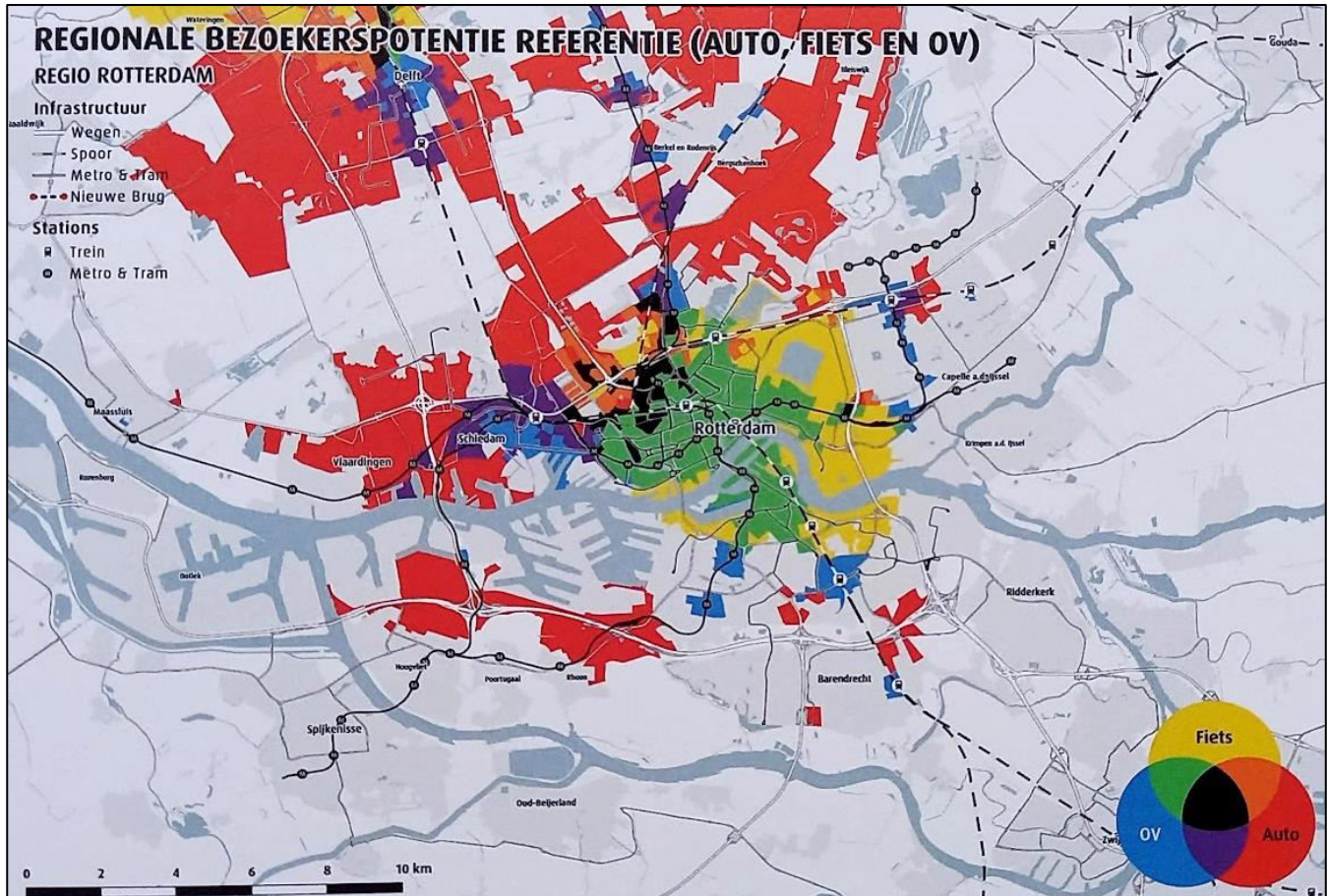


Figure 31

Rotterdam regional accessibility reference map - bicycle, public transport, and automobile

Developed by the consultant firm Goudappel Cofeng with the Rotterdam-Hague Metropolitan Region and the Municipality of Rotterdam (in Berkers et al., 2019, p. 59).

The knowledge obtained from experiences achieved in cities with generally high rates of cycling but with mobility poverty identified in some surrounding localities where work has been done to improve this problem, insights into the comparative frailties of cities with low cycling rates can be employed to categorise gaps, take note of inadequate policy implementation, and find common solutions applicable to such settings. The specifics on what's failing in a locality's policy area may be identified as both a starting point to address the local problems in greater detail and as practices to follow upon once engagement with the specific issue proceeds. Indicators of mobility poverty in benchmark and comparable cities and the possibility of transitioning to increased mobility options —cycling and walking— provides an opportunity to understand how to boost local coalition involvement, and create partnerships through policy networks for greater effectiveness in policy dissemination —transfer and learning— from the more advanced to the lagging cities regarding the subsystem and policy issue (Marletto, 2014, p. 171), but also vice-versa. Engagement with the local cyclists' coalition in policy events, enhancing the broadest level of social participation possible may succeed —but also fail— in realising a robust path towards the urban and mobility transition from the car-dominated scenario (Marletto, 2014, pp. 172-173). But what determines the different levels of outputs and outcomes associated with coalition and social involvement? How do these determinants succeed or fail?

The level of social integration in cities has long been a subject of urban policy studies, with recent research measuring the relation between social integration and city connectedness, particularly between different

neighbourhoods (Phillips, Levy, Sampson, Small, & Wang, 2019). Recent research has also called upon the caveat of unequal policy development prioritising car-use—even within different areas of the same city—where cycling has only been addressed in certain areas, making bicycle mobility a tool for gentrification instead of one of the means developed for overall social improvement (Blue, 2014), *i.e.*, mobility's social function. Identifying this inequality may point to one of the keys for failure—or at best, of only achieving piecemeal success in the formulation and implementation of cycling policies—since for encompassing change the coalition must address the general social basis.

Mobility poverty is viewed as an inherent effect of car-centred planning (Herce Vallejo, 2010; Litman, 2019; Litman & Steele, 2017), and has been particularly observed in North American cities (Blue, 2014, pp. 123-124, 142; Stehlin, 2019), associated to a diversity of interrelated factors, especially income disparity (Morency, Gauvin, Plante, Fournier, & Morency, 2012), issues of racial discrimination (Blue, 2014, pp. 138-139; Leung & Mannos, 2011), gender inequality (Garrard, Handy, & Dill, 2012), and the overlap of transport related shortcomings with social related disadvantage factors (Lucas, 2012, pp. 106-107). Issues of exacerbated mobility poverty in North America is persuasively broken down by Blue's (2014) work on the economic benefits and implications of cycling in '*Bikenomics*', and studied regarding land-use and mobility and transport planning by Litman (2013, 2019). It is also a matter of concern in European cities where car-centred planning has predominated for almost a century and continues to be reinforced in certain localities. Various related problems hindering or conditioning optimum development for cycling arise from city expansions and the resulting sprawled urban form experienced since the mid-twentieth century, even if effective infrastructural push and pull policies promoting cycling are implemented (Adam, Jones, & te Brömmelstroet, 2020, pp. 510-515, 521, 525).

Addressing the socio-political setting and providing alternatives to a broad range of city and social areas can anticipate avoidable problems, since politically driven influence can also affect policy decisions with negative impacts on cyclists' image (Emanuel, 2019). The lack of a strong electoral base of cyclists, for instance, and the subsequent lack of support within the various levels of governance structures function as relevant factors affecting the level of cycling policy implementation (Cass, Schwanen, & Shove, 2018, p. 165; Cox, 2015, pp. 12-13; Cox & Bunte, 2018, pp. 124-126). The concept of transport and active mobility as an equity issue among the socially vulnerable and mobility impoverished is a complex issue identified by researchers, experts, and associations, and as Beatley (2000) prompts, unravelling new potential for untapped political opportunities (p. 130).

3.2.2 Cycling rates

Most European cities with large FUAs between 1.5 to 4 million inhabitants fit into a broad BYPAD PRESTO '*starter*' city category (20 of 28 cities), only five are '*climber*' cities—all in Germany—and even less are '*champion*' cycling cities; Amsterdam and Rotterdam in the Netherlands, and Copenhagen in Denmark (Table 6). Porto which is slightly below the 1.5 million inhabitant FUA scale is Portugal's only other city with a relatively large metropolitan area comparable to Lisbon's, both being '*starter*' cycling cities. From the observations on these '*comparable cities*' it can be assumed that Asperges' (2008) BYPAD categorisation of '*starter*', '*climbing*', and '*champion cities*' does not suffice for a more detailed analysis of cycling cultures in large metropolitan areas, even when incorporated into Dufour's (2010) PRESTO guide. Comparatively, Félix et al.'s, (2019) definition of different levels of cycling maturity is relevant for this thesis' area of interest, since it focuses on cities with meagre influence from bicycle-users which have effectively managed to introduce policy change for increasing levels of cycling. The '*low cycling maturity*' level city—with more '*non-cyclists*' and '*expected cyclists*'—coincides with the greater degree of change required to achieve increasing cycling within its urban mobility system (Félix et al., 2019, p. 9). Comparable cities present different levels of '*cycling maturity*', conceptually corresponding to the level of policy development they have

achieved by including cycling in their social, political, and institutional agendas for formulating cycling policies, their capacity for implementation —outputs—, and the realisation of outcomes which have effectively provided policy change for greater cycling in each locality; *i.e.*, the intensity of cycling within the urban mobility system and the response from their governance structures at the municipal and metropolitan levels.

Within this perspective, as mentioned previously, Oldenziel & Albert de la Bruhèze's (2016b) five-factor analysis associated with cycling intensity (pp. 9-12), helps to clarify the diverse levels of cycling maturity and the political and social interactions related to the policy issue, by explaining differences and similarities in different the cycling cultures of different cities. These five factors were employed in a thorough analysis of 14 very diverse cities from 9 European countries (Oldenziel et al., 2016), an approach which was further refined in subsequent works coordinated by Oldenziel and her research team for a growing number of cities —mostly in Europe but also Johannesburg, South Africa (published so far: Berkers et al., 2018; Berkers & Oldenziel, 2017; de la Bruhèze & Oldenziel, 2018; Morgan, 2019)- producing the following factors:

1. **Landscape.** *Urban landscape and cycling distances*
2. **Automobility and public transport's role in relation to cycling.** *Urban alternatives to cycling*
3. **Policymakers' relation with cycling.** *Cycling as traffic policy*
4. **Social movements.** *Social movements and impact*
5. **Cycling's cultural status.** (Oldenziel & Albert de la Bruhèze, 2016b, pp. 9-12)

From the comparable European cities researched by Oldenziel et al. (2016), significant events point to crucial issues where cyclists' coalitions worked for policy change and achieved local impact. Considering the ACF elements of context, actors, associations, events, outputs, and outcomes, to advance knowledge on change in local contexts, how advocacy coalitions are formed and grow, what background they emanate from, and what they can achieve, or what they have not managed to achieve, these can be identified by employing this five-factor analysis to policy process interactions.

3.2.3 Spatial and social variables

The five factors associated with a locality's cycling intensity interplay conceptually with what Harms et al. (2014) define as spatial and social variables, which differently affect the intensity of cycling as a mode of transport within cities and their regions. Different urban densities, transport amenities available, and social influence have all been acknowledged by research scholarship to affect travel choices. van Acker, van Wee, & Witlox's (2010) travel behaviour model proves spatial and social opportunities and constraints affecting outcomes, according to two of the three determinants they investigate, namely 1) the quantity and quality of infrastructure and the built environment, and 2) the socio-demographic, socio-economic and sociocultural factors —gender, age, income, and ethnicity. Personal socio-psychological factors of attitudes and perceptions are excluded from their study (Harms et al., 2014, p. 233). In this thesis, however, the factors of social movements and cycling's cultural status are addressed, touching upon significant differences between attitudes and perceptions in different settings and within different areas of the case-study city itself. From these observations we can infer some of the policy process implications and relate these with quantifiable data registered regarding the local cycling cultures in a specific city.

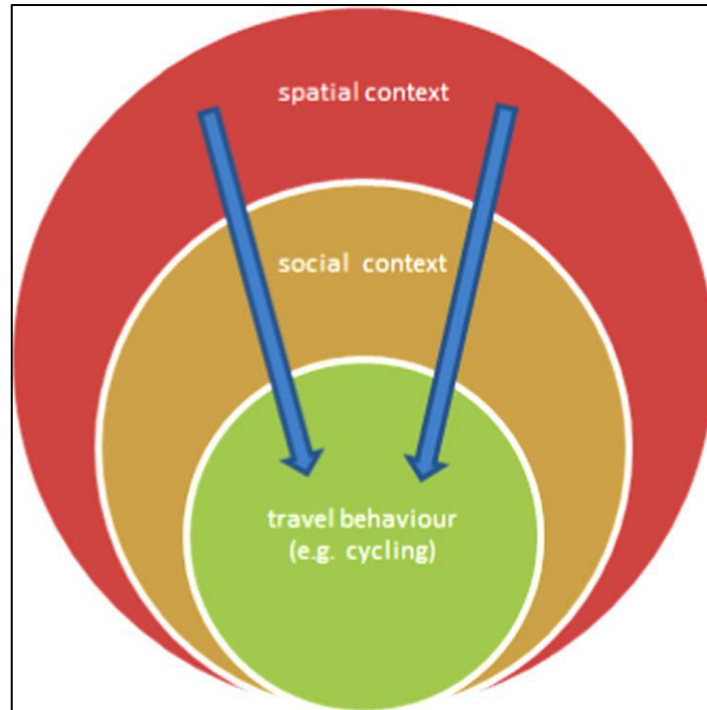


Figure 32

Spatial, social, and individual determinants of travel behaviour

(Harms et al., 2014, p. 234, adapted from van Acker et al., 2010)

Considering contexts with low rates of cycling, Silva, Teixeira, & Proença (2019) take the spatial, social, and individual determinants of travel behaviour one step further by detailing into an evidence-based analysis of individual factors influencing the rates of cycling —namely socioeconomic and demographic— and the physical conditions of the built and natural environment influencing the potential rates of cycling achieved in specific localities (p. 640). Silva, Teixeira, & Proença's (2019) Potential for Cycling Assessment Method, incorporated as part of the BooST audit project for 'starter' cycling cities, combines research with empirical knowledge obtained from the scholarship to assess the potential for cycling and optimise the introduction of enhancing measures in lagging contexts, by incorporating an approach identifying the following three dimensions:

- *The amount and spatial distribution of population groups with higher propensity to cycling – Target-Population.*
- *The amount and spatial distribution of areas providing suitable physical and build environment conditions for cycling – Target-Areas.*
- *The extent to which local policies on cycling show a real commitment to bringing about a modal shift to cycling (and show real improvement) – Political Commitment to Cycling. (Silva, Teixeira, & Proença, 2019, p. 641)*

These indicators are graphically conceptualised to assess each dimension and the different weighting considered when combining the results, according to their influence in cycling based on the empirical evidence from their scholarship review.

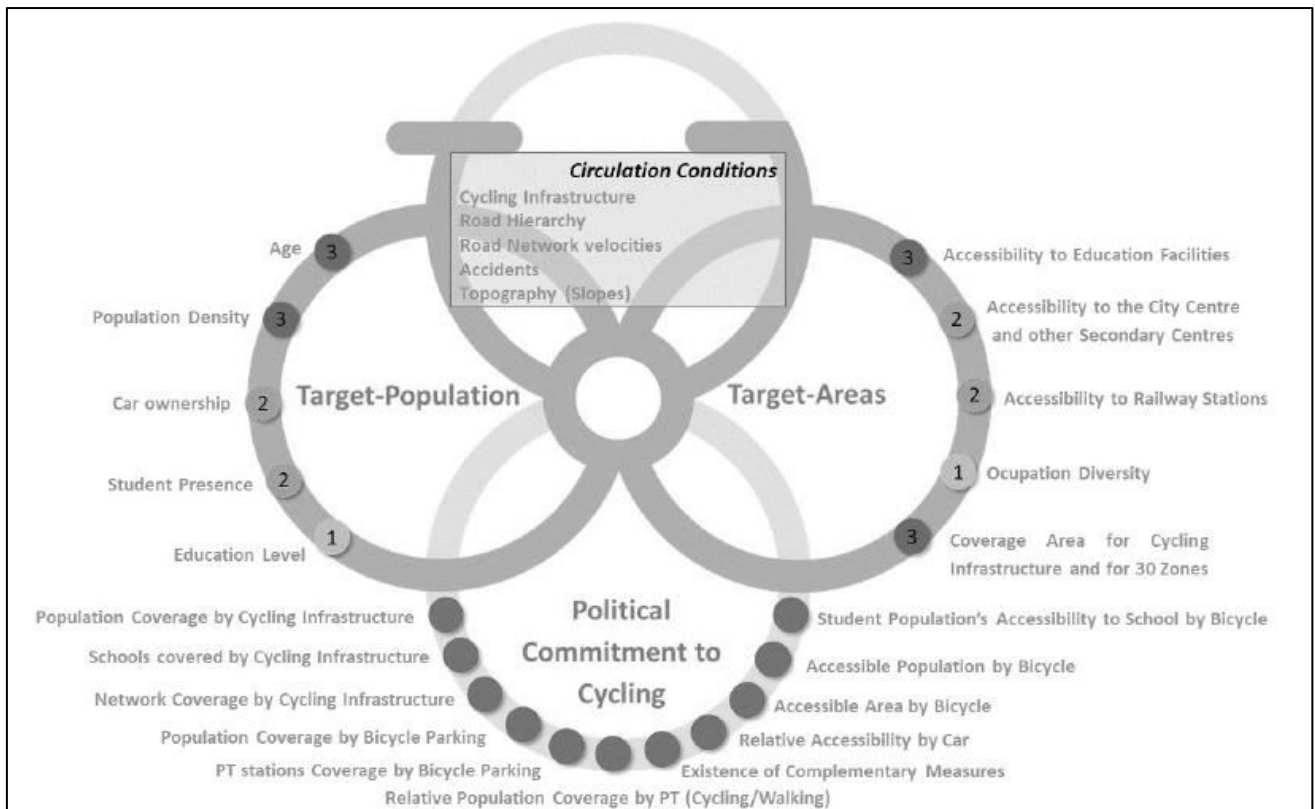


Figure 33

Silva, Teixeira, & Proença's (2019) potential for cycling assessment method (p. 642)

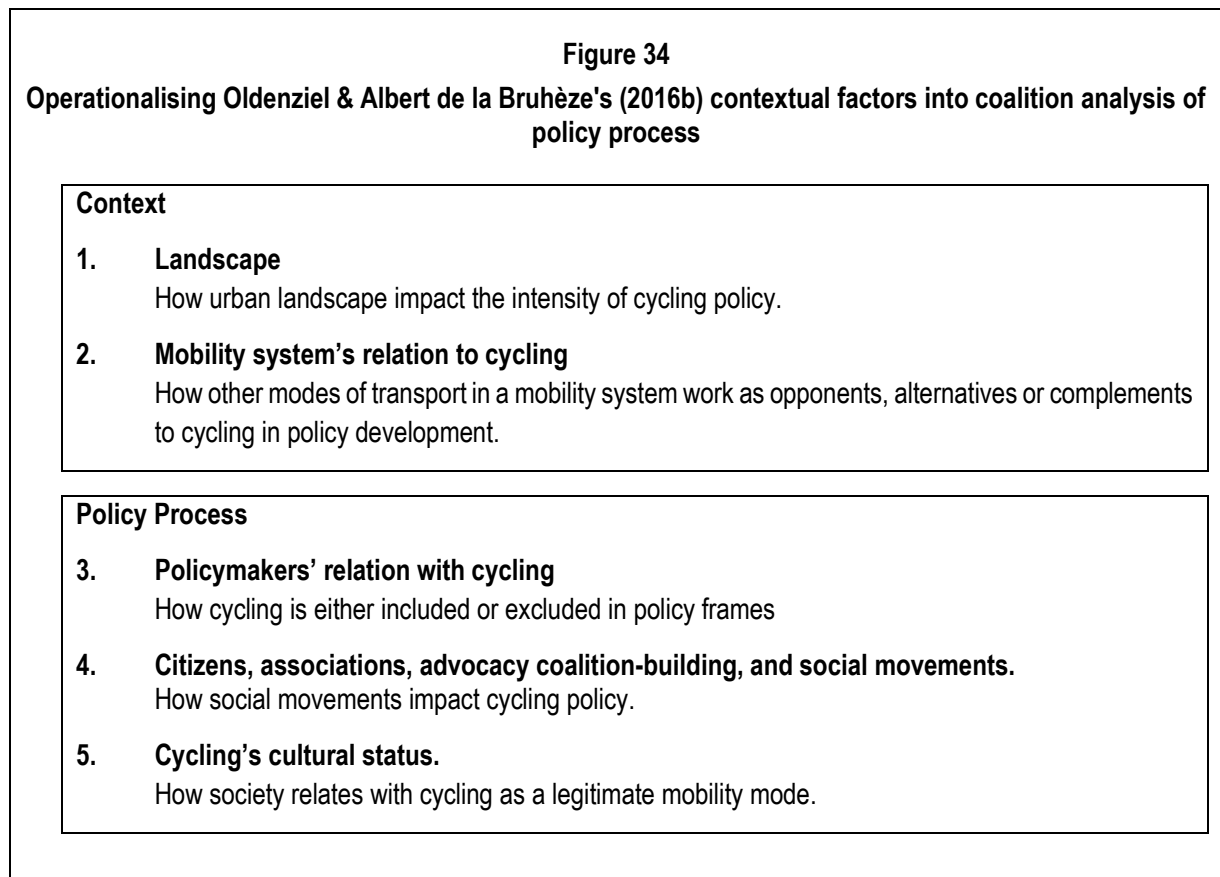
Silva, Teixeira, & Proença's (2019) three general thematic dimensions used to assess a 'starter' city's potential for cycling presents some overlaps with Oldenziel & Albert de la Bruhèze's (2016b) contextual factors associated with the rates of cycling in any city, and their historical, social, and political developments in the recent past. Roughly adapted Silva, Teixeira, & Proença's (2019) 'Target-Areas' and 'Target-Population' dimensions can be applied to analyse different characteristics addressed by Oldenziel & Albert de la Bruhèze's 'Landscape' factor. Likewise, Silva, Teixeira, & Proença's (2019) 'Circulation Conditions' can be analysed within Oldenziel & Albert de la Bruhèze (2016b) 'Cycling as Traffic Policy' factor, which in later research on cities evolved into 'Automobility and public transport's role in relation to cycling' (Morgan, 2019). As part of an ACF analysis these factors are usefully adapted to a public policy analysis.

Finally, Silva, Teixeira, & Proença's 'Political Commitment to Cycling' also relates with Oldenziel & Albert de la Bruhèze's 'Policymakers' relation to cycling' factor. But policy process is a complex area of interaction working dynamically within a series of different contextual factors —the specifics of the policy setting where the policy process is operating, but also influence, formulation, and implementation, through the mechanisms available to policy brokers— with these in part being ruled by citizen pressure, electoral choices, social impacts, party dynamics and the influence of various coalitions operating around their specific policy issues, and sometimes overlapping and conflicting in arenas of political interaction. Additionally, the mechanisms available to the diverse coalition members working within the policy process as different actors; policy entrepreneurs, as members of epistemic groups, citizens groups, media, and activists, also face different institutional openness considering the policy issue being dealt with. In this respect, the role addressed by Oldenziel & Albert de la Bruhèze's (2016b) factors regarding 'Social movements and impact' on one hand, and 'Cycling's cultural status' on the other, delve much further into the policy process itself, addressing issues such as outside strategies, ideological shifts, policy conflicts and tipping points, among other specificities of the complexities of policy process for change.

3.2.4 Operationalising contextual factors within coalition analysis of policy process

From the analysis of '*comparable cities*' and the contextual factors associated with each city's policy process —as a product which can be shaped by cyclists' coalitions operationalising an analysis linking specific actors and their relations within the context— provides relevant information for identifying explanatory variables. Influence, shaping, and transformation of policy products by means of the political interactions linking citizens, associations, society, and governments using a common conceptual framework to identify advocacy coalition actors, interactions and policy formulation and implementation. Adapting Oldenziel & Albert de la Bruhèze's (2016b) five factors from the original 14 European cities analysed in Oldenziel et al.'s (2016) landmark book, refined in later books on more cities, the replicability of this approach is demonstrated and the five factor analysis fine-tuned (Berkers et al., 2018, 2019; Berkers & Oldenziel, 2017; Albert de la Bruhèze & Oldenziel, 2018; Morgan, 2019).

From a sociohistorical perspective to a coalition analysis of policy change, issues that have been identified as having shaped cycling in cities are adapted *as per* Figure 34 below, illustrating the governance framework using a briefer study time frame —this thesis' thirteen years instead of one century— applying the five factors to the contextual and policy process analysis of how policy change has been operationalised in comparable cities and regions, and applying it into the policy process analysis of the case-study city. The different elements of these five factors are analysed in this chapter, identifying coalition interactions and influence.



The five overall factors for understanding cycling rates in cities as they are operationalised into a coalition analysis of policy process are dealt with in detail in the next sections—structured within the thesis design aiming at explaining the role of the cyclists’ coalition for change in comparable cities and regions— and from there advancing new knowledge on the status of the case study city in Chapter 4. In anticipation to this approach Table 7 below applies Oldenziel & Albert de la Bruhèze’s (2016b) five factors to identify and compare cyclists’ coalition interaction among the ‘*comparable cities*’ where a five-factor approach has been developed, but focused on the different levels of cycling policy implementation. This structure is useful to position the different policy actors according to the level of collective action they have developed within a given city; namely how they interrelate and articulate into associations—both informal and formal— what events have been most decisive to date, and how these relate with the findings obtained from research on the case study city, aiming at pinpointing effective formulation and implementation for policy change by cyclists’ coalitions.

The Hague was also included as one of the cities where the five factors were employed for an analysis of local cycling cultures and intensity (Berkers et al., 2018), since it shares a large conurbation with Rotterdam and Amsterdam, and as with Lisbon, it is located within a larger FUA and a much larger mega-region (Florida, Gulden, & Mellander, 2008, pp. 18, 28, 31). Despite considerable differences regarding their geographical location, topography, political and cultural settings, both cities are national political seats of Western European EU-member countries, both have municipal jurisdictions with the same surface area (100km²), and very similar core municipal populations: Lisbon: 544,851 inhabitants (INE, 2021) and The Hague: 537,833 (Statista, 2020).

The cities observed with high rates of cycling coincide with cities where cyclists’ coalitions have managed to achieve greater policy influence and change, with cycling being accepted as a mainstream, legitimate mode of transport in their mobility systems—Amsterdam, Copenhagen, The Hague, and Rotterdam—, thus a high level of ‘*cycling maturity*’ observed socially and in governance structures, and as with Asperges’ (2008) BYPAD cycling policy audit and Dufour’s (2010) PRESTO cycling policy guide, these ‘*champion*’ cities all present good cycling conditions and high cycling modal share. Contrastingly, a considerable difference is observed from those cities with moderate cycling conditions but where coalition influence for systemic change in the urban and mobility system has been insufficient for a significant transition—Munich—, a ‘*climber city*’ in the BYPAD audit and PRESTO cycling policy guide. Cities with lower levels of cycling maturity are those where significant, encompassing change has not yet reached considerable cycling rates, and despite recent growth and policy change these cities still reveal generally insufficient coalition influence, incomplete cycling conditions and low cycling modal share—Budapest, Lyon, Manchester, Stockholm—, considering Asperges’ (2008) ‘*starting*’ or Dufour’s (2010) ‘*starter cities*’. Comparatively, Lisbon presents even lower cycling modal shares than any of these cities, and the surrounding AML a less complete metropolitan area cycleway network. By isolating the different achievements and failures identified in a systematic comparison of each factor, a similar observation within an ACF analysis of cyclists’ coalitions points to local contextual stipulates, *i.e.*, from the different performance of each city’s ACF elements: context, actors, associations, events, and the outputs and outcomes achieved.

Considering the introductory hypothesis that cyclists’ coalitions have effectively influenced the intensity of cycling in cities where they exist and operate, and this influence is in fact a product of the intensity of their activities and relations, the question jumps to the correlation between cyclists’ coalition activities, cycling intensity, and the level of change achieved. From Oldenziel & Albert de la Bruhèze’s (2016b) five factor analysis, cyclist coalitions are identified in Table 7—as are some of the most visible key actors in each city— and the collective action they have been involved in by informally and formally associating; engaging in specific decisive events. From this preliminary contextual analysis on coalition action and influence, Lisbon is positioned as a ‘*starter city*’ with low rates of cycling and general cycling indicators that are far from ‘*champion*’ or even ‘*climber cities*’. For various indicators observed in Table 7, Lisbon is positioned far behind the poorest performing ‘*comparable cities*’, considering both outputs and outcomes. Lisbon’s case study details in on a qualitative and quantitative analysis advancing new knowledge on

policy change regarding cycling, successes and frailties pointing at possible paths for a more effective transition, and a greater general knowledge of coalition workings in the policy process, outputs and outcomes achieved, to provide an adequate knowledge base to inform future developments and to operationalise conceptual paths for research and practical policy formulation and implementation.

Different aspects of cycling maturity, focusing on specific factors, and underpinning the same sources of success are identified in much of the scholarship on high maturity '*champion cities*'. Larsen's (2017) work on how Copenhagen developed its social practice of becoming a cycling city, for instance, provides relevant paths regarding the city's cycling culture as a social practice and how it has been transferred as a knowledge-based interaction between cyclists, new cyclists, and the municipality. '*Climber*' cities have also developed successful strategies and have revealed considerable leeway for implementing more effective impacting measures —as researched by Muñoz, Monzon, & López (2015)— identifying latent variables affecting Vitoria-Gasteiz' transition towards greater rates of cycling. Meanwhile, failures in lagging cities with very low rates of cycling are also corroborated by the scholarship, which provides an interesting informative base for Lisbon's transition options. Cox & Bunte's (2018) social practice comparison between the different collective actions realised by cyclists' in the UK and Germany, or Muñoz, Monzon, & Lois' (2013) research on social perceptions around cycling in Madrid, identify barriers for cyclists and advance relevant knowledge applicable for policy change in low cycling rate contexts.

In fact, problems in the relationship between cycling and automobility —traffic— are characteristic of most cities, but further accentuated where cycling rates are low, pointing to the importance of comprehensive cycling infrastructure and supporting policies; *i.e.*, a well-designed and connected dedicated cycleway network is a key explanatory variable (addressed in Chapter 4), but so are restrictions to car access, and traffic calming measures (Muñoz et al., 2013, p. 13). The differences identified by the scholarship on cycling perceptions and its role as a social practice directly correspond to three of Oldenziel & Albert de la Bruhèze's (2016b) five factors related with cycling intensity, exemplified operationally in Table 7, as follows:

Table 7 - Cycling policy developments in 'comparable cities', from Oldenziel & Albert de la Bruhèze's (2016b) five factors for cycling intensity

Factor	Lisbon (this thesis)	Amsterdam (Oldenziel & Albert de la Bruhèze, 2016a)	Budapest (Tóth, 2016)	Copenhagen (Emanuel, 2016a)	Hague (Berkers et al., 2018)	Lyon (Huré, 2016)	Manchester (Emanuel, Veraart, & Cox, 2016)	Munich (Allbert de la Bruhèze & Oldenziel, 2018)	Rotterdam (Berkers et al., 2019)	Stockholm (Oldenziel et al., 2016)
1. Landscape [Urban Landscape and Cycling Distances in Oldenziel et al., (2016)]	Hilly, compact city with large flat uptown and riverside areas; 6,446 inhab./km ² at the core of a large sprawled metropolitan area with dispersed urban areas, infrastructural barriers, and few interconnected cycleways.	Flat, compact city; 5,214 inhab./km ² , pervasive living streets in denser areas and high-quality cycling infrastructure connecting to the metropolitan area since mid-1990s /2000's (Oldenziel & Albert de la Bruhèze, 2016, pp. 18, 24-27).	Hilly western part of the city (Buda) and flat eastern part of the city (Pest), divided by the River Danube, relatively compact 3,388 inhab./km ² with dense, relatively large metropolitan area.	Flat, compact city; 4,600 inhab./km ² , with a vast cycleway network throughout the city and reaching well into the metropolitan area and outlying region (Emanuel, 2016, pp. 85-87).	Flat, compact city; 6,400 inhab./km ² , suburbs within easy cycling distance (<7km), built barriers solved (Berkers et al., 2018, p. 8).	Mostly flat, compact city, 11,000 inhab./km ² at the core of a large metropolitan area with some hilly surroundings. The metropolitan area's cycling connections have been expanding and improving gradually since 2009 (Huré, 2016, p. 181).	Mostly flat, compact centre 4,735 inhab./km ² at the core of a large sprawled metropolitan area with some important cycling connections but still lacking full implementation of a comprehensive connected and continuous high-quality cycleway network.	Mostly flat, compact centre, 4,800 inhab./km ² and a large metropolitan area, with a relatively dense cycleway network, and various improvements planned or underway (Allbert de la Bruhèze & Oldenziel, 2018).	Large flat city with a dense centre and urban sprawl along the Meuse River harbour; 3,043 inhab./km ² . The metropolitan area has a well linked cycleway network but unconnected pockets south of the Meuse River (Berkers et al., 2019, pp. 57, 59)	Relatively hilly city, compactly built on islands connected by bridges; 5,200 inhabitants/km ² and a large metropolitan area with a moderately dense, well-linked cycleway network.
2. Automobility and Public Transport's role in relation to cycling [Urban alternatives to cycling in Oldenziel et al., (2016)]	Cycling was counted by national authorities between 1938 and 2005, counted on national census since 2011, but ignored as a principal means of transport from official traffic research until 2016.	Social democratic majorities traditionally backed public transport, but neither walking, public transport or cars can compete with speed and versatility of cycling in the centre. Sophisticated bike-train-bike system reinforced the central role of cycling beyond the city centre (Oldenziel & Albert de la Bruhèze, 2016, pp. 17, 26-27).	During communist era (1948-89) dedicated cycling infrastructure was off the mobility agenda and traffic plans, public transport was a priority and automobility catered for after the 1956 revolt. Cycling was dropped from traffic counts between 1963-1990. Public transport was the policy priority during the communist era, but defunded in the post-1989 city (Tóth, 2016, pp. 165-166, 168, 171).	The city didn't implement expensive, dense urban public transport networks and car-oriented projects such as urban highways in the second half of the twentieth century (Emanuel, 2016, pp. 81-82, 87).	Automobility and public transport competed with cycling. Since 1990, public transport reinforced cycling for last mile trip legs (Berkers et al., 2018, pp. 9-10, 47).	The city didn't engage in municipal cycling policy until 1995, while making large investments in public transport and car infrastructure. Automobility interests shaped urban policy well into the 1970s. Policy focus on automobility and public transport had a negative effect on cycling (Huré, 2016, pp. 173-177).	Public transport and automobility had absolute priority during the entire 20 th century, with cycling ignored from data until 1965, and off traffic studies until 1977. The city sprawled very early in the 20 th century, reinforcing the role of public transport, and later automobility (Emanuel et al., 2016, pp. 102, 104, 106, 111).	The city invested in automobility and public transport until the 1990s. Cycling competed with public transport and walking, being integrated into mobility policy since the 1995 Inzell Initiative but cycling was sidelined. Cycling and walking groups involved in mobility decisions since, with automobility and public transport at the foreground (de la Bruhèze & Oldenziel, 2018, pp. 7, 45-53)	Modernist post-WWII urban planning, sprawl along the river and harbour facilities — associated to longer travel distances within city areas, and extensive public transport network kept cycling levels lower than the Dutch average modal share (Berkers et al., 2019, pp. 57-58).	Prioritisation until 2012 was on the city's efficient public transport and an almost unchallenged accommodation to the automobile, with recent improvements for cycling mostly in the city centre (Emanuel, 2016b, pp. 158-159).
3. Policymakers' relation with cycling [Cycling as traffic policy in Oldenziel et al., (2016)]	First cycleway was inaugurated in 2001, with cycling only appearing explicitly in municipal policy, with a connected cycleway network implementation appearing since 2009.	The Cyclists' Federation consulted by Municipal Traffic Dept. since 1986, cutting back in car traffic and parking since the 1990s, cycling policy was mainstream by 2000, despite subtle differences between left and right leaning political parties (Oldenziel & Albert de la Bruhèze, 2016, pp. 24-25).	Policymakers stigmatised cycling until 2000, with modest political leverage exercised by countercultural movements from 2000-2010. Cycling was only assumed as a legitimate political factor from 2010, when cycling was integrated into Budapest's Transport agency, and the Chain Bridge reopened to cyclists in 2012 (Tóth, 2016, p. 171).	Since 2000 all political parties consider cycling as key policy instrument for achieving a sustainable, liveable city. Policymakers embraced cycling as a city branding tool, and at the UN Climate Summit in 2009 Copenhagen's cycling policy was marketed as a tool for achieving liveable cities. (Emanuel, 2016, pp. 77-78, 85).	1980s was a 'tipping point' where cycling became accepted as a principal transport mode. Outputs start with the 1980 traffic structure compromise and follow with more policy outputs (Berkers et al., 2018, pp. 10, 43-44).	The city was rated as the worst cycling city in France in 1990, and local policymakers and traffic engineers effectively ignored cycling until 1997, being forced to address cycling due to national policy, and aiming at specific goals for cycling only since 2003 (Huré, 2016, pp. 179-180).	Cycling was ignored during the 20 th century, with data regarding cycling collected only since 1965, and inclusion in municipal policy since 1986. The 2010 cycling strategy also assured continuous consultation with cyclists' groups, and authorities to promote interaction with local businesses (Emanuel et al., 2016, pp. 102, 106, 109).	Dedicated cycling policy developed in fits and starts, ruled by car-oriented planning and public transport. The consensus based Inzell Initiative between public and private stakeholders since 1995, integrated cycling and walking with relative success, but never questioned automobility (de la Bruhèze & Oldenziel, 2018, pp. 45-46, 53).	Between post-WWII until the 1970s Rotterdam was planned and developed as a car-oriented city. Local citizens, activism have been fighting to reverse this tendency since 1966. Local political response was incremental since 1969. Currently Rotterdam seeks to be branded as a cycling city (Berkers et al., 2019, pp.36-38, 59).	Cycling was catered at best as alternative to public transport and automobility, or simply ignored, especially in the 1960s. In 2012, the city started to prioritize cycling, walking and public transport in the overall mobility strategy to the detriment of automobility (Emanuel, 2016b, pp. 154-159).
4. Social movements [Social movements and impact in Oldenziel et al., (2016)]	The environmentalist movement initiated collective action associated to cycling in the late 1990s with the first CM cycle rides, the first utilitarian cycling association was founded in 2009.	Powerful social movement in the 1970s aligned cycling with a human scaled city and organised citizen resistance against car domination, large infrastructural projects and suburbanisation (Oldenziel & Albert de la Bruhèze, 2016, pp. 18, 21-23,27).	In the 1990s advocates and a new generation of engineers pushed for cycling policy and infrastructure, and a liberal and a centre-right party addressed cycling in their programmes. Effective pressure only resulted institutionally since 2010. (Tóth, 2016, p. 168).	In the 1970s the grassroots environmental movement and the political left began criticizing car-centred planning, with the 1973 oil crisis sparking increasing support (Emanuel, 2016, pp. 83).	Mid-1960s community group, young planners and architects protest intensively. Mid-1970s local Cyclists' Federation chapter. Late 1970s, early 1980s local retailers oppose pro-cycling (Berkers et al., 2018, p. 12).	The city's cycling policy relied more on external partners — French State and a multinational— and the ambitions of local politicians than on confrontation and discussion with grassroots cycle activism. Local activism for utilitarian cycling only appeared in 1995 (Huré, 2016, pp. 174, 183).	National and local cycling groups were fundamental in placing cycling on the city's agenda — by lobbying the authorities and promoting cycling with environmental organisations since the 1970s— despite slow increments and piecemeal gains (Emanuel et al., 2016, pp. 106, 111).	Community groups, young urbanists and local policy makers revived cycling and confronted the car-oriented planning since the 1960s, with effective impacts from the late 1970s and 1980s (de la Bruhèze & Oldenziel, 2018, pp. 8-9, 32-45).	Car-centric policy was only questioned officially after citizen movements emerged with initial collective action between 1966-1975, benefiting cycling as an alternative response to a series of urban problems (Berkers et al., 2019, pp. 38-58).	During the 1970s environmentalist and cyclists' groups, advocated for comprehensive cycling policy in city, influencing new city planners in 1990s and political debate since 1990 (Emanuel, 2016b, pp. 155-157).
5. Cycling's cultural status	Increasing social acceptance of cycling in central city areas and some important metropolitan area centres, debatable acceptance of cycling as a mobility mode in various parts of the metropolitan area.	Historically high levels of cycling and a traditionally vibrant cycling culture pressure pragmatic pro-cycling and car-limiting policies. Citizens prefer to cycle in the city (Oldenziel & Albert de la Bruhèze, 2016, pp. 17, 27).	Social acceptance of cycling is relatively recent. Various important arterial bridges were banned to cyclists between 1927-2012. Cycling was seen as subversive by some. Today cycling represents a mix of subversive lifestyle and civic pride (Tóth, 2016, pp. 161-162).	Historically high levels of cycling, a robust cycling culture and an established mobility mode, used by all classes since the first half of the twentieth century. Citizens prefer cycling over other modes of urban mobility (Emanuel, 2016, pp. 84, 87)	Low social acceptance of cycling among large socially segregated non-western immigrant communities. High acceptance of cycling among middle-class public servants (Berkers et al., 2018, p. 13).	During the 20 th century cycling was marginalised from the public debate. Currently 1/3 of cycling is from the city's Vélo'v public bikeshare system, associated to students, hypermobile multimodal users, and also newcomers (Huré, 2016, pp. 177, 181-182).	Cycling was not a mainstream mobility choice for many years. Efforts from activism and local policymakers, have increased acceptance in cycling since 2000, (Emanuel et al., 2016, pp. 102, 109, 111), and most recently at the metropolitan level also.	The city has a long tradition of leisure cycling. Bicycle-use has increased and so has its status. Nonetheless decisions are taken as a 'balancing act' with cars and public transport still ruling road space (de la Bruhèze & Oldenziel, 2018, pp. 49-50).	Cycling gained cultural status since the 1970s, but research shows stagnation and decrease also. Several population segments from some large non-Western immigrant communities haven't adopted cycling as a usual mobility mode. (Berkers et al., 2019, pp. 55-56, 58-59).	Cycling has urban middle class acceptance —but is also in the political cross-fire— seen as a political statement more than a mobility option; viewed either as a green asset for a liveable city or a threat to motor interests and efficient public transport (Emanuel, 2016b, p. 159).

3.3 Landscape

Each locality's landscape plays an important role as a factor influencing the rates of cycling in a city. As a factor in itself, landscape consists of numerous variables with several different issues directly relating it with the attributes of the local cycling subsystem as a mobility mode in the city and the larger territorial and urban systems. Landscape is not only composed of the natural features of a locality but also of the built environment and contextual attributes decided by the successive governments, and how these work as the support for the policies implemented, how they are shaped by political decisions reflecting the policy values attributed to the locality (Stewart, 2009, pp. 147, 160, 168), and what options these decisions provide to the local population. A recent example of change regarding dominant policies in the urban landscape is Moreno's (2020) 15-minute city, proposed as a response to the failure of the current model and an alternative to the dystopian 'smart cities' (pp. 20-21).

3.3.1 Topography and geographical particularities

The natural landscape as a support where human activities are developed is a pre-existing, underlying factor preceding policy options. Local topographical features and geographical particularities are fixed given elements within the landscape, it is how these are dealt with by policy decisions through adequate responses to each of the landscape issues that other factors influencing cycling can be thought out. Flatness, for instance, is suggested as positively affecting cycling intensity by an FHWA (1992) report on why cycling in American cities has generally failed to grow (pp. 11-12). In Lisbon's FUA, some of the flattest landscapes also have the highest cycling modal shares, despite the relation not being as direct as it seems at first (see section 4.3.1 explaining Lisbon's topography and geographical particularities). From British census data Ashley & Bannister (1989) find that flatness is also viewed as a positive correlate for cycle commuting in a comparison of 74 wards in the Manchester metropolitan area (p. 301). Furthermore, Rodríguez & Joo (2004) refer to topography as influencing the attractiveness of cycling and walking for a number of reasons, with local topography having a direct relation to people's propensity to walk or cycle (pp. 159-160, 165). Similarly, Parkin, Wardman, & Page (2007) point to the crucial impact of hilliness when estimating and modelling cycling mode share (p. 107). In fact, the country with the highest number of 'champion' cycling cities and the highest national rate of cycling—the Netherlands—is also one of the flattest in the World. Similarly, Portugal's highest cycling rate municipalities are mostly located in the country's flattest regions, especially the flat coastal areas of the central coast of Portugal, the upper Tagus Valley, and flat areas of the South (IMT, 2014, pp. 23, 38).

Within the same line of thought, the reasoning behind the negative impact of hilliness is generally related to the additional physical effort needed for climbing hills, requiring physical exertion and producing sweatiness which in turn reduces the appeal of cycling as a preferred mobility option (FHWA, 1992, p. 11). Moreover, Broach, Dill, & Gliebe, (2012) found that cyclists were willing to travel an extra 2.75km distance to avoid climbing slopes of only 2% to 4%, and that cyclists travel significant distances to avoid slopes greater than 2% (pp. 1737, 1739). On the other hand, however, Sousa, Sanches, & Ferreira (2014) confirm that despite hilliness being in fact a strong obstacle to bicycle-use, the lack of cycling infrastructure and traffic safety are the most important barriers, with the lack of cycling infrastructure being the strongest barrier reported in all of three Brazilian cities researched, and being the second strongest barrier in only one of the cities (pp. 308, 310, 312). Likewise, Parkin, Wardman, & Page (2007) further confirm that "*while hilliness has a significant effect, it does not have a detrimentally compounding effect when linked with policy variables that may be adjusted to increase cycle use.*" (p. 107)

Early research on the determinants for cycling already identified both hilliness and traffic danger as the two most impacting barriers for cycling (Waldman, 1977). In fact, cycling rates in hilly cities with adequate cycling policies aren't necessarily low, and in some cases bicycle use has achieved a remarkable uptake. Some hilly cities also present among the highest cycling rates for cities of comparable size in their respective countries and even in international data comparison tools (@urban_future, 2021; EPOMM, 2020): San Sebastián in Spain (3%), Grenoble and Toulouse in France (4% and 5%, respectively), Bristol in the UK (14%), Oslo in Norway (5%), Montreal in Canada (2.4%), San Francisco and Portland in the USA (3.8% and 6.1%, respectively), and Rio de Janeiro in Brazil (2.42%) (Estado do Rio de Janeiro - Secretaria de Estado de Transportes, 2014). Similarly, other comparable hilly cities have also presented high cycling levels, or uptake in cycling associated to comprehensive cycling policies; Lisbon has revealed an impressive increase in cycling in recent years, and despite being considered one of Portugal's hilliest cities, cycling policies have been relatively effective, with coalition action playing a role epistemically by questioning the common myth and placing the heuristic on the public agenda through the press (Lusa, 2008a, 2008b), researching and providing the real scale and quantification of the city's apparent hilliness (Félix, 2012, pp. 58-61), communicating through epistemic involvement in the social networks (Carvalho, 2013), local activism (Pimentel Ferreira, 2014), and eventually reaching the mainstream media, driven by the major VCC event held in the city in September, 2021 – VCC21 ([estúdio]P, 2021). Notably, Lisbon has also been the city in Portugal with the most intense coalition action and ambitious pro-cycling policies formulated and implemented, as detailed in the Chapter 4 case study.

From another perspective regarding landscape, the increasing use of electric bicycles —*i.e.*, e-bikes, pedelecs, electric cargo-bikes, etc.— has also played an important role decreasing the negative impacts of hilliness. Some of the common issues related to the appeal of cycling in flat terrain vs the barriers associated with cycling in hilly areas are further overcome with the advent of generalised access to e-bikes by broader ranges of the population and social groups which in some cases have been boosted by widespread implementation of public bikeshare systems with e-bikes, and also bicycle purchase incentive policies, two effective policy measures promoted by Lisbon Municipality (Câmara Municipal de Lisboa, 2021b, pp. 15-21). In fact, Popovich et al. (2014) note that since e-bikes provide several advantages in comparison to conventional bicycles, including reduced effort, they enable a broader range of users, including people with physical limitations or time constraints, to cycle more trips, and more often, since they overcome barriers with greater ease (p. 43).

In any case, within the scope of this thesis, the natural features of landscape aren't analysed as a specific barrier to cycling, but they are clearly a determinant to be kept in mind within each of the specific five factor-related issues addressed. The way the determinant of the natural landscape in general, and topography in particular, are addressed by policy values and dealt with accordingly by policy process are an area for further research, beyond the scope of this thesis, but touched upon in cyclists' coalition interactions as they strive to increase the subsystem's significance in the mobility system. Landscape influences several other factors related to cycling rates, and natural features such as flat topography are inherently related to the ease of cycling as a personal mobility choice. The role of cyclists' coalitions is crucial in this respect, regarding Lisbon for instance, through the epistemic work of elucidating public opinion on the generally overstated hilliness of the city (Félix, 2012, pp. 58-61), but also by implementing adequate infrastructure to overcome physical barriers (Câmara Municipal de Lisboa, 2018b, pp. 33-34), increasing e-bike use by both introducing these and conventional bicycles with the launch of its public bikeshare system in 2017 (EMEL, 2017), and expanding the bikeshare fleet three-fold by programming the addition of 1,500 e-bikes to the existing fleet of 750 conventional and e-bikes (EMEL, 2020), while simultaneously assuring the bicycle purchase assistance programme (PAAB) with e-bikes representing 35% of the bicycles purchased under the initiative, and increasing the overall presence of privately owned electric bicycles in the city from 5% in 2018 to 17.5% in 2020 (Câmara Municipal de Lisboa, 2021, pp. 19-20).

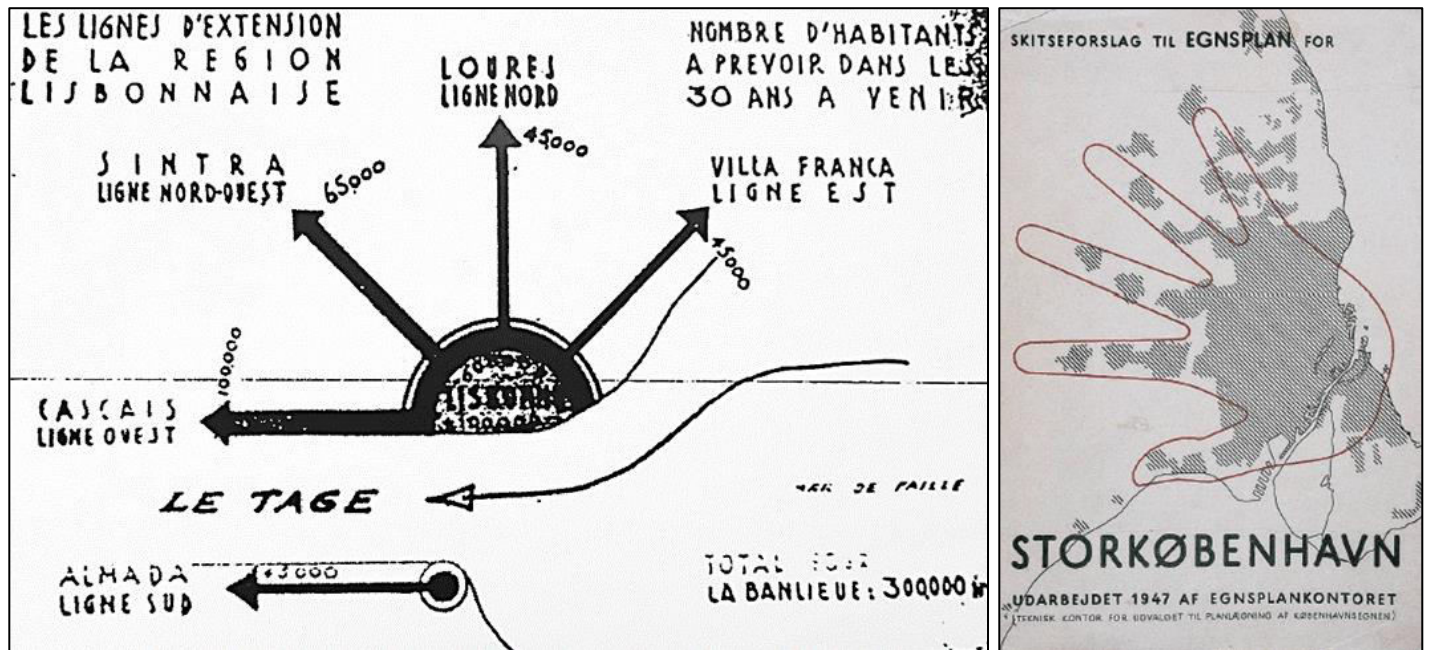
3.3.2 Land use

Wynne's (1992) early report on cycling and walking policy in European countries identifies greater programmatic activity in central western European countries, mentioning some central eastern European cities also —Prague and Budapest, for instance— but ignoring examples from southern and southwestern European cities. Likewise, Beatley's (2000) green urbanism lessons from European cities underscores best-practices from the centre-north of western Europe but also ignores examples from southern or southwestern Europe, where urban morphology and land use patterns differ significantly even within the same country. As an indicator of walking and cycling tendencies, the visible impact of urban sprawl has also occurred at a quicker pace in recent decades in some southwestern European regions and countries, with funding from EU regional policies having accelerated this phenomenon (Romano & Zullo, 2013, p. 81). Regarding this thesis' line of research, the generally lower average modal share of cycling in southern European urban landscapes works as a contextual factor, and as such, common variables are investigated —namely the existence of well-connected and pervasive cycling infrastructure, integration with public transport, but also with priorities established by the way the urban landscape is organised.

Higher population densities, city compactness and mixed use are important factors associated with walkable and cyclable lifestyles, but so are the coordination of public policies aiming at improving conditions for walking and cycling, *i.e.*, implementation of infrastructure, articulation with urban and regional public transport —especially rail services— and less budget allocation and space occupation dedicated to the infrastructure which provides for automobility —roads and carparks. In this respect, compact urban form can be induced by a variety of local, regional, and national policy efforts aiming at keeping the city and town centres populated, through building rehabilitation programmes for housing and mixed use, urban rehabilitation agendas, incentives for family housing, strategic infill policies, green infrastructure and urban agricultural programmes, restrictions to car-use at the local level and programmed in the local and regional spatial planning coordination mechanisms, supported by national legislation and fiscal policies. These are common policy efforts observed in several benchmark western European cities. The '*champion*' cycling city of Amsterdam, for instance, has pursued a compact city policy since 1978 (Beatley, 2000, p. 46), coinciding with the city's first large-scale collective citizen and activist struggles during the 1970's —against automobility's hegemony— coinciding with policy decisions for the city's first integrated cycle route network in 1979 (Jordan, 2013, pp. 343-364), and policy outputs produced from its first coherent pro-cycling traffic plan (Oldenziel & Albert de la Bruhèze, 2016, p. 47). These cumulative ACF policy measures aligned compact city land use policy with walking and cycling as urban subsystems, aiming at maintaining high population densities in the city centre and avoiding sprawl, city core depopulation, and increased car-use originating from commutes generated by urban expansion at the perimeters, but also assuring comfortable and high quality urban public spaces available to everyone.

Benchmark European developed capacity to influence urban development patterns by coordinating and integrating specific urban policies with regional and national government planning policy orientations. One of the '*champion*' cycling cities that's also a benchmark with a history of controlled land use is Copenhagen, integrating city policy with regional planning since the 1947 '*Finger Plan*' (Beatley, 2000, pp. 53-54). As with many other European cities during the early and mid-twentieth century, this plan was based on the British garden city ideals preceding public transport/transit-oriented development (TOD) along rail networks, complemented by a road network, and calculated to keep total commuting times under 45 minutes. Copenhagen was an early starter including cycling as a fundamental element of the city's mobility equation —partially due to the high cycling modal share among its population but also because of the practicality of last mile and inter-finger connections— integrating of regional land with mobility policy, addressing the subsystem as early as the 1950s when most other European cities were excluding and downplaying the importance of cycling within their urban mobility systems. By 1953 Copenhagen's planners already mentioned the city's reputation as a '*city of cyclists*' in their traffic report, and regarding the metropolitan area's '*Finger Plan*' the need for cycling infrastructure to relieve the radial arteries was addressed, revealing of how land use and urban mobility policy was

already being integrated in the early post-WWII years (Emanuel, 2016a, p. 81), even if at an incipient level by current standards.



Figures 35 and 36

Lisbon's 1933 Expansion Plan and Copenhagen's 1947 'Finger Plan'

Figure 35 - Lisbon's 1933 Expansion Plan (Pereira, 2009, p. 30), and Figure 36 - Copenhagen's 1947 'Finger Plan' (Teknisk kontor for Udvalget til Planlægning af Københavnsegne, 1947)

Other 'champion' cycling cities have also developed integrated land-use and mobility policies, despite numerous variations and different approaches emanating from diverse national frameworks and cultural backgrounds. A general common conception of land use integration into policy development is difficult to define, yet a common framework pointing to significant control and planning of spatial and urban policy at the national level exists in countries such as the Netherlands, Denmark, and Germany, with variations regarding implementation and operationalisation (Beatley, 2000, p. 55). Various existing institutional frameworks pose specific challenges to each city regarding land use policies, namely the lengthy and complex policy processes which take time —sometimes several years— to formulate and implement, subject to various levels of coordination, including with regional and national level organisms. Some of the spatial planning, land use, and urban policy and planning instruments are in many ways apparently distant or only indirectly related to successful achievements in cycling coalitions' focal issue struggles in their respective cities, despite being important policies for shaping better cycling cities, for instance municipal masterplans and regional plans.

Contrastingly, some European cities and regions haven't operationalised such direct channels of land use control emanating from a sustainable urban policy framework. To name a few common challenges associated with land use and community policy —which require more involvement with the cyclists' coalition— are the lack of articulation between municipalities, planning instruments which ignore land use and mobility integration, and weak metropolitan area institutional arrangements. For different reasons this lack of urban-national coordination is a common issue to several cities, limiting negotiation with national-level organisms which wield significant infrastructural jurisdiction. In Lisbon, for instance, the national road and rail infrastructure management agency (IP) and the national road safety authority (ANSR) exert significant authority and regulating mechanisms regarding intermunicipal infrastructure, controlling laws and key public lands and traffic arteries. IP, for instance, plans, manages and exercises authority over highways and highway clearances, and Port Authorities (APL in Lisbon) with key coastal areas, yet each organism has its own institutional

agenda, sometimes distant from recent urban sustainability goals or political developments or even national policy targets such as the spatial planning law (Assembleia da República, 2014a), national climate action programmes (Presidência do Conselho de Ministros, 2015, 2019b), or Portugal's National Strategy for Active Cycling Mobility (EMNAC) (Presidência do Conselho de Ministros, 2019c), or pedestrian accessibility legislation (SNRIPD, 2007) for instance. Scholarship on the evolution of land-use policy issues in European cities has been well documented and researched at a general and transferable level (Hallett, 1988; Pinson, 2011; Thomas et al., 1983; Thornley & Newman, 1996), despite significant differences between cities, regions, their national legislative and administrative frameworks (Alterman, 1997). In the Portuguese case, as with other southern European EU-member countries, the impacts of Europeanisation on governance mechanisms has been significant (Magone, 2000, pp. 119-121; Oliveira & Breda-Vázquez, 2012), but so have the differences observed in spatial planning policy and instrument applications, with EU policies being adapted dissimilarly in each southern European EU-member country (Giannakourou, 2005).

3.3.3 Morphology

One of the principal challenges of creating an urban landscape that's favourable to easy walking and cycling distances is that of compactness (Serrano-López, Linares-Unamunzaga, & Muñoz San Emeterio, 2019, p. 9), posing a difficult challenge to large metropolitan areas where activities are dispersed within a vaster territory —*i.e.*, sprawled— with greater travel distances influencing more dependency on automobility. Integrated land-use and mobility policy —linked to integrated and well-designed planning regulations— provides greater opportunities for active mobility, making cycling very competitive (Hunt & Abraham, 2007). Likewise, De Vos (2015) warns that decentralised and liberalised spatial planning can lead to greater suburbanisation and increased car-use (p. 177), in line with Litman & Steele's (2017) assessment of integrated land use and mobility management strategies. There's an acknowledged negative relation between suburban expansion and cycling, especially since greater travel distances are related to lower cycling modal share, since these characteristics demand greater journey time and physical effort (Broach et al., 2012; Sousa et al., 2014; Parkin, Ryley, & Jones, 2007; Parkin, Wardman, et al., 2007; Stinson & Bhat, 2004). On the other hand, dense urban areas with mixed-use urban development are correlated with higher rates of cycling since shorter distances between locations are associated with shorter, quicker journeys and less physical effort (Baltes, 1996; Parkin, Wardman, et al., 2007; Stinson & Bhat, 2004). The cultural status of the urban/suburban divide is also addressed as a factor related to how cycling is looked upon socially, as addressed in section 3.7.3, below.

At the municipal and metropolitan level, planning decisions —starting with walking, cycling, and public transport to prioritise urban density, interwoven with tight connections to existing centres— are an important part of effective compact development policy and liveable communities (Beatley, 2000, p. 63; Moreno, 2020). Policy promoting active mobility and compact city centres as focal planning features limit urban expansion; in large cities and metropolitan areas these leverage longer trip distances on efficient reliable public transport integration with walking and cycling, instead of promoting widespread, dispersed road and public transport infrastructure throughout the territory. This —in part— explains lower car-use and higher levels of active mobility in the Dutch cities (De Vos, 2015, pp. 187-188). Similarly, higher population density in existing urban areas is also associated with lower rates of automobility in residents' habitual travel patterns (Pucher & LeFèvre, 1996).

Densification on its own, however, or even integrated with effective land use regulation and sustainable mobility policy doesn't suffice to assure an urban landscape that is more favourable towards walking and cycling. Even in cities with a tradition of compact, walkable and cyclable urban morphology, organised action by influential political forces can produce outputs with negative impacts upon walking and cycling —e.g. mega-project promoters such as large infrastructural and/or real-estate developers, large project, and planning firms, varied projects displaced from consolidated urban areas such as commercial areas, large schools, institutions, etc. The outputs these policy actor strive for can work in the

opposite direction of a dense and diverse urban morphology, undermining sustainable land use and mobility policies by reintroducing automobility as the most convenient or essential link where it had previously lost ground to active mobility. These negative outputs can be produced even in some of the benchmark 'champion' cycling cities (Beatley, 2000, p. 156; Colville-Andersen, 2021), but also through diversified reflexive social opposition to automobility-reducing commuting policies (Beckmann, 2001, pp. 604-605), and political opportunism against implementing pro-cycling and walking policies fed by the contradictions of piecemeal demotorisation of inner cities. When encompassing city-wide or integrated metropolitan area strategies are missing, the few liveable central areas can drive higher real-estate and housing costs, increasing disparities between conditions in the various urban areas, contributing to gentrification and greater inequalities (Otchere-Darko, 2017). In fact, Lisbon case study interviewee #8, an activist, notes that the real estate market in Lisbon changed radically during the study time frame, becoming cheaper to live in distant suburbs and drive into the city centre than to live in Lisbon Municipality (see section 4.3.2 - – Lisbon's land use, morphology, and housing, also Ramalho da Silva (2021)).

Portugal's recent urban development hasn't always converged with the rest of Western Europe. The benefits of the higher densities of settlement patterns and cities in Portugal haven't always been taken into consideration in recent and ongoing urban developments, and legislative minimums for lane width, clearances and car parking have aggravated several problems. Contrastingly, discussion of the incidence of climate action built into urban policies and lower per capita energy and CO₂ emissions were documented in several European cities when compared with North America (Beatley, 2000, pp. 31, 171), In comparison to Beatley's (2000) best examples of Western European 'green urbanism', for instance in the late 1990s (p. 74), in 2002, Lisbon performed even better in energy consumption and CO₂ emissions, at 3.8 tonnes per capita (Câmara Municipal de Lisboa, 2018a, Indicator 1 - Climate Mitigation). Yet despite this performance, regarding cycling policy very little or no emphasis was placed on promoting bicycle use in 2002 in Lisbon and its surrounding AML municipalities, unlike many of the comparable cities in the north of Western Europe (see Table 6 in section 3.1.1 – City indicators, above).

At the European level, Lisbon was a late starter in introducing active mobility in local urban policy outputs, and in 2021 in the AML—as with the rest of Portugal—an alarming rate of sprawl is occurring along several areas such as Oeiras Municipality and significant stretches of the Portuguese coast, for example south of the AML between Comporta and Melides. In Portugal, effective policy measures to promote compact urban form integrated with walking and cycling, and public space reclamation from automobility are still a missing element in the national and local policy process, with negative impacts which will further strengthen the role of automobility throughout the entire country for several years. Contrastingly, examples of cities abound in Europe where a focus on compact urban form and devolution of public space occupied by automobility throughout the 20th century is being reallocated to walking, cycling, green spaces, and people-based activities. Some of these cities are located relatively close to Lisbon and have not only reinforced compact form but have also produced significant results to boost walking and cycling, just in southwestern Europe these include Pontevedra, Seville, Valladolid, Valencia, Vitoria/Gasteiz, Pamplona, Barcelona, Bordeaux, and Toulouse.

3.3.4 Housing and cycling

Housing in dense diversified neighbourhoods are a common element to sustainable cities where cycling thrives; walkable and cyclable cities, ground-level retail, varied services, and restaurants, and in most cases a high population of residents living in the city centre or close to it, fostered by preservation and adaptive reuse of older buildings and urban features. Social and economic cohesive urban areas have also been associated with high-density, relatively low-rise neighbourhoods—planned at the human scale—mixed-use urban villages with housing above street level retail, pedestrian friendly street space, with community life and the civic realm being prioritised (Beatley, 2000, pp. 76-78, 90-93; Gehl, 2006; Jacobs, 1961). Appleyard's (1980), research on human interaction within streets and what makes them

more 'liveable' is clearly an important factor in urban development pointing to extremely negative impacts from car-traffic, while Bentley, Alcock, Murrain, McGlynn, & Smith's (1985) study of the importance of permeability to pedestrians —and cyclists⁶— and the variety of uses within the compact built environment (pp. 12-31), with positive impacts produced by car-free urban centres (Gehl & Gemzøe, 1996). For large metropolitan areas and the outlying centres in greater city areas Bernick & Cervero (1997) underpin the importance of compact, dense satellite transport node villages prioritising cycling and walking for local trips and first/last-mile connections with public transport to the larger surrounding city region, the underlying principles of public transport/transit oriented development (TOD).

While the interaction between these urban development variables and housing policy are common in the 'champion' European cycling cities of comparable scale, in Lisbon, Portugal integrating housing policy with compact central areas served by optimal conditions for walking and cycling hasn't become a focal policy issue yet. In the Municipality of Lisbon this discussion has already entered the policy debate but within the larger metropolitan area focus is mostly on automobility and public transport while active mobility and integration with housing isn't part of the central debate. Regional mechanisms to articulate the municipalities with a metropolitan area-wide policy is still relatively incipient, with action plans underway, piecemeal outputs mapped and being produced (AML, 2016; Portugal 2020, 2015), albeit requiring effective coordination between land-use, housing and mobility policy. Successful outcomes are limited mostly to municipal level interactions with little —or no— impact in most AML urban centres outside of Lisbon municipality. Despite recent progress in public transport with, the lack of an AML-wide regional spatial planning and mobility articulation is a gap for programming and monitoring measures for integrated TOD —addressing the greater city's need for an urban agenda aligning walking, cycling, housing, and public transport.

Several policy instruments are symptomatic of the difficulties of integrating local housing and urban agendas within the mobility system. Portugal's 2021 National Recovery and Resilience Plan (NRRP), for instance, allocates € 967 million for public transport in comparison to € 0 for walking and cycling, and there's no mention of an urban agenda to rehabilitate city centres and recover or increase housing for local populations (República Portuguesa | Ministério do Planeamento, 2021, pp. 167-172). On a local level, Portuguese cities haven't implemented any large-scaled car-free or car-lite city centre areas. Lisbon's ZER ABC low-emissions zone (LEZ) was close (Câmara Municipal de Lisboa, 2020b) —but it wasn't implemented— with only some incremental measures realised in a piecemeal way, and the COVID-19 pandemic serving as an excuse for not advancing with the area-wide implementation (Lusa, 2020c).

Specific housing policies which boost people-friendly cities —where walking and cycling may thrive— such as *woonerf*, participatory housing developments, ecovillages and cohousing projects aiming at compactness, mixed use, comfortable walkable street networks, extensive cycling connections and relatively close to public transport nodes are also a factor which associated with uptakes in cycling. Higher densities, brownfield recovery, infill and urban site reconversion, planned with public transport, walking and cycling are key features which can be developed as integrated policies to help strengthen the existing urban fabric, keep it compact and promote more efficient land use, including policies aiming at more affordable housing for greater segments of the population —addressing families with children— with sustainable locations easing the transition from automobility-centred, high resource consuming habits to more sustainable living habits with a more diversified, healthier, local dimension (Beatley, 2000, pp. 83-90, 314; Muxi, 2013, pp. 33-34).

Contrastingly a regional landscape comprised of isolated, disconnected, car-dependent locations promotes sprawl and reinforces car-dependence (Litman, 1995, 2004). The lack of integrated land-use policy in the AML, for instance, and insufficient national level influence has yet to be addressed by Portuguese policymakers at both the local and national levels, as well as with the regional institutional framework. Coordination between national and local spatial and urban planning, fiscal policies, and how municipal governments are funded could be used to limit the perimetral expansion of built-up areas and to integrate housing policies aiming at (re)densifying and rehabilitating central urban areas, which in

⁶ My addition

turn should be articulated with municipal masterplans to coincide with current spatial planning legislation, and sustainable urban mobility plans (SUMPS) which are mostly non-existent in Portuguese Municipalities.

While many of the ‘*champion*’ cycling cities have advanced with policies aiming at improving what are already cycle friendly urban landscapes, great sensitivity is also typically given to incorporating walking and cycling from the very first design stages of urban reconversions and new housing developments to broader coordination between the institutional framework, regulatory, planning, and fiscal policies. In the Netherlands, for instance, for over twenty years urban designs typically include extensive internal cycleway networks and direct bicycle connections to the existing city. The importance that is placed on connections can be observed in developments realised since the implementation of ‘*woonerf*’ residential home zones since Delft began implementing low traffic and very low speed neighbourhoods in the late 1960s (addressed previously, in section 3.1.2 – Cycling and policy outputs). Important implementations such as cycling and pedestrian only bridges between peripheral and central city areas, overcoming physical barriers, reducing distances for walking and cycling and making these travel choices more appealing and competitive than car driving has also contributed to making neighbourhoods more liveable and attractive. As Beatley (2000) observes, ‘*woonerven*’ were common practice in most Dutch cities since the 1990s, with a key approach of “*designing-in of bicycles from the beginning*” (p. 171).

The walking and cycling integrated approach is still amiss from most of the urban planning processes in Portugal in 2022. Designing-in of cycling is still generally ignored, and is in many ways looked upon as an imposition from a minority epistemic or activist group, easily disregarded or sacrificed in the final project outputs to avoid policy conflicts. Some of Lisbon’s most prominent *Praça em Cada Bairro* urban square transformation projects formulated and implemented between 2014-and 2021 mentioned cycling as one of the modes to be prioritised, besides walking and public transport (Dinis, 2014, p. 3), but various final outputs realised overlooked cycling altogether. Some of these projects slowly evolved to different degrees between 2016 and 2021, from outright ignoring cycling to including it as one of the central project innovations, albeit with several suboptimal infrastructural outputs, disregarding forewarnings by policy entrepreneurs and activists involved in the process.

Lisbon’s policy process did evolve from continuous feedback, however, with cycling addressed in Lisbon’s municipal masterplan (Câmara Municipal de Lisboa, 2012, pp. 30283, 30293-30294, 30374), extensively in the municipal street space project guidelines (Câmara Municipal de Lisboa, 2018b), and cycling has been introduced in the policy process regarding the municipal building regulations. In spite of these efforts, cycling is not systematically integrated in all projects in the city —not ‘*built-into*’ the design— and similar depth of policy addressing cycling is still missing from the other AML municipalities’ policies, masterplans, guidelines, and building regulations, with the exceptions being Almada and Cascais which present some level of engagement in various strategic documents (Augusto, 2017; Câmara Municipal de Almada, 2005b; Câmara Municipal de Cascais, 2015a), but not with enough depth for practical articulation among all bodies of municipal planning.

Despite the correlation of a compact urban form with greater opportunities for walking and cycling instead of automobility as a central mobility option, a series of trade-offs between avoiding urban expansion and growing within the consolidated city limits still require difficult compromises with the institutional framework (Beatley, 2000, p. 409). In Portugal, articulation of mobility patterns, housing, walking and cycling as effective modes of urban mobility integrated into a transversal national policy framework is still missing. Policy change in this area may be one of the hardest political constraints to crack, impeding change in housing policy and comprehensive integration with active mobility at a municipal level and in metropolitan areas.

3.3.5 Mobility policy and the landscape

Even in the benchmark cycling cities, the intensity of cycling in European metropolitan areas has evolved with much frailer outcomes in peripheral areas, with automobility generally dominating and public transport providing an alternative, while cycling generally presents much lower modal shares in the mobility systems (The Gallup Organization, 2010). Effective land use and mobility policies produce impacting outcomes when integrated with land use, built cycling infrastructural outputs, and with public transport, with different results in central city areas and in the metropolitan areas. Modal share tendencies in 'champion' cycling city metropolitan areas are closer to most of the modal shares verified in the mobility systems of cities with low rates of cycling, confirming the significant urban vs. suburban mobility pattern divide registered by The Gallup Organization's (2010) survey.

To counteract urban sprawl and the car-dependency it generates, policy measures to coordinate land-use and public transport have provided effective mechanisms for urban landscapes that are friendlier for cycling and walking. The Dutch A-B-C land use policy, for instance, implemented by the Netherlands' national government since the early 1990s support public transport and active mobility while reducing the importance of automobility (Elsenaar & Fanoy, 1993, p. 10). The A-B-C policy effectively steers large institutional and commercial activities to sites where public transport and active mobility are preferable for any trip at a local and regional level. Beatley (2000), describes the key distinctions between the three location categories, divided into A, B, and C type locations:

A - locations. Public transit locations that are situated in city-centres close to the main railway station that are not easy to reach by car and that have limited parking facilities.

B - locations. Public transit locations that are easy to reach both by public transport and by car and that are often situated close to a suburban railway station or near other high-quality public transport modes.

C - locations. Locations that are situated on the outskirts of the city with a direct connection to the trunk road network and that are more difficult to reach by public transport. (p. 113)

The Dutch land-use policy supports situating large trip generating facilities in A-locations; hospitals, government services, schools and educational facilities, and other large public facilities, with the national government leading the way in making sure this policy is implemented. Furthermore, the number of carparking spaces is limited according to the location type, aiming at reducing automobility's role and promoting active mobility and public transport. Municipalities regulate parking but national government can impede certain projects or building in certain sites. Despite the leeway given to municipalities, some of which have permitted car-centric developments such as large, isolated shopping facilities with relatively large carparking facilities, overall, the A-B-C locational policy has been key in steering sustainable land use outputs, reinforcing compact human scaled cities with greater densities, and multi-use urban landscapes more propitious for walking and cycling.

Locational policy for large trip generating services is directly associated with land use policy and can support the compact city form, coherent land use patterns, and sustainable city morphologies. As described previously, the Dutch government's consolidation of ministerial functions in a centralised building beside The Hague's central train station, eliminating car parking and promoting cycling has hindered automobility as a practical travel option since 1997 (Beatley, 2000, pp. 112-113). In comparison, Portugal's two national authorities wielding greatest power over national roads (IP) and road safety (ANSR), as well as the national border and customs service (SEF) are situated in peripheral locations, isolated from urban areas, beside high-speed roads, with easy car access and large parking facilities available, with practically no walking access and no cycling infrastructure whatsoever. Permitting such locations, also for other important trip generator facilities —such as large company headquarters, schools, university campuses, hospitals, etc., located far from the denser urban areas— hinders the possibilities of active travel to work, including the possibility of shifting from automobility to walking and cycling, also compromising environmental or climate action goals for lower energy consumption and lower emissions.

Locating public agencies and services in unwelcoming landscapes underpins deeper implications towards cycling and walking also, within a cultural and behaviour influencing dimension. Aldred (2013) suggests that automobility dominated settings are '*hostile social environments*' for bicycle use, and where cycling is assumed as a both a psychically and physically risky practice (p. 267). Large trip generating location such as schools, hospitals, or shopping areas, disconnected from the urban fabric and with adequate connections limited to roadways and easy carparking restricts citizen's choices to automobility —perpetuating this travel option, reinforcing its need and importance— while seriously reducing the possibilities of walking, cycling, or using public transport.

3.4 The mobility system's relation to cycling

From their sociohistorical investigations of cycling in different cities, Berkers et al. (2018), de la Bruhèze & Oldenziel (2018), and Oldenziel et al. (2016) point to common elements associated with the decline of cycling in the second half of the twentieth century. Variables such as the increasing importance attributed to automobility since the mid-century, the impacts these values had in policy and planning, including the outward expansion of city limits feeding the self-reinforcing cycle of automobile dependence and the subsequent exclusion of cycling from the mobility system. In fact, data from the Portuguese roadways management agency also reflects these traffic policy trends in the twentieth century; namely automobility's increase and cycling's decrease (Junta Autónoma de Estradas, 1938, 1950, 1955, 1960, 1965). The lowest point of cycling in the Portuguese national mobility system is difficult to pinpoint, since cycling was eventually excluded from road traffic reports —since 2005, a practice maintained by IP to date— and cycling only entering the national census as a disaggregated mode in 2011 (INE, 2012, 2018). Even in societies where cycling has been culturally well established, contextual changes were observed along with the decrease experienced during the twentieth century. Between 1945 until the mid-1970s and even later, cities throughout Europe commonly had urban plans excluding cyclists, aggravated in many cases by building urban bypasses and radial highways, facilitating automobility while creating barriers to cycling. Even in the Netherlands, with a traditionally high rate of cycling, cities witnessed cycleway removals to accommodate for more road space in these Post-War years, in some cases replaced with on-road cycle lanes or no cycling infrastructure at all, mixing cycling with intense car traffic (Berkers et al., 2018, pp. 26, 28).

3.4.1 Automobility

The predominance of automobility in the urban realm —anchored on car-centric policy and planning— has been widely addressed by the scholarship. The early years of automobility and how it took hold of social values and formatted thought is insightfully analysed by Norton (2008), with automobility gradually gaining pervasiveness and driving a systemic domination of contemporary societies —as examined by Urry (2004)— to the point of dominating a complex '*political-industrial-technical-cultural*' arrangement and becoming an unavoidable challenge, constraining attempts for change (Paterson, 2007). The powerful economics of automobility-centred interests were also key political players side-lining cycling (Cox, 2020), and assuring public financing for the provision of universal carparking and infrastructural priorities with common resources (Shoup, 2005). These profound social impacts continue to intensify in many localities, with impacts on a diversity of policy issues, including street life and children's right to using public space (Parusel & McLaren, 2010).

Contested public spaces with cyclists' at the front of opposition to automobility's domination over the twentieth century have been insightfully explored by several scholars: Oldenziel & Albert de la Bruhèze (2011) analysed the conflict around

street space, Jacobs (1961) introduced seminal insights into the urban plight associated to car-centric urban renewal emerging since the 1960s, and more recent debates have also focused upon the difficulty of disentangling social factors from automobility's path dependency (Scheurenbrand, Parsons, Cappellini, & Patterson, 2018; Shove, 2012). The dramatic social reconstruction of public space to accommodate the automobile (Norton, 2008, p. 1) and the events generating policy conflicts regarding how street space should be used also reveal eras of crisis and success of the automobility coalition. The policy conflict around city streets thoroughly reorganised people's use of public space; '*motordom*', '*automotive interests*' and the '*cohesive collection of diverse automotive interests*' have successfully dominated the public realm and, on a general level, continue to do so (Norton, 2008, p. 2, 18). Automobility is portrayed as a powerful subsystem, holding a dominant position in policymaking (Geels, Dudley, & Kemp, 2012), with numerous politicians and political parties defending automobility's interests in cities, regions, and countries around the world.

Contrarily —and as part of a broader social movement emerged, producing a coherent discourse with political implications and coalition building in an urban policy community— by the early 1990s several European cities began to address the problem of car-dependence and consider cycling as an important response by including it as a legitimate mode of transport, playing a key role as a solution for future mobility needs (Beatley, 2000, p. 177). By the late twentieth century, even some cities with pervasive automobility and low cycling modal share began organising cycling strategies by defining targets and developing cycling infrastructure and incentive programs. Before them —and at a faster pace— several Dutch, Danish, and German '*champion cities*' had already started such policies inductive towards increasing cycling (Bassett, Pucher, Buehler, Thompson, & Crouter, 2008; Pucher & Buehler, 2008). Even in mega-cities with traditionally low rates of cycling, subsystem integration policies were adapted and applied, producing impressive outcomes from continuous action in conurbations such as London and Paris (Pucher, Parkin, & de Lanversin, 2021). Consistent pro-cycling policy implemented over the last decades has provided some limited but effective results in recent years, illustrated in the indicators regarding policy change and developments for cycling registered in Dublin, Manchester and West Midlands (see Table 6 above), and an even stronger boost with the onset of the COVID-19 pandemic (Buehler & Pucher, 2021a).

Anti-cycling biases

From Paterson's (2007) insights on the contemporary social arrangement of automobility, Aldred (2013) underpins the motorist's own view of self, a view which generally considers automobility as being a universal factor in society and considering the cyclist as a justifiably stigmatised identity. Considering this view of self-privilege, a reaction emerges when this social perspective as a car-driver with acquired legitimacy over political decisions and public space is challenged by change-inducing policy outputs, with a reaction of relegating cyclists to a —previously *status quo*— marginalised status. Aldred (2013) clarifies this biased perspective, since "*driver identity can emerge as a powerful mobilising force for aggrieved reaction... [with] Cyclists [being] held responsible for experiences of disadvantage, even violence (see Foster 2010a) while driving offences are viewed as not 'really' criminal (Cunningham 2007, Voelcker 2007). 'Half of us say we speed on motorways and a third of us admit to "driving significantly above the speed limit" in built up areas' (RAC 2008).*" (p. 254)

In contexts with low cycling rates, cyclists have become in many ways socially and legally stigmatised. Aldred (2013) further suggests that stigmatising processes tend to view '*cyclists*' as a problematic group, categorising bicycle-using people differently than '*non-cyclists*' (p. 264). In an automobility dominated society, cyclists are also seen as '*scofflaws*', generated by commonly held, automobility-induced social perceptions, set by the rules of the road and street use prioritising automobility over the last century, ignoring the needs of cyclists who are trying to function safely and efficiently within the reality —context and rules— of where they live and the urban and mobility systems they have to cope with (Marshall, Piatkowski, & Johnson, 2017). Contrarily, where cycling is viewed as a legitimate subsystem, the physical

context, norms, and policing have reverted to knowledge and acceptance cyclists' behaviour as they adapt to both traffic and the local physical context (Brailsford, 2015; te Brömmelstroet, Harms, Sezneva, & Rottenberg, 2014).



Figures 37
'Scafflaws' on the main street, Oeiras town centre in 2021⁷

Aldred (2013) points to car centric rules and planning as a means of 'othering' cyclists, isolating the subsystem group as a problematic minority occupying street space illegitimately, and from there perpetuating anti-cycling biases even more. She underpins that even with recent changes in the political discourse regarding cycling, cyclists are still generally stereotyped as a deviant group commonly blamed for disregarding the law and other road users, incompetent and ignorant of the rules of the road, and not contributing to road taxes and insurance needs for the infrastructure they use (pp. 254, 269). In many cases these biases appear in personal opinions or public reactions to policy change aiming at introducing or increasing the political weigh of cycling in the urban and mobility, systems, emerging as the 'bikelash' reaction, *i.e.*, an open contestation to cycling. On the political level, contentious issues regarding public space-use from a motorised perspectives of the city have been commonly observed in Lisbon (Ramos & Alves, 2010), and the emergence of 'bikelash' appeared when cycling policy progressed the most (Santos, 2021).

3.4.2 Modal integration

Sustainable mobility systems require a comprehensive, integrated approach —*i.e.*, addressing all key mobility systems, and especially prioritising the most sustainable ones (Isetti, Ferraretto, Stawinoga, Gruber, & DellaValle, 2020, pp. 2-

⁷ An environment where cycling provisions are non-existent and automobility is privileged: a one-way street with two lanes for motor traffic, narrow sidewalks, no two-way cycleway, or contraflow cycle lane. Municipal refusal to implement one of the PPB 2021 winning proposals aiming at reclaiming the street for people-oriented streets with better conditions for walking and cycling (Coligação Evoluir Oeiras, 2021; Evoluir Oeiras, 2021a).

3)— conceptualised in the reverse traffic pyramid (Bicycle Innovation Lab, 2011). In ‘*champion*’ cycling cities modal integration is addressed, contrasting sharply with cities with low cycling rates, where mobility systems aren’t seamlessly integrated. Freiburg —one of Europe’s ‘*champion*’ cycling cities— has among the highest levels of walking, cycling and public transport in its overall mobility system, with implemented policy outputs including numerous dedicated pedestrian paths and cycleways, including alongside the city’s tram route network and integrating all modes (Buehler & Pucher, 2011). On the contrary, cities with a sectoral approach, with public transport for instance, relying almost exclusively on bus systems and with little or no care for cycling and walking are less successful in public transport also. Beatley (2000) refers to the relative failure of mobility systems in cities with public transport relying almost exclusively on buses, such as Dublin or Leicester (p. 124), which at the time had no cycling policies implemented. Effective public transport options —well-integrated with first and last-mile cycling links— further strengthen the potential for intermodal urban mobility system integration (Veryard & Perkins, 2018), not only locally, but regionally, nationally, and even internationally (Kager & Harms, 2017).

Pucher & LeFèvre (1996) underpin the important edge of public transport being well integrated with active mobility and land use in the Netherlands, Germany, and Switzerland, revealing leadership in organising fares, timetables, routes, modal integration, with resulting competitiveness for public transport vs. automobility (pp. 208-209). Buehler et al. (2017) observe that Scandinavian countries, the Netherlands, Germany, Switzerland, and Austria strictly regulate land use to limit sprawl, while encouraging compact urban form around public transport stations with increasingly expanding cycleway networks, providing bikeshare systems and restricting automobility (p. 259). On 1 December 2021, Austria’s Minister of Environment —under the Greens in a political coalition government— halted several highway construction projects which were contested by local groups and climate activists (AFP, 2021), confirming the significance of coalition action and the importance of entering the political party process to influence policy even in settings with effective land use instruments and modal integration policies in effect, since the political struggle is constant.

Optimal results for modal integration are also achieved by coordinating land use patterns with overall mobility policy. Bertolini & le Clercq (2003), for instance, reinforce how land use and mobility options influence each other over time. Their analysis of the Amsterdam metropolitan area and its larger Randstad region links the urban and regional land use patterns and how these equate among the wide diversity of inter- and multimodal mobility solutions in this high mobility region of the Netherlands. Similarly, Harms et al.’s (2014) case-study of the institutional arrangements, workings, and virtues of Dutch municipal policies focusing on the integration of cycling, public transport, and mobility-regulated land use underscore the crucial role of integrating modes and broader spatial policy issues.

In all cases, effective promotion of cycling, walking, and public transport implies policy aiming at reducing the importance of automobility and providing alternative travel choices while restricting car use, so that travel behaviours can effectively change with people driving less and cycling more (Woods & Masthoff, 2017, p. 220). Considering effective modal integration and restrictions to car-use, Pucher (1997) underpins that “*The combination of the carrot-and-stick approaches has produced very impressive results in German cities. Not only has it shifted modal split in favour of public transport and bicycling, but the increased taxes on auto drivers have been the ideal source of revenues for financing improvements in public transport, bicycling, and pedestrian facilities*” (p. 44).

As an effective integration policy, walking and cycling must be easy, convenient, and viable options, public transport must be fast, frequent and reliable, and the externalities that automobility offsets must be accounted for by relieving public space and budget allocations from subsidising this mode directly or indirectly. In fact, mobility systems integrating all modes of transport with active mobility —and decision-making articulated with land use policies also— surpasses spatial and landscape issues impeding bicycle use not only by means of policy outputs produced regarding cycling infrastructure, but also through the ease of connections and intermodality with public transport. For the low density rural fringes and very low-density rururban localities automobility can be directly integrated with active mobility also, by means of mobility hubs —‘*mobihubs*’— for instance.

While much of the scholarship has studied a deepening involvement of complementarities between cycling and public transport, shared mobility such as bikeshare systems with a wide array of configurations, logistical services such as the integration of last-mile cargo-bikes, or even automobility such as the integration of car-share, '*mobihubs*', and intermobility with cycling are emerging areas of research of interest for further research on sustainable mobility in large FUAs. The scholarship has delivered substantial new knowledge on mobility integration, the potential for the central role of cycling and inclusive cities aiming at people-oriented policies. But once again, adequate policy design is fundamental, and several caveats are required in the phases of policy formulation and implementation.

Heinen, van Wee, & Maat (2010) suggest that negative factors associated to automobility or public transport could induce a more favourable view of cycling within the mobility and urban system, while issues of travel time and safety may be more important factors for cycling than for other mobility modes (pp. 75-76). Likewise, Bamberg, Ajzen, & Schmidt (2003) find that policies aiming at reducing automobility may backfire; the impact of free public transport passes provided to company employees were inversely associated with cycling to work. Similarly, Braun et al. (2016) confirm that school and employee incentives aiming at reducing car commutes were related with a lower likelihood of beneficiaries cycling to work, possibly due to the emphasis of the provision of public transport passes for reduced rates or for free—inducing modal share to public transport only— instead of cycling. They also noted that competition between cycling and public transport was verified, with public transport stop counts being consistently and inversely associated with bicycle commuting. They relate that areas that are well served by public transport tend to reveal lower likelihoods for cycle commutes, suggesting competitiveness between modes instead of complementarity (p. 177). Nonetheless, this requires a critical view on policy decisions regarding public transport.

Policies formulated with the integration of walking and cycling—without neglecting the fundamental role of these active mobility modes for key journeys at the urban scale— especially for local trips and last mile legs, are more effective in assuring car-reduction than are isolated public transport policies. In some rural and the most peripheral suburban areas, the role of automobility and car-sharing for longer distance may be complemented with cycling for shorter distances in the urban realm. The role of '*mobihubs*', for example—if adequately formulated— can play a role in very low density rururban and rural system interchanges with urban areas—at the fringes of FUAs for example—with expected impacts upon mobility modal transfer to cycling for the suburban or urban leg of the commute. Yet, these key issues require formulation and implementation caution to avoid co-opting by automobility and maintaining it as the pervasive transport mode in the urban realm, where it is far from being an optimal mode of mobility.

'*Mobihubs*' located at strategic interchange areas—inducing the switch to public transport, cycling and walking— as deemed easiest and most practical and convenient for the distance to be travelled can be a promising policy area in low density areas (Meulemen, Seeuws, & Karbaumer, 2021). These solutions should integrate cycling as a key mode for trips where it's convenient and competitive. The crucial role of adequate modal integration policies is related to several factors regarding urban and mobility policies beyond the scope of public transport planning but addressing how these mobility subsystems interrelate. Braun et al. (2016) mention that coordinated strategies for combining public transport with cycling—such as reduced public transport fares when used in conjunction, or a single fare card integrating both public transport and bike share— would provide effective gains in complementarity, unlike isolated modal strategies (pp. 177-178).

Rodríguez & Joo (2004) suggest the need to pay more attention to modal integration and hilly areas, since they find that local topography reveals a direct relation with the propensity to walk or cycle. Namely that an increase of one minute walking time due to the slope of the local terrain is associated with lower odds for walking or cycling. Contrastingly, they don't detect any impact from local topography on walking to local bus stops, but associate very steep hills as appreciable an difference in the relatively short walking trips taken to access public transport (p. 165). An adequately formulated and implemented local bike share system integrated into the public transport system may be a complementary solution to hilly contexts with longer distances, greater than approximately 250 metres (Dekoster & Schollaert, 1999, p. 11). Increasing complementarity with public transport, avoids competition with walking while effectively competing with

automobility in larger metropolitan areas where cycling modal shares are usually lower and automobility mode shares higher (The Gallup Organization, 2010). The need for integrated policies explicitly including cycling also require addressing the contextual factors previously mentioned, especially the overall built and natural landscape issues and the most appropriate policy outputs to increase cycling.

3.5 Policymakers' relation with cycling

Policymakers are influenced by citizens and their cultural contexts, but they're also the principal actors shaping policies which influence how effective policy implementation can really be. A relation between policymaking and cultural status exists as a contextual issue, with policy makers being exposed to several different perspectives associated to different sources, which in turn can have coalition involvement also: society, electorate, activism, media, epistemic practices, policy entrepreneurship, personal programmatic orientations, and self-interest. In fact, Aldred (2013) suggests that the promotion of cycling requires knowledge upon the different relations between contextual matters and how cycling is understood and experienced by different people, genders, ethnicities, and social groups (p. 268).

Cyclists' coalitions interact with different social matters and groups, and this can be an informing element for policymakers and the mechanisms that influence their decisions, and their potential for validating change within the institutional process. Political leaders are viewed as policy brokers negotiating between different perspectives, represented in many cases by common goals linked to their electorate's preferences, but also different groups and different subsystem coalition agendas. Likewise, programmatically driven political leaders can find support in those coalitions with ideologically aligned values, and retribute with an oriented vision: *'We only consider those alternatives that are mentioned.'* (Jalali, 2018)

But how do policy brokers only consider the alternatives that are mentioned? How are these alternatives mentioned in inner policymaking and brokerage circles? In *'champion'* cycling cities addressing cycling explicitly and making it more visible through an informative process includes interaction between policy brokers and activists, the media, epistemic groups and practices, and working with policy entrepreneurship which provide greater visibility to perceptible positive impacts, connecting the aspirations of local citizens and social movements with the established institutional policymaking circles. Jensen et al. (2017), for instance, found that politicians in Copenhagen viewed cycling with greater enthusiasm since epistemic practitioners developed information packages around the environmental, health and economic benefits of cycling in the mid-1990s, complemented by the increasing popularity and political recognition of cycling as an alternative to automobility. In *'champion'* cycling contexts policy actors have acknowledged the divergence between pre-existing rules which prioritize automobility and a pro-cycling attitude —involving greater interaction with epistemic actors— and analysing assessments regarding the negative impacts of automobility and the positive impacts of cycling (p. 469). Yet these same *'champion'* cities also have their history of car-centric policymaking and similar car-centric predispositions and developments which in many ways are comparable to the current contexts in cities with low cycling rates, with politicians catering to high rates of automobility and side-lining cycling as much as possible (Emanuel, 2016a; Oldenziel & Albert de la Bruhèze, 2016a).

3.5.1 Meta issues

Policymakers can only deal with the choices that are presented to them in an articulate way, shaping preferences which will be discussed and presented to citizens, whom in turn will support and vote for the menu of political options presented

to them (Druckman & Lupia, 2000, p. 3). It is by means of aligned values —or ‘*the alternatives*’ that are found in the political agenda and subsequent policy debate— that policymakers will act. Programmatically driven policymakers, leaders and brokers will find aligned values and support from those who present them with well justified and defensible ‘*alternatives*’ —namely the goals of contemporary social movements— via associations and citizens dealing with meta-issues, *i.e.*, broad, encompassing issues made up of various subjects, such as economy, sustainability, health, cities, environment, climate action, etc.

Local policymakers navigate within complex governance networks working with different levels of the political sphere, from infralocal neighbourhood and borough issues to local level policy —municipalities—, regional coordination —metropolitan areas or regions—, and national government frameworks —countries. For many cities, supranational organisms —e.g., European Union— and international networks are extremely relevant institutions in the policy process, marketing the city abroad, but also informing decisions at various levels of formulation, implementation, output monitorisation, and networking with peer cities from other regions and countries. The policy process for cycleway project formulation and implementation, for instance, can integrate these interactions, from the initial idea phase to monitoring outcomes achieved which are useful to marketing the city.

Furthermore, local policymakers must also deal with electoral and financial issues regarding the policy process and engage with these multi-level application meta-issues, either programmatically —addressing these in government programs, for instance— or through exclusion —ignoring the meta issues, and excluding them from their programme. Once again cycling policy outputs can be gauged within these issue interactions, and so can automobile-restraining measures and broader issues that require effective policy action. In many cases, meta issues are ignored in the implementation phases of climate, sustainability, health and/or environmental policies, and the major cause of urban emissions is not dealt with since it can bring political challenges to policy brokers. Despite an exhaustive amount of research and effective policy measures aimed at reducing the dominance of automobility in urban mobility systems, and the health benefits associated with reducing car-use (Rojas-Rueda, de Nazelle, Teixidó, & Nieuwenhuijsen, 2012; Rojas-Rueda et al., 2016), Geels et al. (2012) conclude that overall there’s still “*little attention... to reducing and restraining motor car traffic*” [and that pressure upon automobility by banning cars from city centres were still a] “*niche phenomenon... somewhat isolated*”, spreading across European and a limited amount of North American cities (p. 362).

Stanley, Hensher, & Loader (2011) attribute the low level of progress in this field —in part— due to the contemporary dominance of automobility. Considering the challenges policymakers face in implementing policy change towards an urban transition, Gössling (2013) reminds us that “*regime change is more difficult where car cultures dominate*” (p. 204). Numerous constraints impede policymakers from pursuing effective automobility-restraining policies. Besides the wider public —and specifically, *the electorate*—, issues around economic factors, industry, employment, taxes, the easy political message of growth and difficult message of degrowth, new technologies, etc. affect decision making. Geels et al. (2012) suggest upon the constraints felt by policy brokers within an institutional framework, since “*...policymakers are part of the system and are constrained by their dependence on other actors.*” (Geels et al., 2012, p. 363)

On the other hand policy actors questioning ‘*the system*’ and seeking alternative means of mobility —with cycling at the forefront of this critical questioning— are varied and originate from a diversity of sources: the individual citizen, associations, the broader advocacy coalition including likeminded policy actors and associations —including activists, epistemic actors, and other actors working at all levels of the policy field—, institutions —both formal organisms, such as national governments, government agencies or financial institutions; to established arrangements within the current social-cultural-economic framework, such as the media and the financial system—, and the broader electorate with social movements bringing new issues to the limelight and grabbing public attention.

Concerning meta-issues where critical views are raised questioning ‘*the system*’ of automobility —while aligning with the advantages of cycling— Jensen et al. (2017) observe that epistemic experience-oriented actions are potent measures capable of increasing cycling’s visibility, placing it as an important subsystem in the city’s urban and mobility systems

when strongly aligned with the political discourse emerging in the institutional framework, as was the case of Copenhagen in the 1990s, with a city government seeking effective solutions for urban environmental and health concerns. The epistemic actors structured data and information as a report—the ‘*Bicycle Account*’—which was useful to justify changes in the city’s governance realm, update the political discourse, and change the dominant policy rationale until that time. Cycling was placed at the forefront of the city’s institutional policy process with impacts extending well over a decade.

As policy process interaction increased and matured during the 1990s and early 2000’s, the establishment of a single dedicated organisational unit to govern cycling issues within Copenhagen’s municipal administration was created in 2006—the ‘*Cycling Secretariat*’ (CS)—further formalising the subsystem’s presence in the city’s institutional framework. Significantly, what had previously appeared as a problematic ‘*outside*’ issue in the policy realm, began to be looked upon as a solution, entering the institutional framework by diverse policy actions and alignments from various areas of the city’s governance structures. Jensen et al. (2017) resume change regarding perspectives in the policy formulation process in Copenhagen with the introduction of cycling in the institutional mechanisms with the CS: “*While governance had previously been characterised by largely ad hoc planning, based on a risk management philosophy and carried out by various actors, it was now relocated into the centralised CS who were given responsibility for co-ordinated city-wide planning.*” (p. 470)

The cycling subsystem can be introduced in several agendas—most effectively with centralised coordinating units such as the CS—but also by well-coordinated coalition actions where such institutional arrangements haven’t been established yet. Even in contexts with low cycling rates, working within the following meta issue related *policy response areas* cycling can seep into the institutional framework by diverse means:

- Economy: *Bikeonomics*
 - Health: *Active Mobility*
 - Sustainability: *Environment and Social Justice*
 - Academia: *Research*
-
- Cities: *Where it starts and where it happens*

Policy networks created over time—as forms of engaging with these meta-issues—encounter numerous overlaps while aiming at advancing cycling as a legitimate mobility option. Governance networks in which cycling enters the policy process where it has traditionally been omitted are a common starting point in various cities, and in many cases, agencies involved in these networks engage with some, several, or all these meta issues. Not to mention the central role of public policy in dealing with interrelated problems connected to the meta issues of environment, health, quality of life, inequality, and social policies. In this respect, economic free-market strategies have been observed as systematically failing to deal with externalities and requiring legislated solutions (Baumol, Blinder, & Scarth, 1988, pp. 710-711, 721, 807-809).

Municipalities with climate and other sector agencies involved in implementing pro-cycling programmes, for instance, in many cases work with businesses and bicycle manufacturers—industry, local, regional, or national economic stakeholders such as tourism related activities, cycling retailers, etc.—to implement bikeshare systems or for municipal cycling fleets, yet their core aim may be focused on urban sustainability issues related to energy, environment, and climate mitigation measures.

On another perspective, municipal-level agencies can work with schools’ physical education departments on programmes shaping their environmental city agenda. An example is Lisbon’s energy and environment agency—Lisboa ENova—which introduced an annual bike to work day in 2011 (Pereira, 2022b)—and a bike to school programme with the urban cyclists’ association MUBi in 2014 (MUBi, 2014a, 2014b)—providing prototypes for other programmes developed in the city and spinning-off from these initial implementations, namely the bike-to-school trains which emerged the following year (2015) and have since grown throughout Lisbon and other localities throughout Portugal. Another example is Almada’s municipal LA21 agency AGENEAL—with programs and publications produced between 2008 and

2017 promoting bicycle use —publishing a book aiming at school-aged populations and their families (Freitas, Castro, & Machado, 2011). In cities, sustainability networks have facilitated and stimulated policy process in several urban social issues associated to the meta issues discussed above —opening the door for new cycling policy implementations— starting with ‘*champion*’ or leading cities even before the broader policy networks existed, trailed by ‘*climber*’ or follower cities, and enlarging to ‘*starter*’ or lagging cities when issues become mainstream.

3.5.2 Meta issue networks

Kern (2019) argues that governance meta issue networks initially promoted by leading cities and for leading cities has gained a greater dependency on multilevel climate governance with EU authorities, national, and regional governments to provide greater authority and influence to follower/climber and lagging/starter cities (pp. 138-139, 141). In fact, this bottom-up mechanism has capacitated city governments in the local to national to EU government hierarchy also. Likewise, considering the importance of decarbonisation policies, Pablo-Romero, Pozo-Barajas, & Sánchez-Braza (2018) point out that EU and national funding programmes have financed few CO₂ reductions on their own and that the most cost-effective CO₂ reduction unit costs have been achieved by local government actions aiming at reducing carbon emissions. They also note that municipal authorities finance the lowest-cost CO₂ reduction measures while private organisations finance the most expensive ones, usually in public-private partnerships (p. 173). Recent developments around the European Green Deal, Horizon Funds, and National Recovery and Resilience Plans (NRRP) have raised a critical discussion around decarbonisation and which direction the complex EU governments want to take. Simultaneously, these programmes reveal the crucial roles cities play in this debate. Ignoring the importance of local agendas would be a missed opportunity by all standards, and the cycling subsystem being either leveraged or ignored by important funding policies is directly related to the importance attributed to such an urban agenda and the pivotal role of municipal governments, how they are funded, and what projects are prioritised.

The importance of cities in the policymaking forum has become increasingly prominent, as the need for local solutions and the devolution of funding and political authority to local and regional policymakers takes shape and forms a ‘*new localism*’ perspective of political influence (Katz & Nowak, 2018). Local groups’ responses to recent policy priorities disentangle implementation issues engaging with meta issues, fine-tuning potentially misdirected policy. As mentioned above, a case in point for these latter issues are the varied warnings published by cycling associations and transport think tanks regarding EU NRPP’s, with many of these national plans excluding cycling (ECF, 2021b; ITF, 2021). The crucial discussion around funding allocation has involved governance networks and economic stakeholders, with the cyclists’ coalition involved at all levels —including industry, interest groups and aligned policy networks (Mayne, 2021). Local associations have been even more emphatic than established institutions, playing a role of critically questioning and informing higher governance structures. The final draft of Portugal’s NRRP, for example, was placed under public consultation during two rounds, and for the second time it received insistent criticism from associations and scholars for ignoring active mobility and sustainable urban policy in detriment of large-scale and car-centric investments, despite an alleged ‘*Green Deal*’ basis for the EU’s post-coronavirus economic recovery (Estrada Viva, 2021; FPCUB, 2021b; Pincha, 2021a; Silva, 2021). Despite such important policy formulation inputs, cycling continues to be sidelined from Portugal’s NRRP, with €0 being allocated specifically to walking, cycling, or an urban agenda with less cars.

‘Upscaling’ mechanisms for coalition action

As a city-based response to national-level delay or inaction, increasing interest in developing and implementing local scale experiments has emerged from research-driven urban laboratories working in different locations around the World, joining academic interest in the local scale and advancing knowledge with research performed on experimental urban

governance and citizen participation (Evans, Karvonen, & Raven, 2018). Significantly for the policy process and how policymakers interact with meta issue networks, Kern (2019) establishes that this experimentation has functioned over time through three steps, involving networking within and/or between towns and cities, in governance networks consisting of a process known as ‘*upscaling*’, possible in three dimensions:

- *Expansion: upscaling is limited to the city in which the experiment was conducted, for example, the planned roll-out of a place-based pilot project from one neighbourhood to other neighbourhoods, driven by project-to-project learning processes;*
- *Diffusion: upscaling between cities on a voluntary basis, based on various forms of networking, ranging from twinning to global city networks;*
- *Transformation: upscaling that leads to a transformation towards sustainability ... in a specific territory, such as a region or a nation- state, and requires climate action in all municipalities within that territory. (p. 128)*

Municipal level policymakers deal with the three forms of ‘*upscaling*’ in the policy process when attempting to achieve encompassing policy change, but while most of the factors imply what Kern (2019) defines as ‘*expansion*’ and ‘*transformation*’ within each city’s scope of influence, the process of ‘*diffusion*’ requires networking between cities. ‘*Diffusion upscaling*’ occurring through networking between towns and cities can be especially effective through climate governance networks, local agenda instruments (LA21 and LA2030), and institutional frameworks which allow municipalities to have sufficient autonomy to contest national measures, especially when they can increase their power base with alignment and relational partnerships from their local populations, mobilising citizens’ collective action, activist groups, and local formal and informal associations supporting policy change. These instruments are key for advocacy coalition involvement to seep in at various levels of city governance, impacts beyond the conventional or geographical municipal limits. In fact, Kern (2019) asserts that sustainability policy has interacted between ‘*leading*’, ‘*follower*,’ and ‘*lagging*’ with transnational municipal networks emerging in Europe since the post-WWII era, later augmented by city-based regional, national and trans-national climate initiatives in the Netherlands, Sweden and Germany, and culminating in the EC’s Covenant of Mayors (CoM) launched in 2008 (pp. 127-128).

These inter-municipal networks are very effective policy transfer and learning mechanisms for local policymakers, advancing new knowledge from diverse sources: inter-municipal exchange of experiences from other towns, cities, and countries, but also citizen, activist, and epistemic group involvement from their local setting and other localities with which they usually don’t interact with. Mechanisms include public participation programmes and collective problem solving on local issues responding to meta-issues —*i.e.*, health, environment, energy, climate change, sustainable development goals (SDG)— not only in European cities with the CoM, but also globally. ‘*Diffusion upscaling*’ processes have established relations between various policymakers from different localities working with institutional-level policy transfer networks such as Climate Alliance, Energy Cities, the EC’s Covenant of Mayors, ICLEI, POLIS and other networks established between city governments, developing strategies to lobby for their cities’ policy goals in the EU, influencing EU institutions such as the Committee of the Regions (CoR), and with smaller cities and towns through the Council of European Municipalities and Regions (CEMR), and most effectively through national networks of cities and towns (Kern, 2019, p. 134).

In Portugal, the National Association of Municipalities (ANMP) hasn’t established a climate/environmental/sustainability-oriented issue network supporting goals aligned with increased cycling yet, but the European Blue Flag Association’s (ABAE) NGO realises annual ECO XXI municipal audits and awards for a network of numerous municipalities —albeit on a voluntary basis— driven by local political will, acceptance, or political pressure found in the respective municipalities. 19% of Portugal’s municipalities participated in ECO XXI in 2021 (58 local governments), revealing an interesting level of coverage and potential interaction. However, ECO XXI is not a regulatory instrument and national or EU project funding is not directly linked to the programme, explaining to some extent why 81% of municipalities still don’t participate in this network.

In cases where a clear sustainability framework is articulated with a local urban agenda devised to support municipalities and promote policy learning and change, Kern's (2019) concept of 'vertical upscaling' applies, namely that:

If there is a lack of appropriate national programs, cities may turn their attention to EU programs. EU funding programs are most welcome, even by leading cities such as Amsterdam or Malmö... Therefore, cities have developed new strategies to get access to EU institutions, for example by bypassing national authorities... Going to Brussels generates new opportunities for cities. These strategies are in line with research on Europeanisation that has shown that leading countries influence EU decision-making and try to upload their policies to the European level, so they become binding for all member states, including the laggards (Börzel, 2002). I characterise the relationship between the EU and cities as involving interdependent relations and polycentric networking. Vertical upscaling requires that city networks and associations represent their members and lobby at regional, national, and EU levels. Apart from a few big cities with structural power and leadership (Liefferink & Wurzel, 2018) that have the means to represent their interests directly, the strategies of city networks and associations become decisive (Kern, 2014; Monni & Raes, 2008). Thus, the Climate Alliance, Energy Cities, and ICLEI have developed active strategies to lobby for the interest of their member cities in Brussels. There are various venues from which to influence EU institutions, including the Committee of the Regions (CoR). (pp. 133-134)

Portuguese cities have been involved in 'upscaling' networks regarding the cycling subsystem placing 'outside' policy issues on their agendas—including cycling as a key player in modal shift in the political agenda. The networks which are most prominently adopted by the country's municipalities provide a view of one of the dimensions of the implementation of urban sustainability policies which are also including cycling and generating noticeable outputs. General meta-issue networks—focusing on environmental and social sustainability—include ICLEI member cities, CoM municipalities, and ABAE ECOXXI participant municipalities, among other programmes. Regarding cycling in these localities in a country with low—generally stalled—subsystem modal share Asperges' (2008) caveat on 'apples and lemons' city-comparison (p. 47) applies: with a national average cycling modal share of 0.5% in 2011 (IMT, 2014; INE, 2012) and 0.6% in 2021 (INE, 2022, p. 65). Portugal's 'leader cities' don't correspond to 'champion' cycling municipalities according to the BYPAD and PRESTO categorisation, or even to the average European cycling rates of 7.4% (The Gallup Organization, 2010).

Currently none of the highest cycling modal share municipalities in Portugal are large or mid-sized cities—all located outside of the Lisbon or Porto FUAs—, most are rural municipalities with specific characteristics which are favourable to cycling, but not related to the existence of a local advocacy coalition, a condition also shared by some of the AML's peripheral and more rural municipalities with above average cycling rates—see sections 4.3.1 Lisbon's topography and geographical features: epistemic demystification and 4.8.2 Lisbon's and AML's cycling network policy, below. This caveat is important to clarify the phenomenon of cycling revival as addressed in this thesis—and the limitations of the ACF when researching policy change— appropriate for eminently urban settings where coalitions have greater intensity, interacting and influencing policy outputs and outcomes instead of leveraging mostly on enduring geographical, historical, and social factors which also influence mobility choices.

3.5.3 Policy transfer mechanisms

Sustainability and climate are a 'low hanging fruit' meta issue in which cycling can enter the institutional policy process where it has traditionally been omitted—working as a common starting point in various localities—albeit with different levels of outputs produced and results achieved. Governance networks have facilitated and stimulated policy process in a number of urban environmental issues, opening the door for new cycling policy implementations, starting with leading cities even before the networks existed, trailed by 'follower' cities, and enlarging to 'lagging' cities. Kern (2019) argues

that these governance meta-networks initially promoted by *'leading'* cities as bottom-up policy transfer from cities to the regional, national and international level, with cities gaining greater dependency on multilevel climate governance arrangements within the EU framework, and working with national, and regional governments to influence *'follower'* and *'lagging'* cities (pp. 138-139, 141). Municipal policymakers have played a central role in this equation, realising transformations required to meet climate, energy and environmental goals in leading cities, with the EU taking the lead in *'follower'* and *'lagging'* cities, working through national governments with various programmes leading to changes in the political agenda at all levels (Abarca-Alvarez, Navarro-Ligero, Valenzuela-Montes, & Campos-Sánchez, 2019, pp. 1-2), and with legislated European regulations transferred via directives to national legislation.

It is common for Europe's *'champion'* cycling cities to achieve important related benchmarks, working as *'leading'* cities in the promotion of sustainable development mechanisms and policies, involving and developing epistemic practices aligning cycling with sustainability (Jensen et al., 2017). Amsterdam, Copenhagen, Freiburg, Munster had already appeared in the scholarship before the Aalborg Charter of 1994, with indicators and targets established by these cities entering the Local Agenda 21 (LA21) processes in an effort emerging from the 1992 Rio Conference. This process aimed at encouraging and facilitating local sustainability plans and implementing them (Beatley, 2000, p. 238). But even in these *'champion'* cycling cities —pushing for change by challenging the system of automobility hasn't always advanced steadily or without disruptions— during the first two decades of the twenty first century signs of stagnation have been observed at different moments also. Furthermore, while not all *'leading'* European *'green'* cities are *'champion'* cycling cities, leading *'champion'* and *'climber'* cycling cities are close to being *'leading green'* cities. In other words, while numerous European municipalities have undertaken LA21 and LA2030 efforts and advanced with relatively successful initiatives, effective measure implementation has not always been as embracing, perseverant, or successful as desired (Coenen, 2009; Lafferty & Coenen, 2001; Schmidt, Gil Nave, & Guerra, 2006), and not all cities have advanced to tackle automobility based environmental problems or dealt with these considering cycling as a sufficiently important sustainability policy issue.

Portugal initially lagged introducing sustainability into municipal policies, and cycling policy was only effectively introduced very late —and even then— in a very limited number of cities. In some cases, the intensity of policy change appears linked to EU-driven or European focused benchmark programmes. Lisbon's EGCA 2020 and the Lisbon VCC in September 2021, for instance, functioned as effective gauges and milestones for policy development, by showcasing the city's possibility of policy change at several levels. Likewise, the small city of Torres Vedras —50 km north of Lisbon— was attributed with the European Green Leaf Award in 2015, and it's also one of the municipalities implementing relatively ambitious cycling infrastructure in comparison to Portugal's general level of cycling outputs produced.

Similarly, the municipality of Almada was the first Portuguese municipality joining sustainability networks in 1999 (Carter, da Silva, & Magalhães, 2000) —establishing its local environment and energy agency that same year— headed by Catarina Freitas who achieved placing Almada as the first AML municipality to launch a comprehensive cycling plan in 2005 (Câmara Municipal de Almada, 2005b) and producing several innovative outputs, supported by aligned policy brokerage from communist Mayor Maria Emília de Sousa, in office from 1987 to 2013. By 1999, twelve sustainability policy-leading European cities were already participating in the European Sustainability Index Project, funded by the EU, and coordinated by the International Institute for the Urban Environment. Several *'champion cycling cities'* were among the first group of cities working for sustainability goals —including Amsterdam, the Hague, and Freiburg— collecting data and information on sustainability indicators —including cycling— but also the low-rate cycling context city of Leicester, in the UK (Beatley, 2000, p. 328). During the early leadership from cities advancing sustainability policies, Mega (2000) rightfully questioned the urban paradox regarding walking and cycling as being more developed in northern European cities in comparison to southern European cities where climate conditions are more favourable, and if cultural issues have something to do with this lag (p. 229).

Operationalising policy transfer networks

Policy transfer networks from leading cities to follower and lagging cities has proved to be an effective instrument for increasing commitment and actions from a growing number of European municipalities since the 1990s (Mega, 1996). Abarca-Alvarez, Navarro-Ligero, Valenzuela-Montes & Campos-Sánchez' (2019) assessment of the Covenant of Mayors (CoM) and the short-lived Mayors Adapt (MA) city network initiatives observes high variability between policymakers' approaches and interests. Attention on city profiles is a previous step recommended by these scholars, to deliver suitable criteria for appraisal and to monitor initiative measures, and also as an effective method to generate city-networks capable of overcoming geographical distance—to up-scale the impacts achieved from their efforts—with dissemination at the EU-level (p. 20). In this respect, Kern (2019) defines '*horizontal upscaling*' as one of the most effective mechanisms for networking action for policy change among cities:

Horizontal upscaling among leading cities gains support from the following dynamics: bilateral city twinning, i.e., long-term networking of a rather general nature that can provide a basis for more complex forms of cooperation; project networking of a limited number of cities, which facilitate tailormade forms of knowledge transfer and learning; and multilateral networking of cities, particularly (trans)national city networks. Leading cities joined at least one of three transnational city networks, i.e., the Climate Alliance, Energy Cities, and ICLEI, which pioneering cities founded in the early 1990s. From the outset, the exchange of experiences, transfer of knowledge, and stimulation of learning among their members crystallised as one of their key functions (Busch, 2016; Fünfgeld, 2015; Kern & Bulkeley, 2009). Membership in these networks grew rapidly in the first years but slowed when these networks matured and became more consolidated. (p. 132).

'*Horizontal upscaling*' is especially effective for policymakers committed to realising policy change in a context of peer-to-peer interaction and knowledge exchange, further boosted through city networks and networking. Some of these links are limited to interaction between large city structures—such as the C40 city network—applying to core municipalities such as Lisbon, but with the surrounding metropolitan area municipalities being too small and not sufficiently influential to join these larger city networks. The Covenant of Mayors (CoM), ICLEI, and at a national Portuguese level, ECO XXI, on the other hand provide a universal network at the reach of any municipality governed by leaders with vision and interest in realising change.

'*Champion*' and '*starter*' cycling cities involved in C40 Cities, ICLEI, and/or CoM urban sustainability networks have regularly participated in project-specific workshops, technical discussions, and experience exchange to compare insights linked to various sustainability indicators, several of which on cycling or related issues regarding the urban mobility system, public transport use, public space, energy consumption, air pollution, etc., with several cycling subsystem related measures being activated. Beatley (2000), for instance, referred to the indicators used as a source of '*creative guidance*' to '*guide local policy and shape public discourse about the future*' while also engaging citizens to raise awareness of sustainable lifestyles and how this could influence their own neighbourhoods and communities. Accordingly, the results were that "*these indicators have given the city a gauge of how well (or badly) it is doing on a number of measures. And, the indicators have been useful in lobbying, for example, in showing that the city has certain problems (e.g., air quality) that require action*" (pp. 328-329).

Local Agenda 21, Localised Agenda 2030, and cycling

With the approval of the Paris Agreement (COP21) on climate policy by world leaders in September 2015, the United Nations Millennium Development Goals (MDG) were replaced in 2016 by the 2030 Agenda for Sustainable Development, incorporating the more precise and ambitious United Nations Sustainable Development Goals (UNSDG) with a time span of 15 years to achieve 17 Sustainable Development Goals (UNSDG). This agenda was referred to by then UN Secretary-General Ban Ki-moon as "*a shared vision of humanity and a social contract between the world's leaders and the people...*

They are a to-do list for people and planet, and a blueprint for success” (United Nations, 2015b). The seminal local government level policy implementation and exchange role of the Local Agenda 21 (LA21) was transformed into a localised Agenda 2030 (United Nations, 2015a). At the local level Agenda 2030 built from the lessons learnt with LA21 —reengaging countries at a global level— to support local governance structures working towards more sustainable policies with updated targets (Guerra, Schmidt, & Lourenço, 2019, pp. 364-365), and foremost as regards to cycling, including sustainable transport in the equation.

LA21 established the first seeds for implementing policy change at an institutional and globally coordinated level, including other spin-off sustainability matrices, appraisals and governance audits employing sustainability indicators and performance targets. These instruments have provided mixed results in formalising change and advancing with sustainable policy implementation and planning at the institutional level, with leading European cities initially setting the pace (Beatley, 2000, pp. 331-332). The UNSDG update, clarified and expanded policy issues further, enhancing the cadence for policy change. Nonetheless, and despite the global awareness-raising that LA21 introduced, its success in establishing effective participation was questioned in various cases (Coenen, 2009), as was the lack of policy-depth, with measures working differently and not always understood by municipal policymakers (Schmidt et al., 2006, pp. 99-109). Furthermore —despite an impressive growth in the number of participants and a growing awareness of sustainability issues— processes have not always functioned properly, especially in societies lacking a long-standing tradition of rule-of-law and democratic background, including, among many nations, Portugal (Guerra et al., 2019, p. 362).

Institutional programmes aiming at disseminating LA21 implementation, introduced specific methodologies referring to cycling directly or indirectly within several indicators, regarding policy areas such as GHG emissions, transport and mobility systems, or other audit issues such as quality of life, air and noise pollution, and participatory governance. These governance audits have worked at the level of policy formulation and implementation, outputs and outcomes, evaluating the specific effectiveness of measures introduced and comparing performance among peer cities, at an international level, such as ICLEI which promoted LA21 from the start, and the CoM initiatives promoted by the EC since 2008, and also the voluntary national initiatives such as ABAE’s ECOXXI in Portugal.

The production of municipal climate action involving local policymakers, within the LA21 framework, has evolved within a European climate governance vision, and updated with COP21 and the Agenda 2030, with local governments implementing urban policy experimentation to test best practices and try ideas and methodologies that are new to their context. According to Pasimeni, Valente, Zurlini, & Petrosillo (2019) the CoM for Climate and Energy currently embodies a collection of local experiments and a publicly available database of climate best practices applicable to different levels of governance aiming at increasing knowledge and promoting local climate adaptation actions in Europe and beyond (p. 25). Likewise, Lafferty (2001) described the seminal LA21 initiatives as *“a strategic programme, plan or policy which has emerged from a consultative process initiative by local authorities with both local citizens and representatives of relevant local stakeholders, with a particular interest in involving women and youth. The purpose of the strategic programme is to implement Agenda 21 at the local level, which by implication is to say that the purpose is to entrust local authorities with a particular responsibility for achieving sustainable development within their particular sub-national domains.”* (p. 2)

For many policymakers, the seminal LA21 —and current Agenda 2030— are policy changing mechanisms working at the local and regional levels when an institutional tradition of such policy is lacking. But there are questions regarding policymakers’ relation with cycling, and the different ways they can include it in their own policy agendas:

- 1) What exactly do these LA21 —and Agenda 2030— processes imply, and how do they relate to cycling?
- 2) Do policymakers really understand the role of cycling in realising the SDG? What role does cycling play?
- 3) Most importantly, have LA21 —and most recently Agenda 2030— managed to get cycling on the local policy agenda in locations where it was not there?

The answers to these questions provide paths for reflection, but they also apply to the case-study of how cyclists have (or have not) shaped urban policy. Answers are a framework to work with, providing multifaceted perspectives which shed light on the phenomenon of policy change to increase cycling:

1) LA21 emerged as an agreement between world leaders achieved during UN Rio de Janeiro Earth Summit in 1992 (ECO92), aiming then at implementing a global agenda for sustainability (Agenda 21) by the year 2000 and realising this at a local level through Local Agenda 21 initiatives. Chapter 28 of the ECO92 Summit, '*Local authorities' initiatives in support of Agenda 21*', focuses on the pivotal role of municipal governments and community engagement to achieve sustainable development (United Nations, 1992, p. 285). Despite the importance attributed to local policymakers and governance structures in implementing LA21 —with step-by-step guidance— the specific indicators for the key issues of environment, sustainability and participation weren't defined (Coenen, 2009, p. 167). Guidance was brought about early on in the EU through the networks established by ICLEI —guided by the Alborg Charter of 1994— and the institutional launch of the EC's '*Sustainable Cities and Towns Campaign*', which evolved into the European Sustainable Cities Platform in 2016, managed by ICLEI (ICLEI, 2021a). Parallely, the EC established the Covenant of Mayors (CoM) network in 2008 aiming at involving a greater number of local policymakers and getting them on-board the transition to sustainable policies agenda.

Following the success of more ambitious climate goals, agreed upon at COP21, LA21 was transformed into a localised Agenda 2030 (LA2030) building upon the successes of the previous framework and adapting it to the more specific United Nations Sustainability Goals (UNSDG), including more ambitious climate adaptation and mitigation goals. With Agenda 2030 established, cycling was identified as delivering on eleven of the seventeen UNSDG (ECF & WCA, 2016). In effect, this meant that aligned policymakers could integrate cycling in a broad range of coherent measures for effective results —related to the diversity of goals addressed— in very different policy areas and requiring coherent policy implementation for change (Mota et al., 2019, pp. 225-228).



Figure 38
United Nations Sustainable Development Goals (UNSDG)
 (United Nations, 2019)

In a socio-political context dominated by automobility (Sheller & Urry, 2000), cycling appears interrelated with the SDG as a transformative action, an ecological mobility mode which questions the dominant sociotechnical arrangement while

providing a practical mechanism for greater environmental justice, involving individual citizens, the community and stimulating public participation at different levels of policy action. Various actions from the previous LA21 and current LA2030 exemplify how programmes can help implement '*hard measures*' such as community-oriented cycling infrastructure involving local stakeholders (Morpeth, 2012, pp. 133-137), and '*soft measures*' which include diverse forms of public participation which advance a democratic and participative culture, empower citizens, create neighbourhood networks and improve social bonds in the community (e.g., Agger, 2010, pp. 547-548). Many of these policy advances were implemented in large '*champion cycling cities*' focusing on the inclusion of peripheral communities with transport poverty issues —and specific social groups— such as immigrants from low-cycling countries who had moved to peripheral, transport-poverty stricken neighbourhoods, as previously described with Rotterdam (Berkers, Schipper, Bek, & Oldenziel, 2019, pp. 54-56). These examples grafted into LA21 and LA2030 programmes —when viewed as benchmarks with possibility for adaptation and replicability in different contexts— provide relevant insights and opportunities relating cycling to pervasive social problems in the urban realm and its peripheries, regardless of the localities' respective rates of cycling.

2) While '*champion*' cycling city politicians were able to embrace the mobility dimensions of SDG naturally when operating within a relatively strong electoral base of cyclists —with cycling issues were already being a part of their political agenda— in localities with low rates of cycling the policy process faces much greater difficulties. Policymakers without robust electoral support on the issue may not fully understand the scope of cycling as a principal subsystem for urban and mobility policies while seeking to advance the SDG, and likewise may miss opportunities for implementing cycling measures. Aligned aims for sustainable development as a governance process —and how it should permeate transversally within government structures— involving citizen participation and local stakeholders, are crucial for this informative process (Coenen, 2009, pp. 174-179), and from there advance for effective change.

In Portuguese government structures —at all levels— LA21 was still at a very incipient level of processing twelve years after the Aalborg Charter was ratified and the European Commission's initial '*Sustainable Cities and Towns Campaign*' was launched (Schmidt, Gil Nave, & Guerra, 2006, p. 98). Portuguese municipalities were mostly late starters, and there are cases of citizens' promotion of cycling being completely rejected within public participatory budgets (PPB) promoted under LA21 municipal programmes (Auchapt, 2014). The current scenario has improved with a considerable increase in LA21/LA2030 and participatory sustainability initiatives, yet many of these were unable to effectively transfer policy and results in many cases were more aiming at appearance than effective outcomes (Guerra et al., 2019, pp. 357-358).

Furthermore, participatory processes involving cycling, or any measures considered disruptive, are in many cases rejected by local policy brokers, thus tacitly upholding the *status quo* of the dominant '*system of automobility*'. In fact, considering the scenario in Lisbon, Interviewee #6 – an activist, suggests that PPBs aim at doing what local policy brokers were already planning on doing, and Interviewee #10 – a former policy broker, recalls that only the politically convenient proposals are approved and that technical assessments are in fact "*more than technical...*"

Considering the dismal scenario experienced in Portugal's local governance agendas aiming at transitioning towards sustainable urban systems, many policy brokers are still far from embracing effective SDG agenda processes, within both local and national governance structures, and their low level of knowledge regarding cycling's role as an essential '*game changer*' towards sustainable development continues exclude the subsystem in most Portuguese municipalities (Silva et al., 2019, p. 141), and also around the world (Martens et al., 2021, pp. 273-275).

3) The objectives of the SDG haven't always permeated into local policy brokers' agendas, and in some cases the processes end up becoming '*empty rituals*' since municipal governments are used to having a dominant position in decision-making (Coenen, 2009, p. 173). Overcoming this problem is possible in a variety of ways depending on the socio-political context and institutional arrangements (Lafferty & Coenen, 2001, pp. 291-296). The existence of a local cyclists' coalition working with local policy brokers, municipal officials, citizens, and associations, as joint implementors towards achieving local solutions in a real '*participatory process*' towards change can achieve results.

Contrasting positions are common even within neighbouring municipalities sharing the same national context and even regional setting. In Portugal, municipal leaders who have undersigned mechanisms for implementing local agendas and govern in localities where local cyclists' have revealed some signs of organisation and public intervention, responses have differed substantially. Oeiras Municipality has refused to advance with cycleways proposed by local citizens that won the PPBs in 2014, 2019, and 2021, while its neighbouring municipalities have advanced with similar proposals in Lisbon and more recently accepting one in Cascais. Interestingly —and aligned with the electoral base observations— municipalities with no organised cyclists' coalition but a relatively higher rate of urban cyclists have also managed to introduce some policy change in Portugal, such as for instance Murtoza or Torres Vedras. What is not so certain is the extent of the SDG agenda directly influencing support for implementing these measures.

While it is difficult to assess the direct role of the SDG in getting the cycling subsystem on the local policy agenda and speeding-up change and outputs produced, as a mechanism for citizen participation local SDG processes have effectively functioned as a tool for introducing cycling in the public agenda in many locations where it didn't exist or was not a focal issue for citizens or for local policy brokers. In Lisbon and Oeiras, for instance, this has been evident in the PPBs proposed and voted for by citizens proposing cycleways, and municipal policymakers either implementing them —as in Lisbon— or rejecting them —as in Oeiras. Rejection caused policy conflict —raising new forms opposition and triggering greater awareness as feedback from citizens— with citizens organising into movements and entering the local political party institutional arrangement. In Oeiras the *Ciclovía na Marginal* movement emerged from the PPB proposal, later CM protest bike rides emerged from *Ciclovía na Marginal*, and later a strong participation in the creation of a local association —*Evoluir Oeiras*—, which received support and coalesced with three small political parties: two left leaning parties —*Bloco de Esquerda*, the Left Bloc party (BE), the left leaning semi-green Livre (L), and the miniscule pan-european federalist Volt. Involvement in political opposition initially 'from the outside' with the *Ciclovía na Marginal* movement appearing in 2014, coincides with the appearance of cycling on the policy agenda, and the emergence of reluctant incremental outputs realised by Oeiras' municipal government during the 2014 to 2021 period, namely the Algés - Cruz Quebrada pedestrian and cycling path in 2015, the Cruz Quebrada - Caxias cycleway and promenade in 2017, the Paço de Arcos - Porto Salvo business park cycleways in 2020, and the Medrosa cycleway in 2022-2032.

Local sustainability agendas and participatory processes are two policy products (or outputs) which are available as seminal mechanisms for placing, or reinforcing, cycling on policymakers' agendas in certain locations, either as an investment for local sustainable development (Aall, 2001, p. 95; Eckerberg, 2001, p. 22; Lafferty & Coenen, 2001, p. 295), or at least formalise public participation —sparking a fertile policy debate, albeit with much slower, stalled, or subverted institutional policy outputs (Zürcher & Cabral, 2018)— with potential for feedback and policy conflict generated outputs. Where cycling had been adamantly rejected by local policy brokers as a legitimate mobility mode, sustainability and participatory agendas seem to have at least provided a first step in introducing the policy issue on the policy agenda and producing the first seminal outputs for change. Even if these outputs were produced 'outside' local governments' investment agendas —LA21/LA2030 mechanisms can work to raise citizens' awareness and new discussions in the political debate— involving urban policy and the possibility of shifts and change in the dominant sociotechnical-cultural arrangement.

ICLEI: Local Governments for sustainability and cycling

One of the mechanisms for policy transfer and learning in Europe has been the city network established by the former International Council on Local Environmental Initiatives, current Local Governments for Sustainability Network (ICLEI), working as a key international organism for advancing the LA21 agenda among regional and local governments before the COP21 Paris Climate Agreement in 2015, and intensifying actions since then with new UNSDG climate action objectives defined for 2030 and agreed upon globally. ICLEI was established as a city network in 1990 —two years before ECO92— mandated with preparing and coordinating Chapter 28 of Agenda 21, working with the United Nations

Environment Programme (UNEP), the International Union of Local Authorities (IULA), and the EC up to ECO92, and following through by leading LA21 policy implementation, initiatives, and actions, including the EC's European Sustainable Cities and Towns Campaign and in creating a policy network for LA21 (Lafferty, 2001, pp. 2-4). With LA2030 ICLEI reinforced its role as a policy transfer network operating among member cities and as a source for learning involving local officials, policy brokers and other policy actors, also engaging with 'lagging' cities. These initiatives link municipal officials from different localities, but also require decisions and commitment from high-level officials and policy brokers. The introduction of sustainable policies within the ICLEI network can be a trigger binding local governments to programmatic goals—at least at an initial level—despite the general flaw that these networks are voluntary, thus real change among member entities is only achieved when sustained political commitment exists and there's will to implement.

Regarding aligned values between sustainability governance and cycling, twenty-three Portuguese municipalities signed the Aalborg Charter in 1994, yet implementation of local sustainability measures lagged in Portugal during the first decade, with a low-profile national sustainable development strategy only appearing in 2002. This lag was followed by an apparent impulse at implementing LA21, participatory actions—e.g. PPBs—and subsequent LA2030 initiatives, with 40% of Portuguese Municipalities—covering 60% of the country's population—signing the Covenant of Mayors (CoM) by 2017 (Guerra et al., 2019, p. 357). Similarly, while only four municipalities had joined the more binding ICLEI network in 2005 (Schmidt et al., 2006, pp. 20, 23), this membership increased to eleven municipalities by the end of 2022—covering 18% of Portugal's population: Águeda, Almada, Braga, Cascais, Guimarães, Lisbon, Matosinhos, Oeiras, Seixal, Torres Vedras, and Valongo (ICLEI, 2021b). Significantly, over half of Portugal's ICLEI municipalities are in its two large metropolitan areas: five in the AML—covering 44% of the metropolitan area's population—and two in the AMP. Most of the eleven ICLEI municipalities have addressed cycling with minimal measures—albeit with contrasting levels of commitment—especially with Lisbon producing more outputs and significant outcomes (see sections 4.8 Outputs and 4.9 Outcomes).

Some Portuguese municipalities joined very recently and it is therefore too early to analyse results, namely Braga—a district capital—which only joined the ICLEI network in June 2020, and to date hasn't committed to any significant pro-cycling policy measures (Picas, 2020), and three metropolitan area municipalities: Valongo (AMP) joined the ICLEI network in April 2021, Oeiras (AML) in May 2021, and Matosinhos (AMP) in March 2022. These four Portuguese municipalities have all started from a poor cycling conditions baseline—lacking comprehensive cycling infrastructure—(Ciclovias.pt, 2022a), but follow-up over the following years can provide significant insights for future research the efficacy and influence of ICLEI on policy commitment and the possibility of change for increased cycling in Portuguese municipalities.

Notwithstanding the lag, significant transformations aiming at greater sustainability have occurred in some of Portuguese ICLEI cities—and in two cases including cycling as a key measure—namely Lisbon, Torres Vedras, and in comparison, with other AML municipalities, Cascais. Notably, Lisbon was the first large southern European city to be granted the EGCA, in 2020, previously mid-sized Vitoria-Gasteiz—in the Basque Country—had been awarded in 2012, being one of Spain's cities with the highest cycling rates and best cycleway networks. Similarly, Lisbon stands out as the best performer within the Portuguese context of ICLEI cities, with significant progress identified between 2008 and 2021. Nonetheless other Portuguese ICLEI cities have also advanced in cycling policy—despite different levels of commitment and intensity, generally low when compared to Western European 'climber' and 'champion' cities but normal within the current Portuguese scenario (see, for instance, section 4.9 Outcomes, Table 10 – Cycling policy outputs and outcomes in AML municipalities). ICLEI member city Torres Vedras, for instance, achieved significant cycling measures considering its scale. Some of this small city's most significant outputs include its 12 km urban cycleway network and bikeshare system with 260 bicycles and 20 stations (Câmara Municipal de Torres Vedras, 2020), a 21 km greenway connecting the municipality's core city to its largest coastal town—Santa Cruz—and 13km of coastal cycleways integrated as part of EuroVelo 1 –The Atlantic Coast cycling route (Ciclovias.pt, 2022a).

While it is difficult to establish a direct correlation between local sustainability agendas in general—and ICLEI member cities in particular—and a municipal push for an increasing levels of policy outputs favouring more cycling in Portuguese cities, it is relevant that one of the first municipalities to promote a relatively ambitious sustainability agenda in Portugal—with cycling as a key ingredient—was Almada, the country's first ICLEI member city in 1999. It is also pertinent that Almada—an AML municipality just across the Tagus River from Lisbon— shares close policy relations and key policy actor connections with the capital city. Highly qualified sustainability officials introduced and reinforced cycling in the policy agenda in both municipalities, involving policy brokerage and some level of entrepreneurship, initial epistemic actions and citizen involvement. Almada's quick start and implementation of a sustainability agenda from 1999 to 2017 is directly related with its ambitious local sustainability agenda at the time—as is its ICLEI membership— introducing a cycling strategy with several ground-breaking measures for Portugal, including one of the country's first municipal level cycling plans—developed since 2003 and approved in 2005— aiming at implementing a 223 km cycleway network (Visão Verde, 2012a). Almada's plan, for instance, introduced the first signed low speed and low traffic streets in the country—prior to national legislation on this typology—, good quality dedicated bicycle parking facilities at ferry terminals, one of the country's first contraflow cycle lanes, the start of what was to become an extensive cycling network, and allowing bicycles to be carried on its light urban rail without restrictions and free of charge. The plan was updated in 2016 with improvements, implementations approved and new typological approaches.

Almada's cycling strategy and the ambitious sustainability agenda were later thwarted under the socialist/social democrat governing coalition who gained office in 2017 with Inês Medeiros and later reinforced her political advantage for the 2021-2025 political mandate. Plans and funding for cycleway connections across Almada's municipal territory and linking the most important urban areas with the prominent urban beach localities were abandoned, despite previous approval for an AML Urban Mobility Action Plan (PAMUS-AML). In 2020 only 9% of the network had been implemented (20km), and some cycleways neglected, illegible, or occupied by parked automobiles (Morais, 2020). During the 2017-2021 mandate the cycling subsystem suffered a serious setbacks with road construction initiated on an ecologically sensitive coastal dune system (TVI24, 2020) and road widening in a central city avenue, with a cycleway which had been planned and eligible for PAMUS 2016 being shelved and sidewalks narrowed (Morais, 2021). Almada's developments from 2017 to 2021 exemplify how quickly cycling can be reverted even in an ICLEI member city. This reversion suggests that a robust local cyclists' coalition is missing in that municipality, lacking sufficient scale and intensity for more citizen involvement, activist coordination, and epistemic practices, hindered by the persistently low rates of cycling and need for more encompassing policy outputs to overcome issues with policy brokerage.

The effectiveness of the ICLEI network in cities is uncertain since on one hand it is a voluntary programme aiming at tangible commitments, and on the other it can be easily stalled by political inertia or lack of political will from local policy brokers. In worst-case scenarios apparent advancements achieved within the sustainability agenda may still be fragile, facing the risk of replicating what happened in Almada during the 2017-2021 mandate, where cycling was excluded from the municipal agenda and existing plans dropped. On the other hand, the change in Lisbon's government on September 26, 2021, with the new Mayor associated to '*bikelash*' electoral campaign promises also provides for further analysis, not only regarding the effectiveness of the local cyclists' coalition, and its capacity for adaptation and coordination with different the new policy brokers, the introduction of new policy actors and realising an effective response in the redefined social and political agenda of the city, but also the impact from international commitments assumed previously by the city.

Covenant of Mayors for climate, energy, and cycling

Parallel to the ICLEI city network, in 2008 the EC launched the Covenant of Mayors (CoM) as a voluntary initiative for local governments gaining widespread influence—first in Europe—and since 2016 tying it to the EU Agenda 2030 commitments and expanding the programme globally with the Global Covenant of Mayors for Climate and Energy

(GCoM-C&E). According to Gesing (2017) CoM is an instrument of ‘*mainstream European policy*’ working through subsidiarity and multi-level governance with municipal governments that are tackling climate issues, and can be understood as an example for the production of multi-level governance outputs put into practice (pp. 10, 16). Likewise, Welz & Lotterman (2009) conceptualise the CoM initiative as a ‘*Europeanisation*’ project advancing European policy and functioning as part of a broader cultural European integration process. In fact —symptomatically— in the AML, Sintra Municipality coordinates these policy actions and outputs under its municipal Coordinating Office for European Affairs; one of the two in the AML’s 18 municipalities, with a local climate policy action plan and monitoring report submitted to the CoM Office, (Covenant of Mayors Office, 2022).



Figure 39

Barbed wire EU flag installation art-piece at Praça Europa, Lisbon (March 2020)

Located in front of the European Maritime Safety Agency’s (EMSA) headquarters near Cais do Sodré train station.

Lombardi, Paziienza, & Rana (2016) underpin that climate change has become an issue of concern for citizens worldwide, with urban areas generating between 31% and 80% of GHG emissions globally, despite only covering 2% of the Earth’s surface area, suggesting that mobility systems play a central role as CoM implementation measures (pp. 33, 37), while Abarca-Alvarez, Navarro-Ligero, Valenzuela-Montes, & Campos-Sánchez (2019) indicate that Europe has taken a leading role in dealing with the climate meta issue, while simultaneously steering towards major transformations in

political agendas at all levels (pp. 1-2). In this respect, the relation between the Europeanisation of municipal governance and the (re)introduction of cycling in cities is an issue of analysis, in this case applicable to latecomer cities in the periphery of Europe's ideological and power centres.

Regarding cycling, the ECF's relation with EU governance structures, for instance, has played a significant part in matching different cyclists' coalition members—including likeminded activists, epistemic actors, policy entrepreneurs and policy brokers—striving to increase interaction intensity and working with various levels of governance. Kern (2019) characterises the CoM's multilevel governance mechanisms as being different from other city networks due to the specific institutional arrangement they're founded upon: specifically, the close cooperation established with the EC, monitoring from the EC's Joint Research Centre (EC JCR) and existing major European city networks. CoM is a product of the EC's Directorate-General for Energy (DG ENER), supported by the Committee of the Regions (CoR) and the European Parliament, with an initial aim for implementing the EU Climate and Energy Package of 2008, with signatories committing to reducing CO₂ emissions in their local jurisdictions by at least 20% by 2020. In 2014 the EC complemented the CoM with the Mayors Adapt, launched by the EC's DG for Climate Action in cooperation with the European Environment Agency (EEA).

Coinciding with the final preparatory developments for COP21, in 2015, CoM and Mayors Adapt were merged and transformed into the Covenant of Mayors for Climate & Energy (CoM-C&E). CoM signatories must develop integrated strategies tackling climate mitigation and adaptation, and reduce their CO₂ emissions at least by 40%, the EU's target by 2030. Funding is provided by the Intelligent Energy Europe programme (IEE), with the EC JCR assessing action plans and monitoring reports—with the CoM office being run by a network of associations, local and regional governments (Kern, 2019, p. 137). The EC's recent EU Mission for Climate-Neutral and Smart Cities—launched in November 2021—further reinforces the aims of these programmes aiming at achieving 100 climate-neutral cities by 2030, working as innovation hubs and pilots for all other EU cities which are to follow suit by 2050 (European Commission, 2021); 112 cities where chosen as pilots.

CoM supporters generally consist of local and regional agencies, national networks of cities, associations, and NGO's, while CoM coordinators are made-up of national ministries, regional governments and governmental associations, and metropolitan areas. CoM as an EU policy instrument has in fact gone global; in December, 2021, CoM had 10,777 signatories, 233 supporters, 230 coordinators, from 53 countries, covering 335,156,316 inhabitants (Covenant of Mayors Office, 2022). CoM is firmly rooted in the EU, representing 93% of signatories, 86% of supporters, 88% of coordinators, 51% of countries, and 68% of inhabitants, and mostly present in Europe as a continent (EU and non-EU), representing 99.8% of signatories, 99% of supporters, 99% of coordinators, 98% of inhabitants and 83% of countries. In Portugal, 170 of 308 municipalities (55%) are CoM signatories, covering 82% of the national population, with 10 supporting entities: two cities and/or regional networks: the national municipalities' association (ANMP) and the historical villages of Portugal (AHP), plus seven local thematic energy and environmental agencies, and one NGO) and 7 coordinating entities: 6 regional communities of municipal governments—intermunicipal communities—and one regional agency (Covenant of Mayors Office, 2022).

Only 6 of the AML's 18 municipalities (33%) were CoM signatories in 2021, covering 39% of the metropolitan area's population. Of the six AML CoM signatories five action plans were submitted to the organism at the time (Almada, Loures, Oeiras, and Sintra municipalities), three of which were accepted, only two municipalities submitted monitoring reports (Almada and Sintra)⁸. In 2022 there was still no CoM coordinating entity for the AML, suggesting the inexistence of effective overall implementation structures for the metropolitan area, with no coordinator positioned to provide strategic guidance or technical and financial support for implementing measures aiming at achieving the initiative's goals, and no regional strategy working within the CoM framework. Likewise, according to the Covenant of Mayors Office (2021), no supporting entity exists in the AML.

⁸ Lisbon produced a climate action plan—PAC Lisboa 2030—launched publicly in July 2022, but Lisbon isn't a CoM signatory.

Furthermore—if criticism of the CoM initiative has been that of not having a harmonised monitoring system, as mentioned by officials from the cities of Freiburg, Hannover, and Potsdam (Donnerer, 2016)— in the AML, since no support and coordinating structures exist, greater lags and drawbacks in effectively introducing metropolitan area-wide policy measures and actions for transition are expected. The lack of such overarching policy structures is expected to affect coordination of different subsystems—including cycling—for actions requiring integration beyond municipal government. For signatory municipalities, the drawback from the AML's lack of an overall structured and systematised regional sustainability agenda implies that municipal governments with little experience in these policy areas—and where sustainability issues haven't been addressed as local priorities— work in an isolated way and have no encompassing neighbouring peer-to-peer strategical framework to enhance policy change on related issues, including those addressed by CoM.

Cycling infrastructural arrangements advance at the municipal level but intermunicipal links and strategies only advance in an ad-hoc manner, with significant variations observed between municipalities and a general lack of intermunicipal connections—as can be observed in the PAMUS — AML (2016) cycleway network plans—and the lack of metropolitan area-wide guidelines. Considering the overall metropolitan level impact, not having a broad coordinated commitment brings strategic drawbacks and difficulties in advancing institutionally with the cycling subsystem, where traditionally it has been viewed as an 'outside issue'. A regional CoM supporting and coordinating structure could provide an opportunity to include numerous climate adaptation and mitigation guidance interactions, from and to, municipal organisms in the area, including for cycling.

Thus, CoM knowledge transfer and learning from best practices implemented by European municipal and regional governments is not necessarily filtering into the local actions, since at the regional level (AML) there is no CoM mechanism to aid in the implementation of policy outputs and no mechanism to monitor effective policy outcomes at the metropolitan scale. Therefore, despite the CoM being the most acknowledged initiative for providing local governments with the opportunity to enhance climate policy—a EU policy mechanism for mobilising a great number of local and regional governments—with significant involvement from Portuguese municipalities, and significant actions related to a modal shift to the walking and cycling areas at a European level (Pablo-Romero et al., 2018, p. 172), government structures and outputs in the AML haven't been sufficiently consistent to significantly influence a convergence with European metropolitan area averages. Portugal's national cycling modal share is 0.6%, the AML's is 0.5% and Lisbon municipality's is 1.3% in comparison to European averages of 8% cycling modal share in rural areas, 5.6% in metropolitan areas, and 7.8% in urban areas (INE, 2022; The Gallup Organization, 2010, p. 31).

Covenant of Mayors process: best practices and cycling

Pablo-Romero et al. (2018) identify the greatest energy savings in the mobility system being those related to a modal shift to public transport, while modal shift to walking and cycling present the lowest CO₂ emissions reductions unit cost per action (pp. 163-165). Contrasting with these cost-effective investments, many municipalities have directed large sums of public investment at promoting electric cars with the backing of national government programmes and incentives (Cansino, Sánchez-Braza, & Sanz-Díaz, 2018), and national support structures implemented. Portugal's electric mobility network managing entity—MOBI.E—is such an example, a government-owned company working with a €7.55 million annual operational budget in 2021 (MOBI.E, 2020, p. 37). Equivalent dedicated structures for coordinating national cycling infrastructural networks and policy are non-existent, and despite the existence of a national cycling strategy (ENMAC) with €300 million earmarked for building 960 km of cycleways until 2030 (Presidência do Conselho de Ministros, 2019b, p. 79) only 13.35% of the budget allocated for the implementation of diverse cycling policies had been programmed as of May, 2021, two years after the strategy was published. In fact the Portuguese National Association of Municipalities (ANMP) warned that—due to the lack of skills and means—it cannot be responsible for the

implementation of any measures presented in Portugal's national cycling strategy, despite being responsible for disseminating 22% of the measures (IMT, 2021, pp. 3-4).

In effect, programming for funding and use of the technical and epistemic skills necessary for coordinating and knowledge transfer to municipalities is not included in the policy process in Portuguese municipalities —representing a major drawback as many knowledge resources aren't employed— with transversal impacts upon municipalities' capabilities for accessing adequate funding, formulation and implementation of high impact carbon-reducing and energy saving cycling policy outputs. Contrastingly, the implementation of best CoM practices has been identified in several southern European large and medium-sized cities in other countries. Pasimeni et al. (2019), for instance, find integration between green infrastructure, cycling and pedestrian mobility in Italian cities, and the creation of cycling and walking infrastructure in Spanish cities as successful measures implemented (p. 22). Comparatively, Portuguese municipalities are falling behind.

Abarca-Alvarez et al. (2019) note that local actions conducted within the CoM framework can also be profoundly influenced by geographical, political and cultural contexts, disregarding climate goals and strategies (p. 2). Settings where cycling has a low cultural status can exclude its presence in the policy agenda. Kona et al.'s (2016) EC JRC, for instance, assesses action plans and monitoring report on the CoM's GHG achievements and projections without mentioning any of the following words associated with the most energy efficient, sustainable and universal forms of mobility and transport: '*cycling*', '*bicycle*', '*pedestrian*', '*walking*', '*active mobility*', '*active transport*', or '*soft mobility*'. Cycling and walking as climate policy priorities are ignored in the report, excluded as a legitimate solution for GHG emission reduction. Contrastingly, the report makes several mentions of '*public transport*' and concepts associated with automobility, namely '*more efficient vehicles*', '*low-emissions vehicles*', '*cleaner efficient vehicles*', and the following observations regarding CoM commitments and achieved GHG emission reduction: "*GHG emissions in the transport sector fell by 7 % from the baseline to monitoring years driven by more efficient vehicles, an increase in the share of biofuels, and the shift towards public transportation and electric mobility.*" (Kona et al., 2016, p. 35)

Contrarily, research focusing on city-driven policies reveals a completely different perspective of how cycling and walking have worked as one of the most applied measures by municipal governments. Pablo-Romero et al. (2018) point to the high number of benchmark actions realised by CoM signatory municipalities, associated with modal shift to walking and cycling (p. 164). Many cities developing low-emissions policies have introduced cycling as an important travel mode, in a diversity of contexts globally, while encouraging its public health benefits, congestion reductions and air quality improvement, with cycleway networks, complemented by cycling policies and programmes in various areas of infrastructure, urban and land-use policies, and public transport integration being the most effective toolbox starter solutions for promoting cycling (Buehler & Pucher, 2021c, pp. 426-431), enhancing this equitable, off-the-shelf, low-cost and an immediately available zero-emissions transport mode (Garrard et al., 2021, p. 48).

The EC's Clean Air Directive enacted in 2005 establishes that municipalities have to develop clean air action plans when exceeding the maximum allowable limits for specific air pollutants, implementing several possible actions, including the implementation of LEZ (previously discussed in section 3.1.2 - Cycling and policy outputs), providing numerous opportunities for prioritising walking and cycling since restrictions are implemented upon higher-polluting vehicles (Wolff & Perry, 2010, pp. 293-294, 305). As discussed previously, LEZ policy formulation will designate different implementation measures —outputs— which may have very different consequences —outcomes. Local policymakers may want to reduce polluting vehicles and provide electric cars and public transport as alternatives by boosting investment measures in electric car recharging stations and public transport only, and focusing the debate within the limits of the '*system of automobility*' (Wolff, 2014, pp. 481-484, 509-510), or, alternatively, local governments may integrate systemic modifications in their urban and mobility policy interface, where LEZ can be integrated as part of a broader solution, and where walking and cycling become crucial modes, using public transport as a complementary solution for longer distances (Harms et al., 2014; Kager & Harms, 2017; Martens, 2004).

Covenant of Mayors: experimentation and cycling as game changer

CoM can be employed to spark experimentation where urban mobility had been centred on automobility's prevalence. In municipalities where policy change was unthinkable or very difficult to realise, the CoM introduced an opportunity for raising awareness, and the possibility for working with best practices, pilot projects and experimentation in new contexts. Pasimeni et al., (2019) discuss the difficulty of translating sustainability-oriented policy into concrete actions, and how city governments experiment with best practices to introduce new ideas and methods, learning through testing and innovating by transferring —replicating and adapting— from different contexts to their own. Experimental actions advance knowledge of local, national, and international climate and sustainability governance, with *“The adaptive approach based on “learning by doing” [which] has enabled cities to take advantage of the practical experience... the new “Covenant of Mayors for Climate and Energy” can be considered a collection of “climate change experiments” (Bulkeley & Castán Broto, 2013) performed by a large group of local governments to better plan decisions in terms of energy savings, renewable energy production, GHGs emissions reduction, and efforts to improve resilience of urban cities to climate change.”* (Pasimeni et al., 2019, p. 21)

For cities with low cycling rates and an incipient cycling culture the CoM platform for experimentation provides local cyclists' coalitions with the possibility of placing the *‘foot in the door’* and testing new pro-cycling measures. While there are other international initiatives also focusing on climate mitigation, providing excellent opportunities for networking, interacting, and transferring new policies aiming at enhancing walking and cycling in the institutional agenda —such as the C40 cities network, ICLEI, EGCA and EGLA— at a global scale CoM applies equal accessibility to all municipalities, including small ones (Abarca-Alvarez et al., 2019, p. 5). Municipal policy brokers and officials from any interested municipality, anywhere, can learn and exchange best practices and the experimentation they consider applicable to their own setting. Furthermore, the international experience, transnational policy learning and strong European presence can operate as an effective instrument for any European municipality committed to leveraging local benchmarks with the possibility of national and international impacts and dissemination.

Covenant of Mayors: Policymaker operationalising cycling policy

Despite the CoM's voluntary basis and the need for local policy broker's commitment to change, municipal subscription as a signatory, or, complementarily, regional and government entity subscription as a coordinator may on one hand imply the possibility of *‘lighter’* commitment than awards such as EGCA and EGLA —or major events such as VCC— but it also provides vaster opportunities for introducing and promoting policy learning and transfer between municipalities at the immediate level. At least if there's commitment from local policy brokers and technical will from local officials. Furthermore, municipal CoM subscription, and measures taken to increase local and regional stakeholder and institutional involvement as supporters or coordinators can be viewed as a practical first step in a long-term policy change process. Such measures are also an opportunity for advancement to other concomitant programs —ICLEI and EGCA or EGLA submissions— and for other networks such as Energy Cities, POLIS, or large cities networks such as C 40.

As previously observed, in practical terms in the AML, the intensity of CoM policy development and interaction between municipalities is still limited, with no metropolitan area CoM coordinator for the AML (as mentioned previously) or the Lisbon and Tagus Valley Region (LVT), and currently no support units either regionally or locally (Covenant of Mayors Office, 2022). Setting up coordinator and supporter entities implies policy entrepreneurship and policy brokerage awareness and willingness to proceed in the sustainability agenda. Policymaker motivation may be associated to institutional and financial issues —e.g., how to fund projects— and in this respect, multi-level interaction between CoM supporters, signatory communities and overall coordinating entities may provide the boost required to accelerate cycling's role in a large city's or a region's policy agenda, or even impact national cycling policy.

Pablo-Romero et al.'s (2018) research on a wide array of climate and energy benchmark initiatives from almost 1,300 towns and cities, mostly conducted by Italian, Spanish, Portuguese, and Belgian municipalities, observes that most actions implemented employ other instruments than those exclusively associated with the CoM for support. Awareness raising, technical training, and public procurement are procedures playing a relevant role, and the most common methods for financing benchmark actions observed. EU funds and programs, municipalities or other local authorities' own resources, national funds, and programs, and —usually more expensive and less cost-effective— public-private partnerships are also mentioned. Furthermore, when two or more sustainability mechanisms are concomitantly used to finance one benchmark action —despite local authorities financing most CO₂ reductions, which according to Pablo-Romero et al. (2018) represent 89.5% of total CO₂ reductions— interaction between different entities is also fundamental (p. 172). CoM is a voluntary programme which can develop from individual municipal involvement and its interactions within the network, but policy goals to increase cycling can be significantly boosted by articulating municipalities with local supporters on one level, and in network involvement with metropolitan area or regional coordinating entities, which they can create for the purpose, on the intermunicipal, regional, national and EU level.

ECOXXI Green Flag municipal benchmark award and cycling

A sustainability audit initiative that has gained significant ground with municipal governments in Portugal has been the ECOXXI Green Flag award programme. ECOXXI is a sustainable development (SD) benchmarking audit tool with specific indicators (Anthopoulos, Janssen, & Weerakkody, 2015, p. 527), launched in 2005 by the Portuguese environmental NGO The Blue Flag Association of Europe (ABAE), affiliated with the Foundation for Environmental Education (FEE) as a voluntary participation programme for municipalities. As mentioned previously, ECOXXI aims at facilitating LA21 and LA2030 goals by working with local policy brokers and officials, engaging with the multiple dimensions of environmental and sustainable development learning and capacity-building for local public officials involved, attributing awards to those municipalities which have implemented best SD practices considering 21 indicators, including sustainable mobility. The programme is suited to Portugal's tradition of governing through '*municipalism*' (Silva & Mota, 2019), by refocusing the agenda on municipal governance measures aiming at achieving SDG, through analysis of a series of indicators with a balanced qualitative and quantitative framework, capacity building and policy learning mechanisms for each indicator, including a mobility indicator designed to assess the local structures that promote sustainable mobility (ABAE, 2021c, 2021a).

Within the mobility indicator, the sub-indicators of public transport, soft/active mobility —walking and cycling—, traffic management, mobility planning, and policy development are addressed. Policy outputs realised are described and justified by municipal officials in the appraisal submitted to the ECO XXI award and assessed by the expert jury, composed of epistemic actors: researchers and consultants with experience with the mobility system. A National Commission consisting of several public organisations including the Portuguese Environmental Agency (APA), Statistics Portugal (INE), universities, and indicator area expert groups compose the review panels for indicator analysis and evaluation, enhancing the multidisciplinary nature of the ECOXXI SD initiative, involving national, regional, and local organisms, but also academia, scholars, and experts. The ECOXXI evaluation team experts assess each criterion with marks on a numeric scale, an explanation for the marks, and recommendations for improvement where applicable. The initiative works as an effective link between municipal officials and a broader SDG policy process, delivering a top-down approach and the necessary expertise which establishes a consensus on indicator evaluation (Moreno Pires, Fidélis, & Ramos, 2014, pp. 4-5, 8).

As a networking instrument for policy learning and transfer ECOXXI has evolved with an increasing number of participating municipalities, from 39 in 2005 to 58 2021, covering 19% of Portuguese municipalities in 2021 (ABAE, 2021c). According to Moreno Pires, Fidélis, & Ramos (2014) ECOXXI is also an international pioneer programme, exported to other countries such as the Netherlands in 2012 (p. 4). The benchmark initiative promotes a policy network

between the environmental NGO organism, municipal technical staff, and policymakers, rewarding municipal governments for their achievements, motivating them as they seek recognition and prestige for their policy outputs, providing informative newsletters of actions and best-practices realised by member municipalities, regular workshops and training for local officials, and an annual celebration award day with a variety of topic-related presentations.

Commitment from participating municipalities starts by requiring a list of indicator-related responses from the local policy agenda for policymakers to decide upon, with networking emerging from local officials participating in training sessions and workshops, learning from other examples and expert presentations from the jury experts —with whom local politicians and officials can also contact with— and sharing experiences with peers to increase knowledge of best practices within their own national jurisdiction and international examples also. In fact, Moreno Pires et al. (2014) observe that the LA21 public officer responsible for coordinating ECOXXI in Cascais —a prominent AML municipality that has consistently participated in the SD initiative since its launch— indicates several advantages, namely that *“the assessment and comparison of the performance of different local programs and policies with sound methodologies and to be in contact with colleagues from different departments. Additionally, it provides an opportunity to present several studies, outputs and communication materials to different kinds of audiences; to net- work and exchange knowledge with other municipalities; and to benchmark local efforts towards SD.”* (p. 8)

Moreno Pires et al. (2014) confirm the evolutionary aspect of the ECOXXI programme as indicators adapt within a Pressure–State–Response (PSR) model of governance, observing a preference in ‘Response’ policies from municipalities, mostly covering sociocultural, economic-institutional and environmental areas with a clear emphasis on environmental and institutional issues, in detriment of social and economic matters, which tend to be ignored (p. 4). ECOXXI indicators are therefore assessed through analysis of quantitative data for the year preceding the appraisal admitting measures, actions, or projects —outputs— realised over the preceding three years, which allows for monitoring progress for each indicator for each participating municipality (Loureiro, Pereira, Costa, Ribeiro, & Arezes, 2018). All participating municipalities are compared and those achieving the best performance on all the indicators are awarded a prize. Of the 62 Portuguese municipalities participating in 2020, for instance, 90% of the municipalities were awarded with Green Flags —56 municipalities— and in 2021 of the 58 participants, 93% were awarded with Green Flags —54 municipalities. Green Flags are attributed to municipalities responding to at least 50% of the established goals and only 17% —8 participating municipalities— achieved over 80% of the established goals (ABAE, 2021c).

Regarding the ECOXXI indicators, cycling is assessed with walking as part of the active/soft mobility sub-indicator of the sustainable mobility indicator. The sustainable mobility indicator is composed of five sub-indicators (A - promotion of public transport, B - incentives for soft/active mobility, C- traffic management favouring sustainable mobility, D - mobility management plans and projects, and E- sustainable mobility policy) which together represent 7.8% of the total ECOXXI evaluation (ABAE, 2021b). By setting LA21 and LA2030 goal benchmarks in its sustainable mobility assessment, ECOXXI provides a framework for introducing cycling in local policy where it had previously been neglected —providing an incentive for presenting outputs developed locally and exchanging views of experiences presented among municipal officials from different municipalities in the country.

The mobility indicator has changed criteria since the launch of ECOXXI in 2005. Most of the evaluation was initially based upon quantitative numbers obtained from recommendations defined by Portugal’s Institute of Mobility and Transport (IMT, formerly IMTT), but more recently analysis by expert evaluators has adjusted, based on a qualitative and more detailed analysis of actions taken and measures implemented. Regarding cycling, this allowed for a wider variety of measures and implementation to be applied by participating municipalities. Cycling can also benefit from most other benchmark indicators which don’t address it directly —but which also provide opportunities for promoting active mobility as the preferable means of local travel— especially if increasing cycling is applied as a transversal policy issue, which is possible if further articulated by ABAE and/or any of the participating municipalities. Besides the indicator on sustainable mobility, most of the other indicators assessed may relate with cycling to different extents especially the following

- 1 – Promotion of Environmental Education/Sustainable Development Education in municipal initiatives,
- 2 - Environmental Education FEE Programs: Eco-Schools + Young Environmental Reporters,
- 3 – Sustainable Beaches (Blue Flag Campaign),
- 4- Citizenship, Governance and Participation,
- 5 - Information available to citizens,
- 6 - Green Employment,
- 7 – Cooperation with Civil Society

- 12 – Spatial Planning and Urban Environment,
- 13 – Air Quality and Public Information...

- 17 – Noise Pollution, and 21 – Sustainable Tourism.

Cycling as a specific policy issue requires a mandatory response representing 6.25% of the total sustainable mobility indicator evaluation, and 0.5% of the total ECOXXI evaluation. Therefore, cycling and walking as a mandatory policy issues for SD are included within the sustainable mobility goals of the benchmark appraisal, yet analysing evaluation schemes realised between 2017 and 2021 cycling represents a low percentage of the total points attributed considering mandatory actions, equal to walking (also 0.5%), and less than public transport (2%) or traffic management issues (1.5%). The programme provides some leeway for either the active mobility modes to increase their share in the sub-indicator to a percentage of 1%, and further points can be gained in planning and policy sub-indicators, but — contrastingly— these could also be achieved by other modes also, thus cycling does not have to be addressed to achieve a relatively high rank in the sustainable mobility sub-indicator of the ECOXXI assessment. Therefore, despite ECOXXI's high potential as an instrument for policy transfer, learning and change at the local level, limitations persist regarding cycling and walking as pivotal urban transport modes in the local agenda, in part due to the assessment's very low weighting of this mobility mode within the sustainable mobility indicator.

Mobility subsystem or are	A Public transport promotion	B - Soft/active mobility incentives			C - Traffic management favouring sustainable mobility	D - Mobility management plans and projects, and	E - sustainable mobility policy
Action and/or measure	Four-action promoting public transport	One action-promoting walking	One action-promoting cycling	One action-promoting walking and/or cycling	Three traffic management measures promoting sustainable mobility		
Points (Total 7.0)	2.0	0.5	0.5	0.5	1.5	1.0	1.0

Numerous constraints are also associated with the generally low rate of cycling in Portugal and most of its municipalities, with the same difficulty applying to ECOXXI participants. Even consistently best performing municipalities in the ECO XXI Green Flag award, scoring 80% or higher, are all '*starter cycling cities*', presenting relatively low cycling rates in comparison to the European average. Furthermore, since cycling holds a generally low cultural status in Portugal, the fact that it's not treated as a legitimate mobility mode in a municipality does not have a significant impact on the final weighting of the award. In fact, one of the limitations of the ECOXXI programme is that networking is limited to Portugal's

municipalities and there are no ‘*champion cycling cities*’ and only one ‘*climber city*’ with cycling rates greater than 10% modal share in the country —the rural municipality of Murtosa, with 16.9% mode-share (IMT, 2014, pp. 50-59)—, and this municipality does not participate in the programme. As regards the AML, some municipalities have in fact participated with leading ECO XXI results, but not consistently since 2005, and all present very low rates of cycling.

The ECO XXI benchmark appraisal tool in Portugal is composed entirely of municipalities with low rates of cycling. Some of the leading Portuguese ICLEI municipalities also participate in ECO XXI —ICLEI-member Cascais, for instance, being one of the few municipalities in Portugal to participate every year in ECO XXI since its inception in 2006— but all are municipalities with very low rates of cycling also, well under 10%. Considering this setting, Kern (2019) suggests that ‘*vertical upscaling*’ provides incentives for cities and towns that are not —yet— at the forefront of local climate action but want to start such initiatives and catch up with the leaders, but within the ECO XXI these leaders don’t exist, and, according to Kern (2019), the absence of hard regulations implies that a considerable number of municipalities will not advance upon harder actions on a voluntary basis (p. 134). Regarding cycling these harder policy outputs may be the implementation of important cycleways on important urban traffic arteries, requiring unpopular decisions such as redistributing road space or removing car-parking space, which is prone to raise protests by certain segments of the local population, interests associated to powerful automobility-based interest groups such as ACP, and have impacts on the mayor’s electoral support.

ECO XXI also presents constraints associated with the scenario of local politics in Portugal. While the initiative builds an easily transmittable message for local policy brokers, municipal officials, and citizens to understand, Moreno Pires et al., (2014) suggest from their case study of two prominent AML municipalities —Oeiras and Cascais— that neither mayors, the municipal executive or citizens are aware of the programme indicators, underpinning “*the lack of political interest and support (which) undermined the use of the indicators and limited their potential for medium and long-term policy changes towards SD*”. Since the initiative is aimed at local officials, especially the coordinating public officer in participating municipalities, the indicators end up producing limited influence in the local policy process, with little impact on comprehensive policy evaluation, and lacking extensive communication to general citizens (p. 8).

BYPAD programme

The BYPAD bicycle policy audit is a seminal city assessment audit and tool designed with a specific focus on the cycling subsystem, providing the first categorisation for implementing cycling policy applied at a European-wide level for any interested subnational government, as mentioned previously regarding city indicators (see 3.1 Comparable cities and regions, above). The BYPAD categorisation of policy outputs was established from empirical evidence, founded upon the most adequate measures implemented and analysed by the BYPAD epistemic group’s interactions with participating municipalities. Comparison is conducted between localities within the same country due to the different levels of policy development observed between different countries (Asperges, 2008, pp. 38-41).

As previously discussed, Dufour (2010) finds that the different levels of cycling development of each locality require different measures for effective change, with infrastructural conditions and modal share being the decisive starting indicators for any local-level analysis (pp. 8-15). The aim of the BYPAD subnational government-based approach —of achieving change from within the institutional framework— with municipal government officials initiating the audit and implementing measures implies a certain level of importance attributed to the cycling subsystem, and openness to the policy issue. Asperges (2008) clarifies how the programme has been initiated in municipal structures and which policy actors carry out its formulation: “*In BYPAD it is not the user groups who are the initiators of the audit. It is really the city/region who decides: “I want to improve my bicycle policy, and I am going to use BYPAD to make an advice on the actual quality level and the improvement steps”. The external pressure to become the best cycling city is less strong, but with BYPAD you can be sure that the city really has ambitions to improve cycling policy.*” (p. 31)

Operationally, the BYPAD project was developed as an Intelligent Energy Europe co-funded EU programme — coordinated by the Leuven-based *Langzaam Verkeer* research group, with Austrian FGM-AMOR consultants and ECF— as an audit tool initially implemented between 1999 and 2001 in seven European cities: Gent, Birmingham, Zwolle, Grenoble, Ferrara, Troisdorf, and Graz (Asperges, Vanmaele, & Lehner-Lierz, 2000). From the knowledge advanced and successful achievements obtained with these seven test cities, BYPAD was conducted again, with a second goal of expanding throughout Europe to exchange cycling expertise among different subnational governments by means of national/regional workshops, international seminars and excursions, access to shared information, and a database with best-practices (Asperges, 2008, p. 5). To a certain extent BYPAD replicated the Europeanisation process of other instruments such as CoM but with a specific focus on cycling policy being disseminated throughout the continent. By 2003 three Portuguese municipalities were already involved in the BYPAD programme: Beja, Cascais, and Seixal (Asperges, 2003), with audits realised in 2004, but no further participation from these or other municipalities in the country since (BYPAD, 2019a). EU funded the programme from 1999 to 2001 and extended the second version until the end of 2008. Afterwards BYPAD has been continued by an epistemic group of cycling experts under the Austrian Institute for Traffic Education (*Institut für Verkehrspädagogik*), with audits conducted on 250 localities throughout the EU, and three in Latin America since its inception (BYPAD, 2019b).

BYPAD produced comprehensive reports for each city —claiming to achieve a ‘*quality plan*’ capable of introducing cycling on the municipal government agenda with impact for change— by involving local officials, technical staff, and policy brokers addressing the subsystem. But drawbacks identified by the BYPAD organisation refer to the audit itself falling short of effective policy outputs (Asperges, 2008, pp. 33-34; Witzmann & Uranitsch, 2012). It is difficult to assess the impact of the BYPAD audits conducted upon the three participating Portuguese municipalities in 2004 since continuous follow-up seems non-existent and local policy outputs favouring cycling in the years immediately following 2004 aren’t significant either. Considering the 2009-2021 period, not enough outputs seem to clearly relate BYPAD directly to what has happened in these municipalities.

Nonetheless —and despite the generalised low-level of cycling policy outputs realised in these and most Portuguese municipalities— by 2021 all three municipalities which participated in the BYPAD bicycle policy audits in 2004 were presenting above average outputs for Portugal. All three presented some sort of cycleway network implemented, and other infrastructural measures such as significant bicycle parking in Seixal (Ciclovias.pt, 2022a), and a bikeshare system introduced in Cascais beyond the national average but discontinued five years after being launched. Furthermore, despite there being no clear correlation with BYPAD —or with other programmes— the three municipalities have participated in policy transfer networks: Cascais and Seixal are ICLEI member cities, and Beja and Cascais have participated in ECOXXI audits, Beja is also participated in the BooST programme described in the following section, revealing a possible propensity among local officials for joining policy audits and knowledge transfer and learning programmes somehow associated with cycling.

BooST: ‘*starter*’ cycling cities programme

The relationship between policy actors and the factors influencing cycling in cities blurs between many of the complex spheres of policy process. Policymakers’ relation with cycling and citizens, associations, advocacy coalition-building and social movements, overlap with the role of policy entrepreneurs and cyclists’ epistemic communities, which can be involved in the different spheres of policy influence. Epistemic actions emerge in research and its interactions with policymakers on a diversified range of topics, such as the meta-issues discussed above or other specific problems, such as transport poverty, urban policy, and local social struggles around issues such as housing. Considering Portugal’s generally low level of cycling since the last quarter of the twentieth century, some recent research has evolved around this national phenomenon. In face of a general context of municipalities lagging in implementing cycling infrastructure

and with a mostly weak knowledge of cycling policy and planning, the BooST – Boosting Starter Cycling Cities research project was developed (Silva et al., 2019b, p. 146).

BooST was developed by University of Porto's (UP) Centre for Territory, Transports and Environment (CITTA) and University of Aveiro's (UA) Governance, Competitiveness and Public Policies (GOVCOOP) research units, partnered with the ECF, with EU and Portuguese government funding between 2018 and 2021, in an attempt to bridge the policy and planning gap by advancing research for implementing effective cycling policy and planning measures in territories with very low rates of cycling. BooST provides a comprehensive toolkit to assess the indicators it establishes as structural for defining policy outputs for cycling: The Gross Potential for Cycling (GPC) for each municipality, an assessment framework for the Economic Value for Cycling (EVC), and a framework of the Cycling Measures Selector (CMS) best suited for starter cities. These indicators function as part of a programme response made available to local governments wishing to participate, so they can address cycling's (re)emergence as a local policy and planning issue.

Twenty one Portuguese municipalities participated in the BooST programme, namely Amadora (AML), Beja, Chamusca, Condeixa-a-Nova, Fundão, Gondomar (AMP), Lisbon (AML), Loures (AML), Machico, Maia (AMP), Marco de Canaveses, Matosinhos (AMP), Odivelas (AML), Oeiras (AML), Portimão, Porto (AMP), Santa Maria da Feira (AMP), Valongo (AMP), Vila Nova de Gaia (AMP), Tavira, and Trofa (AMP) (BooST, 2021a). Despite only 6.8% of Portugal's municipalities participating in the BooST programme, the two most prominent municipalities in the country participated (Lisbon and Porto), and over half of the municipalities involved were in the large metropolitan areas: AML (5) and AMP (8). BooST also presents a relatively homogeneous territorial coverage—with participants throughout continental Portugal and the Madeira archipelago—despite significant regions of the country still not participating in the programme, namely the Azores archipelago and some coastal and hinterland areas in the mainland. Municipalities participating in the BooST programme cover 27% of Portugal's population.

By employing the concept of '*potential for cycling*' as a means for providing detailed knowledge of a city's structural conditions for integrating cycling as a legitimate mobility mode, BooST also presents a method of assessment for three crucial areas of intervention, according to the programme site:

Gross Potential for Cycling - The tool Gross Potential for Cycling (GPC) aims to identify the areas with the higher and lower potential for cycling in relation to the target-population, given their willingness to cycle, and the target-areas, due to their built environment, land use.

Economic Value of Cycling – The Economic Value of Cycling (EVC), under development, aims at revealing cycling's economic value at the local, regional, and national levels.

Furthermore, it will provide a set of indicators to self-assess cycling impacts at the local level, considering dimensions of environment, energy, health, and others.

Cycling Measures Selector - The Cycling Measures Selector (CMS) aims to support the identification of the most appropriate mobility management measures to encourage cycling in starter cities, depending on specific contexts and objectives. The CMS was developed considering different profiles of promoters:

On one hand, the municipalities and urban planners, which integrate a broader set of measures focused on the city's network and conditions for cycling; On the other, schools/universities and organisations/companies, which are necessarily more limited in terms of budget, target audience and scope. (BooST, 2021a)

BooST provides a spatial visualisation of the GPC of '*starter cycling cities*' considering three basic dimensions and categorising these spatially: 1. target-populations, 2. target-areas and 3. political commitment to cycling (Silva, Teixeira, Proença, et al., 2019, p. 139). To detail how these factors are applied, Silva, Teixeira, & Proença (2019) determine the assessment of cycling potential in localities with very low rates of cycling as a means for gathering knowledge on target populations and areas, employing empirical knowledge developed from the late 1990s to 2019 with research employing '*baseline information*', compiled as evidence to identify issues influencing choice towards cycling, and from there proceed to categorise their findings considering four dimensions: 1. Individual factors, including socioeconomics, attitude, and

social environment, 2. Physical environment —built and natural—, 3. The efficiency of local cycling-related policies, and, 4) Spatial characteristics which identify propensity for cycling in different parts of the locality being researched, regardless of the prevalent low rate of cycling. From this evaluation of the GPC, BooST provides a knowledge-based tool to support local policy development by focusing on:

1. Study of population segments with greater willingness to shift to cycling —target populations—, and
2. Study of areas with physical characteristics which may ease mode-shift to cycling —target areas. (Silva, Teixeira, & Proença, 2019, p. 638)

With regards to the cyclists' coalition, BooST can be an invaluable support tool to initiate a proficuous debate with local government structures and officials working with the cycling subsystem and its potential, value, and to choose the most effective measures each locality can work with. Nonetheless, the existence of a local cyclists' coalition working for policy change is crucial for change —e.g., informing on the tough political decisions involving redistributing finite public space in the city. Without the complex policy process dimension being addressed, local officials and policy brokers will fall short of learning and change for increasing cycling. In fact, Silva, Teixeira, Proença, et al., (2019) point to these shortcomings regarding policy goals when they quote a local official from Guimarães stating that “*we want more car parking, better streets and more bicycles*” (p. 144). It is noteworthy that Guimarães is a Portuguese ICLEI member city, CoM signatory since 2013, recent EGCA candidate, and a regular participant and generally well-placed ECOXXI municipality.

Clarifications on these incompatibilities are highlighted by local cyclists' coalitions influencing for policy change from ‘*outside*’ the established institutional framework, and when these are absent, measures tend to underperform as the policy process tends to produce suboptimal or incomplete outputs, with cycling being excluded or marginalised. As part of this thesis' research, in the closing BooST PhD students' workshop which I co-organised with Isabel Cunha (UP) and João Teixeira (UP) in 2021, under the coordination of José Carlos Mota (UA) and Cecília Silva (UP), I had suggested that the BooST programme could be further enhanced by employing a fifth dimension with a complete analysis of an existing cyclists' coalition in the participating cities(BooST, 2021b). This fifth missing dimension can gather insights by associating the social and historical scopes of the policy process —which led to previous outputs produced and currently underway— establishing links with target populations and areas which provide fertile ground for these movements to emerge, and policy conflict feedback from citizens, associations, and policy networks demanding street-level change.

The BooST PhD workshop was a well-participated programme which could contribute to an epistemic network on this perspective of the policy issue in settings with low cycling rates. Presentations from fellow-researchers from several different cities and countries from three different continents, with mentorship from scholars Rosa Félix —IST, UL—, Peter Cox —University of Chester— and Pedro Malpica —Seville— set an approach which could be further enhanced through a future —more permanent— research network delivering an enhanced version of BooST —or BooST-type project— for knowledge advancement and exchange acquired from different practices, network learning and transfer, and through epistemic action in localities with low cycling rates.

3.5.4 Integrating cycling in urban mobility policy

Local government involvement in policy transfer mechanisms such as LA21, LA 2030, city networks, benchmark appraisals and audits, and research programmes, provides a gauge for municipal governments to advance knowledge of their status among peer localities, introducing cycling as a legitimate integrated subsystem integrated in the urban mobility system (Beatley, 2000, pp. 11, 25; Pucher & LeFèvre, 1996, p. 28). Much of the scholarship centres upon cities with relatively high rates of cycling within their mobility system (Oldenziel et al., 2016; Pucher & Buehler, 2008, 2012a), but few research has been conducted on localities with very low rates of cycling which have managed to transition to higher rates. Cities which have led the transition to more sustainable mobility systems prioritising cycling have habitually

been associated as being '*progressive green cities*' (Beatley, 2000, pp. 5, 11), and mostly concentrated in northern and western central Europe (Bertolini & le Clercq, 2003; R. Buehler & Pucher, 2011; Furth, 2012; Koglin, te Brömmelstroet, & van Wee, 2021; Pucher & Buehler, 2008; Pucher & Dijkstra, 2003).

Advancing knowledge in cities with low rates of cycling —starting from a setting of meagre and difficult policy influence for increasing cycling— does not invalidate explorations upon policy learning from successful '*champion cycling cities*', but actually reinforces it where applicable. In fact, the overarching factors of mobility poverty, cycling maturity, and spatial and social variables discussed previously (3.2 – Overarching factors) point to several commonalities regarding cycling in localities with different cycling rates. Many of those cities with a strong history of cyclists' coalition action and the highest rates of cycling still face issues of mobility poverty which persist in different neighbourhoods and peripheral areas (Berkers et al., 2019, pp. 54-55, 58-59; Van der Bijl, 2020), and where the knowledge advanced in this thesis can also provide lessons from localities with low rates of cycling to '*climber*' and '*champion cycling cities*'.

Alternatively, '*champion*' cities have much more to share within their policy process than the cycling policy outputs they have produced from their own citizen's struggles and the permeability of their policy brokerage. Dutch '*champion*' cycling city governance structures integrated citizens' collective efforts using different means, integrating popular street level actions into more inclusive sustainable mobility policy within institutional structures addressing very diversified related issues: '*Stop der Kindermoord*' —stop child murder— protests against road danger caused by automobility in Dutch cities in the 1970s and 80's (Habraken et al., 2013, p. 753), integration within LA21 actions involving public participation initiatives using participatory planning processes to close roads to car-traffic —such as in Groningen (Coenen, 2009, pp. 94-97)— and citizens and associations working collectively for a sustainable transport visions all provide valuable lessons for replication —with the due limitations— elsewhere. The Hague's early cyclist coalition struggles from 1973 —producing a manifesto and placing it on the politicians' agenda— (Berkers et al., 2018, pp. 35-37) and their coordination with public transport operators and the overall community as an effort to advance a new perspective to discuss and solve the city's mobility problems are ground breaking examples for policy learning (Beatley, 2000, p. 348).

In '*champion cities*', effective mobility programmes have generally been characterised by numerous actions with different policy areas. Beatley (2000) suggests that there is no single silver bullet implemented in a relevant time frame. Mobility policy integration requires "*a series of many steps taken over a considerable period of time. Many improvements in the bike system have cumulatively added up*" making cities with high rates of cycling appealing locations to choose cycling instead of other urban travel modes (p. 172). These cumulative procedures require numerous measures as part of processes which develop over several years or decades, involving numerous policy actors and intense interactions, leading to impacting policy outputs which influence outcomes in a city's mobility and urban systems.

Policy brokerage and cycling

Integrating different mobility modes competing for public street space, budget allocations, and strategical prioritisations, unravels policy process episodes requiring policy brokerage. As discussed in section 2.3.2 Policy brokers, the use of '*institutionalised veto points*' —activation of events by competing subsystem coalitions— and '*the devil shift*' —exacerbation of how opposing coalitions view each other— addresses part of the problem of how cities' dominant automobility coalitions were able to keep cycling marginalised in the policy process, engaging in episodes of great volatility with contra-cycling '*bikelash*' reactions and political support for removing cycleways.

The possibility of no policy-brokerage exists in the mobility system when the dominant coalition avoids including cycling in the discussion, stalls its development by keeping discussions within the '*status quo*' scenario of low-conflict and employing an apparent '*please all/obstruct none*' political stance which still exercises some potential for side-lining cycling, employing apparent consensus-seeking city initiatives (de la Bruhèze & Oldenzel, 2018, pp. 49-50, 53). Within these scenarios the lack of cyclists' coalition pressure implies suboptimal or negative outcomes. Even with policymakers supporting effective outputs —infrastructure and programmes— aiming at cycling on equal terms with automobility and

public transport, results will still fall short, as has been the case with Stevenage, UK (Reid, 2017, pp. 164-178), discussed previously in section 2.5.10 Learning. Without effective policy brokerage, real redistributive policies —as conceptualised by Lowi (1972)— aren't applied upon the streetscape, and don't produce significant impact upon the overall mobility system. When policymakers work in absence of effective brokerage, in a context of centrally planned commissions or closed packages, the historical perspective has demonstrated that policy targets aspiring for significant increases in cycling tend to fail —as occurred with Stevenage (Lock, 1980; Philpott, Kraithman, Veltman, & Adams, 1986).

Veto points and 'devil shift' in low cycling rate cities

In extreme scenarios, where cycling rates are very low and effective policy change is extremely difficult, the dominant coalition may employ '*institutionalised veto points*' hindering the emerging coalition's chances for effective outputs (Ingold & Varone, 2012). This dominant coalition does not necessarily consist of automobility interest groups alone, but of the broad-based coalition of policy actors who have favoured automobility as the principal mobility mode. The automobility coalition therefore can include car-centric policy brokers, entrepreneurs, interest groups, citizens, and institutional arrangements working at the national, regional and local government structures promoting automobility centred policy outputs —*i.e.*, road infrastructure, provisions for cars, and policies which perpetuate and reinforce automobility's path dependency (Mahoney, 2000, pp. 504-508)— produced by means of infrastructural, regulatory and policy perspective inertias (Oldenziel & Albert de la Bruhèze, 2016b, pp. 8-9).

The veto points can be employed in various ways to keep cycling off the policy agenda, according to the different stages of the subsystem's potential for development within the policy process:

1. When cycling enters the policy process, one '*veto point*' is to stall policy determined outputs, for instance by refusing to implement cycling infrastructure —ignoring the policy issue—, delaying decisions —addressing the policy issue slowly – using technical excuses, needs for audits and choosing uninvolved actors for audits, etc.—, and implementing only sub-optimal pieces of the whole, thus addressing the policy issue so as to provide some level of satisfaction in the electorate, but not at a scale and in the locations where high-impact results could be achieved.
2. Once cycling gains momentum in the policy debate, other effective '*institutional veto points*' are employed, such as side-lining the most effective coalition actors —policy entrepreneurs, aligned mid-level policy brokers, pro-active public officials -also related to the choice of decision-making actors— to avoid change which disrupts preestablished government structures —for instance political party members who live well with the *status quo*— and eliminate influence from the coalition within their operative institutionalised governing structures. Chapter 4 reveals how some of these '*institutionalised veto points*' have been employed at different moments and in different AML municipalities, hindering cycling-related policy change in a variety of ways.
3. When cycling is perceived as a viable possibility by an ever-larger cyclists' coalition —or a threat to the dominant sociocultural-technical arrangement, and the automobility coalition in particular— the '*devil shift*' has been employed. The dominant automobility coalition increases involvement in political action directly aiming at cycling —transitioning from the initial and crescendo '*veto point*' stages to an all-out policy conflict polarising different political positionings on issues such as cycleway network expansions. In these '*devil shift*' episodes local politicians, public officials, opinion-makers in media, citizens and associations in social networks align, —with opposing coalition-building taking place. Different policy actors expose their views and arguments in varied facets of the policy discussion; the media, social networks, protests, etc. Ingold & Varone (2012) point to the use of counterfactual reasoning by advocacy coalition members when they value the mediating role of policy brokers, and the different outputs that would have been produced otherwise (p. 325).

Policy conflict exacerbation emerges when policy outputs threaten the established *status quo* —for instance, when cycleway implementation reallocates road space, or a bikeshare station removes car-parking, etc.— generating a ‘*devil shift*’ as the cyclists’ coalition increases its involvement in the policy process and ‘*bikelash*’ emerges as a reaction, openly contesting the cycling subsystem. ‘*Bikelash*’ events have been witnessed in the AML —with exacerbation of policy conflict being most visible in areas where the cyclists’ coalition was most effective at achieving outputs such as the Av. da República – Av. Fontes Pereira cycleway in the city’s central artery in 2016, or the Almirante Reis cycleway in 2020-2021.

The transition from an established veto point equilibrium to the more volatile episodes of the ‘*devil shift*’ are described in an analysis of historical developments in ‘*comparable cycling cities*’ when the cycling coalition contests established planning practices which favour automobility. Feedback —as conceptualised in the PCF (2.5.11 Policy conflict, Figure 17) is associated to output production —and reinforced criticism of automobility’s apparent hegemony of public space emerges from intensified cyclist coalition action— evolving into the ‘*tipping points*’ (see section 2.5.12) when car-centred policies, such as cycleway removal or road infrastructure building outputs are produced (Berkers, Botma & Oldenziel, 2018, pp. 32-36, 41; Berkers, Schipper, Bek & Oldenziel, 2019, pp. 38-44). ‘*Tipping points*’ manifest themselves initially as ‘*policy influence*’ from the outside, such as CM events and protest rides, but as the cyclists’ coalition organises and becomes more influential, with cyclists’ coalitions working within the institutional system, increasing their policy actions towards greater influence in the policy process, the positioning of key policy brokers becomes clearer, as their decisions reveal greater impact in favour or against cycling outputs.

Integrating cycling in (spatial) planning

The way in which policy makers relate to cycling is also observed in planning. Stewart (2009) underpins that public policy values are reflected in the built environment, and decisions are operationalised in function of the relations between individual, collective, and resource allocation (pp. 25-26). This operationalisation holds true for how the political debate deals with the territory, public space, and resources, prioritising by defining how these resources are allocated. Considering the pervasive role of automobility in shaping these relations since the 1920s (Norton, 2008), disputes within the policy agenda emerge when cyclists’ demand a more equitable distribution of finite resources: public space, environment, but also public budget allocation. Public policy decisions which rethink the role of automobility can be manifest by compact urban planning, sustainable land-use regulations, eliminating carparking minimums and disaggregating carparking from housing and building requirements, etc... Policy influence in comparable cities requires considering the structural differences between planning approaches regarding several social and cultural variations. Beatley (2000) ,for instance, pointed to greater swiftness at placing sustainability on the urban agendas of northern and central western European cities —especially in the Netherlands, Germany, Switzerland, and Scandinavian countries (pp. 11, 25). In fact, Pucher & LeFèvre (1996) point to significant differences between spatial and urban planning policy approaches in the regulated and restrictive land-use patterns of northern Europe when compared to the generally laxer approach observed in southern Europe (p. 28). Pucher & Buehler (2008) suggest that stricter land use policies are effective incentives for compact, mixed use urban development, which in turn generates supportive environments for cycling and more cyclable, shorter trips, as a by-product of their principal purpose aiming at rational urban planning and sustainable spatial policies which aren’t dependent on automobility (p. 524).

Policymakers’ relation with cycling is also determined by issues of spatial planning, considering equitable access to housing and central city locations, with implications on public street space and how it is used. Batterbury (2003) identifies the key role of policy brokers in spatial planning, distilling it down to an issue of social justice and sustainability, with aligned impacts upon walking and cycling being self-evident: “[W]here the local government is steering a course more accommodating to social justice and sustainability, and retains a modicum of honesty and efficiency in its actions despite

its bureaucratic procedures, a strategy of cooperation can open up significant and lasting political spaces as well as contribute something to friendlier urban streetscapes." (pp. 166-167)

Neighbourhood-scale

The Dutch 'woonerf' residential home zone living streets areas are paradigmatic of a neighbourhood-scale policy output aiming at solving a series of urban safety and liveability problems and where cycling and walking are boosted as a beneficial side-effect. 'Woonerven' are not a cycling network measure *per se*, but part of a greater initiative for safer, human-scaled cities, as discussed previously in sections 3.1.2 and 3.3.4 above. The 'woonerf' neighbourhood conversion concept evolved from policy process interaction in the late 1960s, incorporating citizens' aspirations for safer streets, propelled by a social movement valuing the human-scale and children's lives more than traffic fluidity and speed, and a vaster 'bottom-up' coalition consisting of citizens, activists, media, architects and public officials, and policymakers.

As a policy concept, the 'woonerf' entered traffic planning circles and disseminated internationally after public acceptance was recognised in the Netherlands (Karndacharuk & Wilson & Roger Dunn, 2014), with the 'bottom-up' approach of neighbourhood conversions requiring approval by residents (60 percent approval required) (Beatley, 2000, p. 142). Liebmann (1996) sums-up the basic mechanisms that are used to initiate a 'woonerf' in a Dutch neighbourhood: A 'woonerf' could be created through a petition, residential community associations, or street privatisation mechanisms, and goes on to remark that "*In the short run, the Dutch mechanism is simplest and results in "stronger social cohesiveness, much brought about by the involvement of the residents themselves in a sophisticated process of planning their own surroundings"*", but that in automobility centred settings —such as the American one— some "*bureaucrats and traffic engineers have resisted woonerven.*" (p. 72).

In effect, more than just converting the built landscape, the 'woonerf' concept provides mechanisms for activating urban street governance and enhancing citizen participation regarding their streetscape (Liebmann, 2004, pp. 2, 41). In a society with high rates of cycling, the broader preoccupation for safer, human-scaled streets came as a related issue with various coinciding struggles ensuing since the late 1960s forcing policymakers to respond with adequate outputs which originated from 'bottom-up' pressure (van der Zee, 2015). Despite these relevant insights, several hindrances apply when attempting to implement such measures in highly motorised and car-dependent settings. Social priorities suffer practical adaptations and a reset of priorities —when local policy does not take cycling, walking, and public transport seriously— and automobility holds its ground since citizens may not envision the possibility of cycling being an alternative or understand its potential as a complementary mode to walking, public transport, and automobility. The tough challenges for policy change are obviated by the observations provided by some of Lisbon's policy actors, exemplifying this problem:

At the neighbourhood and borough level, just have a look at the leaflets during the municipal election campaigns, all parties want more automobile parking. Lisbon could have 1/3 of the car park it has. The city has already surpassed its automobile capacity. Lisbon has capacity for much better public transport than it has, and to remove car parking. ... It should have already abandoned car parking requirements. It could give better functions to that space." (Interviewee #2 – Epistemic actor)

(Infra-local) borough governments are very averse to doing anything for cycling because it almost always involves doing something against the car. The car, however, has absorbed practically all of the public space. (Interviewee #6 – Activist)

In a setting where automobility enjoys a pervasively high cultural status and active mobility has relatively low rates it is difficult to challenge social discussions involving alternative views for neighbourhood public space design such as the 'woonerf' street redesign attempts to do. Policy attention focused on the system of automobility and the needs it generates, including public space and budget allocations for more road infrastructure and more parking in detriment of

other mobility modes, will only accept change as long as it doesn't question automobility's predominance. Redistributive policies aiming at achieving the full potential of public space and active mobility are easily vetoed from the policy agenda in such settings, and public participation evolving around street redesign can become rigged with the needs of an automobile dependent vociferous social group, appearing as the —electoral— majority. Likewise, when proposing these street space redistributive measures, walking and cycling can be dismissed as unviable for habitual mobility needs, and policy discussions attempting to prioritise active mobility —even at the neighbourhood level— are not taken seriously (e.g., van Oosteren, 2021, pp. 39-40), and substituted by discussions regarding the need for carparking or new roadways.

3.5.5 Public policy measures for cycling in adverse settings

Cycling's influence in the urban policy processes spread throughout Europe in closer policy learning circles following the transformations experienced throughout Dutch cities since the 1970s. de la Bruhèze & Veraart (1999) depict historically higher rates of cycling and faster subsystem increases starting as early as 1970 in Limburg, Netherlands and Copenhagen, Denmark, followed by the Dutch cities of Enschede and Amsterdam and the German city of Hannover in the mid- to late 1970s (p. 181). Pucher & Buehler (2008) conclude that many Dutch, Danish, and German cities implemented effective pro-cycling 'carrot' policies complemented by car-restricting 'stick' policies aiming at reducing automobility's presence in cities, and only by functioning together did they manage to boost cycling as a mode of urban travel in these north-western continental European localities (p. 524).

Infrastructure: 'hard measures'

By the 1990s, the start of a Europe-wide cycling revival had spread throughout several cities, with Pucher (1997) describing a 50% growth in cycling's modal share registered throughout German cities during the 1972-1995 time frame, with especially impacting results in Munich (+150% from 1976 to 1992), Nuremberg (+150% from 1976 to 1995), Cologne (+83% from 1976 to 1992), Essen (+67% from 1976 to 1990), and Freiburg (+58% from 1976 to 1992). This increase was mostly associated with effective public policies, namely integrated cycleway networks including many dedicated cycleways, separated from automobility, widespread bicycle parking facilities throughout the city and at train stations, cycleway wayfinding signage, cyclist priority over motor traffic, and numerous other incentives to promote cycling as an alternative to driving (pp. 35-43). In fact, for 'comparable cycling cities' in a context where automobility is pervasive and cycling rates haven't historically been as high as in the Netherlands, Pucher (1997) concludes that "*The German lesson is that bicycling can be increased even under quite unfavourable circumstances, provided the right public policies are implemented. By expanding bikeway networks, increasing bike parking and service facilities, and giving bicyclists right-of-way in mixed traffic, German cities have greatly enhanced the advantages of bicycling. Restricting auto use and increasing its cost have been the perfect complements to those policies.*" (p. 44).

For decades policy brokers from different levels of government have been faced with tough policymaking decisions, either favouring automobility or promoting efforts to discourage automobility and promote more sustainable means of urban travel. Automobility restraining measures have been prescribed for years —namely pervasive traffic calming measures in the streetscape, higher costs imposed on automobile use (higher parking costs at the local level, and higher fuel taxes or electricity recharging costs at the national level), and restrictions on new road building and parking provisions— as some of the most effective measures for dissuading automobility (Beatley, 2000, p. 176). Even in cities with pervasive automobility, effective car restraining 'stick' policies —making it more expensive to drive, more difficult, less convenient, and slower— can substantially increase the competitiveness of walking, cycling, and public transport (Pucher, 1997, pp. 43-44). In societies with low cycling rates and high automobile dependence policymakers' promises for modal shift and systemic change in mobility patterns don't always correspond with their actions, since commitment

to implement the necessarily disruptive outputs is commonly challenged by large segments of the electorate who may not accept the potential for change as viable, or may be indifferent or even hostile to cycling as a legitimate solution. Aldred (2013), for instance, mentions that cycling gained prominence since the mid-1990s in the UK—with both national and local level policymakers making several pro-cycling proclamations—but political promises haven't actually translated into modal shift from automobility to cycling, and negative stereotypes of cyclists were still common among the driving population according to her research (pp. 253-254, 269).

Programmes: 'soft measures'

While implementing '*hard*' measures—cycleways and complementary infrastructure—associated with the greatest gains in cycling, a combination of '*hard*' infrastructural implementation with '*soft*' measures—programmes—has proven to be most effective in reducing the pervasiveness of automobility-centred behaviour (Bamberg, Fujii, Friman, & Gärling, 2011). Citizen-oriented awareness and education programmes, introducing cycling as a specific policy issue, can effectively engage with the public—increasing involvement and awareness of the possibilities of cycling for mobility. Some of these programmes may be relatively simple measures such as issuing city maps with cycling infrastructure represented on them, publicizing data on cycling and making it easily available online—e.g., cycle traffic counters, displayed in strategically placed totems or panels, and also available on-line with a link from the official municipal website, and shared regularly on the municipal social media accounts and occasionally in the media—, other initiatives can involve community groups and activism such as running bike-to-school trains or bike-buddy cycle trip mentorship programmes.

For initiatives seeking encompassing social involvement, these may be aimed at specific policy communities or different levels of governance structures involved in local issues. National, regional, and local policymakers have implemented awareness/involvement campaigns—such as one-off bike to work, bike to school, bicycle loan or lending programme pilot projects, or longer-term government employee cycling strategies, cycle-to-work fiscal and income benefit programmes—among a series of other creatively designed soft-measures aiming at providing incentives to change mobility behaviours by encouraging cycling as a legitimate mobility mode. Nonetheless, the impact of these programmes can be ephemeral if they're not accompanied by permanent policy outputs in the built environment—'*hard measures*', infrastructure; cycleways and bikeshare systems in urban areas—to ease the public's transition to cycling in a safe, comfortable, and convenient way (Braun et al., 2016, pp. 178-181; Muñoz et al., 2015, pp. 14-15).

Beatley (2000) identified several European benchmark cities which had sustainable mobility policies implemented early on—since the mid- to late-1990s—including measures aiming at employee commute modal-shift. The Hague, for instance, was encouraging employees to cycle and use public transport while eliminating car-commute allowances since at least 1997, a head-start of at least 25 years when compared to Lisbon in 2022. These measures were complemented with employees being offered sustainable mobility modal transfer choices; either a bicycle—2,000 bicycles had been made available by the city by the year 2000—or a public transport season ticket.

Likewise, policy brokers have also set top-down mobility preference examples in various dimensions of '*champion cycling*' settings, aligning personally with the habits they're involved in promoting. A survey conducted at the Danish Ministry of the Environment, for example, revealed that 40% of its employees cycled to work, including the minister. Similarly, in Germany, Munster's mayor and chief of justice also cycled to work as early as the late 1990s (Beatley, pp. 337-338). More than twenty years later—in 2021—Lisbon's deputy mayor for mobility, Miguel Gaspar, was regularly cycling his children to school and continuing to his office using a cargo-bike. Under Gaspar's brokerage Lisbon Municipality promoted a cargo-bike programme aiming at providing modal-shift to cycling for a wide range of population segments, including for families with small children (Gaspar, 2021; Graver, 2021).

An early precedent to long-term bike-lending programmes was Aarhus' *Cykelbus'ters* pilot program, developed by Aarhus Municipality with car-driving residents who were interested in transitioning their habitual city trips from automobility to

cycling. Between April 1995 and April 1996, 175 participants were lent a bicycle and a public transport pass, they would register all of the travel modes taken, to assure car-use was reduced to as low as possible, with the programme achieving impacting results in personal urban travel habits according to monitorisation performed by the Municipality of Aarhus: In 1997, 149 participants had concluded the programme with average participant cycling increasing six times during the Summer and three times in winter, public transport use increased significantly, and automobile travel was reduced to half (Beatley, 2000, p. 184). Similarly, Portugal's much larger-scale national U-Bike programme originally introduced in 15 Portuguese universities and finally implemented in 12, lent a total of 2,474 bicycles to academic communities during the academic year, tracking cycling trips and CO₂ savings by avoiding automobility in local trips (IMT, 2020).

Regarding the Cykelbus'ers conducted in Aarhus, Beatley (2000) suggests that the city's cycling performance can be observed beyond the positive impact of the initial small group of volunteers, by looking at the quantifiable data regarding mobility patterns since by comparing walking, cycling and public transport with automobility in the city's mode share equation (p. 184). Regarding Portugal's national U-Bike programme, the first bicycles were delivered to academic populations at 11 of the 12 participating universities and institutes between mid-March 2018 and late-November 2020, with overall results for a full one-year programme implementation not being available yet due to the academic year disruptions caused by the onset of the COVID-19 pandemic in March, 2020 (IMT, 2020, p. 26).

These programmes require monitorisation to assess their impacts—not only temporally but also geographically—and not only assessing the programme's results in the urban mobility system, but also among the different urban areas, including land use determinants associated to where participants live—*i.e.*, mixed-use denser central city areas in comparison to more peripheral monofunctional areas. Performance indicator monitorisation should also take into account the policy brokers' political commitment to the continuity of these programmes and expansion to different social segments of their localities in face of current urban issues such as transport poverty, family mobility choices, and as complementary measures, associated with regional and local urban mobility system planning in cities applying these types of programming. Finally—but of equal importance in assessing programmes for future policies—interaction with EU-level governance structures working with the cycling subsystem may be helpful in several ways regarding benchmarking and policy transfer, learning and networking for exchange of experience, and for the fundamental role of uniformising data-collection and monitoring. EU-wide programmes such as the EC's EU Mission: Climate-Neutral and Smart Cities programme provide a promising path in this direction, and an opportunity for introducing programmes for the overall population in a systematised way.

Governance coordination and cycling secretariat's transversal role

Epistemic communities can play a key role in assuring long-term, systematised actions for policy change, by mending all of the projects working within the urban mobility system and helping to coordinate them at a subsystem level for greater efficacy in the policy debate around implementation and monitorisation, but also for communication among society and institutionally. Such coordination can be fundamental to inform policy decisions and enhancing involvement in the different mobility-related urban issues.

Jensen et al. (2017) suggest that a city cycling secretariate (CS) increased policy capacities both strategically and operationally in Copenhagen's transition, by incorporating intense coordination among small project actors and being able to assess municipal budgets by uniformising planning procedures and presenting projects to city policy brokers as coordinated '*cycling packages*', integrated as a '*socio-economic analysis*' by means of developing what they designate as '*calculative devices*', adapted from those previously used by national organisms when rail investments were realised in Denmark. They claim that the information produced from this approach informs and '*normalises*' governance decisions involving investments related to the cycling subsystem—instead of decisions being viewed politically as discretionary or emerging from *ad-hoc* planning choices. The socio-economic analysis was the principal epistemic action developed in

Copenhagen's *'Bicycle Account'* and CS coordination —quantifying investments and benefits for communication with the broader mobility and transport planning community (p. 472)— and working beyond the traditional financial cost-benefit analysis (CBA) since different perspectives and implications are accounted for.

Transversal municipal and regional interaction with meta-issues

Cost and data standardisation methods have played an important role in the socio-economic analysis required to assess the cost-benefit calculation of cycling investments, used to support decision-making. Jensen et al. (2017) explain that the CS coordinator contracted external consultants in 2009 to research how socio-economic analysis could be applied to investments in cycling —and from there develop a broader CBA methodology to calculate standard costs and benefits of cycling per km— using Danish Ministry of Transport costs for time, driving, crashes, air pollution, and other variables identified as being relevant from discussions between municipal officials and the consultants, namely *'unsafety costs'*, *'discomfort costs'* —e.g., bad weather— and *'recreational value'*. The decisive variable included was that of health gains achieved from cycling as compared to driving a car. The health gains actually provided a new perspective among the various policy actors involved in governance structures, helping the CS better justify cycling investments (p. 472). In fact, a new basis for coalition building and greater involvement of new actors in the public policy debate regarding future investments emerged from the CS's coordination in Copenhagen —triggering increasing intensity in epistemic actions— analysing different dimensions of the cycling subsystem and the overall mobility system: *"Cumulatively, political interest in obesity and the calculative device configured 'health production' as a new and pivotal political rationality in the governance of cycling... [and]...health promotion [became] an increasingly dominant political rational in relation to cycling governance..."* (Jensen et al., 2017, pp. 472-473)

The transversal role of an official coordinating city entity with epistemic interactions, such as a municipal or metropolitan area CS, not only transmits greater policy influence for institutional contacts but also provides access to a broader field of assessment tools and projects associated to city government departments, including numerous issues functioning beyond those of direct mobility and transport, environmental, and economic impacts. Health impact assessment (HIA) tools, for instance, are increasingly being employed as such *'calculative devices'* to better inform and characterise the policies to be chosen regarding public space, walking, and cycling. Recently, for example, the World Health Organisation's (WHO) health economic assessment tool (HEAT) for walking and cycling, designed as a *'calculative device'* to quantify and evaluate the health and economic impacts of active travel policies and measures implemented has been adopted in numerous different contexts. The HEAT tool was developed as an epistemic action —in line with the precedent set by Copenhagen's *'Bicycle Account'*— considering the dimensions of physical activity, air pollution, injuries, and carbon impact assessments methodologically prepared for use developing a step-by-step plan for organising data obtained and analysing it to assess the economic impacts and health effects of walking or cycling (Kahlmeier et al., 2017, pp. 59-64).

HEAT was designed to process data inserted and analyse it *'based on the best available evidence and transparent assumptions'*, aimed at being employed by a wide variety of national, regional, and local level actors including professional practitioners in the mobility, transport and urban planning or interest groups (Kahlmeier et al., 2017, p. 19). Applications of HEAT have been varied, and include the health and economic benefits of policy change in large cities aiming at increasing walking and cycling (Pérez et al., 2017), national-level target populations and the impacts of their urban travel behaviour (Garrard et al., 2021, pp. 38-39), and other benefits linked to increasing cycling, including the reduction of road-danger and the *'safety in numbers'* effect of having more cyclists on city streets (van Wee, 2021, pp. 137, 139). As a start for national, regional, or local-level analysis, a transversal epistemic coordination cycling in the localities applying a calculative tool such as HEAT can work as a key self-reinforcing coalition action to intensify influence

by helping inform and steer policy decisions —further strengthening the legitimacy of cycling in the urban system— and reinforce the important role of governance coordination.

Exposing economic impacts

The '*calculative devices*' employed for numerous interrelated meta-issues regarding health, environment, and economic impacts present an opportunity for increasing cooperation and coalition building. The direct areas of involvement open up to a series of new direct policy actors —introducing new insights and knowledge from different perspectives of the policy issue— including issues associated to economics and finance. Shoup's (2005) comprehensive economic analysis of the high cost of free parking, for instance, brought about new insights regarding the externalities of automobility. The role of economists and financial researchers into the cyclists' coalition points to new opportunities for greater coordination and influence on policymakers —providing policy brokers with new knowledge for more informed decision-making regarding urban and mobility system's transition to greater walking and cycling— and an integrated approach to areas such as public transport and sustainable mobility investments.

Ecological budgets, or '*environmental budgets*' and charters, are policy instruments which can be particularly favourable to implementing cycling policies as part of urban sustainability packages. Beatley (2000) considered the importance of '*local environmental budgeting*' to provide policymakers and local government entities within a framework for managing and using natural resources within a budget limit —defined by environmental quality targets— and budget deficits occurring when overspending of natural resources starts (pp. 333-334). Clearly, resource use is associated with spatial and political management issues (Erdmenger, 1998, p. 377), which in turn is associated with policies using either distributive or redistributive methods regarding the various systems at play: urban space and the mobility system, and the role attributed to each subsystem, including walking, cycling, public transport, logistics, and automobility. By exposing resource-use such as public spending and space allocation associated with environmental, health and financial costs of automobility, addressing these visibly, and putting a numeric figure on the externalities car-use generates, measures such as cycling infrastructure investments are easily justified, with more benefits than externalities per km travelled (Blue, 2014, pp. 52-59, 178-180; COWI, 2009).

As regards mid- to long-term policy formulation, '*environmental budgets*' have proved to be useful tools for knowledge-based planning for change, since the cumulative outcomes and their correlation to policy decisions and outputs are made evident through both CBA and related information dissemination to the public. On one hand '*environmental budgets*' help policymakers commit to the goals established in general, and the implementation of measures —such as pro-cycling outputs—, while on the other dissemination of these budgets and their operational performance can be employed to inform the public -policy brokers' electoral base, by providing citizens with a clearer perspective for political judgement of decisions taken and policy brokers' capacity to either comply or fail with the commitments they've subscribed to, or that their national and local governments have committed to (Beatley, 2000, p. 334).

'*Environmental budgets*' in general, and specific mobility system commitment can be particularly useful to intensify coalition building and involvement in light of political campaign promises and policy implementation debates. A discussion which emerged in Lisbon with the newly elected social-democrat (PSD) mayor, Carlos Moedas, on September 26, 2021, brought about some policy formulation questions regarding his campaign promises for increasing one car parking silo in each of the city's boroughs and reducing parking fees for residents, clashing directly with the city's mobility strategy (Mário Rui André, 2021). Municipal commitments had been approved in 2019 by most of Lisbon's municipal councillors —with Moedas' political party being favourable to the MOVE sustainable mobility strategy for the city— approved by the 6 socialist (PS) governing councillors and their coalesced 2 independent and 1 left-bloc (BE) partners, but also including Carlos Moedas' party's (PSD) two previous mandate councillors. Votes against came from the 3 previous councillors from his centre-right CDS party coalition-member and the two local communist party (PCP) councillors. The Municipal

executive's approval was followed by a vote in the Municipal Assembly —municipal parliament— on 28 January 2020, approved by the majority members of municipal parliament from the socialist party (PS), left-bloc (BE), and the centre-right Earth party (MPT) and eight independent members of municipal parliament. In the deliberation of the municipal assembly the centre right CDS party, communist coalition CDU (PCP/PEV), and monarchist party PPM voted against the sustainable mobility strategy. The social democrat PSD and the animalist PAN party and two independent members of municipal parliament abstained (Assembleia Municipal de Lisboa, 2019, 2020).

Despite only representing an initial milestone of the SUMP, the MOVE Lisboa mobility vision aims at clear decarbonisation targets for the city's mobility system, including a reduction of automobility 46% modal share in 2017 to 34% in 2030, and cycling becoming a relevant subsystem in the city's mobility equation (Câmara Municipal de Lisboa, 2020, pp. 15, 38). Carlos Moedas' campaign promise of removing an arterial city cycleway at Almirante Reis Avenue clashes directly with this strategic vision, compromising Lisbon's performance in relation to Portugal's national commitments —aiming at increasing cycling's national modal share to 3% in 2025 and 7.5% in 2030, and cycling's modal share in cities to 4% in 2025 and 10% in 2030— and cycleways implemented nationally to 5,000km in 2025 and 10,000km in 2030 (Presidência do Conselho de Ministros, 2019b, p. 58).

Nationally, the ambitious goals for growth set by socialist mayor Fernando Medina for 200km of cycleways by the end of 2021 would influence the national setting as an example in various ways —being the nation's capital city and most populous municipality, and the city with the largest cycleway expansion underway. In December 2021 the new social-democrat mobility deputy mayor Angelo Pereira clearly stated that no cycleway would be removed, and that the city's cycleway expansion would continue (André, 2021). These statements reverse Moedas' previous campaign electoral promise —of removing of one of the city's most important arterial cycleways— suggesting different political views within the ruling coalition and a significant impact from citizen and activist pressure —with the city's largest CM ride to date occurring shortly after the municipal election results (Lusa, 2021a)— but also intense coalition action working at several levels.

By quantifying unit environmental and climate impact costs associated to decisions, '*environmental budgets*' erratic political promises such as those observed in Lisbon's electoral campaign could be avoided —backing environmental-friendly and climate action policy outputs from the start—, refocusing the political debate on the environmental and climate impacts and the economic burden each mobility mode generates —comparing externalities and benefits of each mode to categorise those which best respond to current challenges. '*Environmental budgets*' can effectively inform politicians during the preparation of their campaigns and during their mandates —and as policy brokers while in office. These budgets could be developed by a broader group of epistemic communities —to include environment and climate scientists, economists and financial researchers—, and the electorate in general, to inform citizens of the impacts that different policy decisions have.

The economic perspective, fiscal policy, and green fiscal outputs

The benefits of cycling infrastructure have been known for several decades. Even low-cost, simply detailed dedicated cycleway connections could be key policy outputs for getting people out of cars, increasing the amplitude of user types, ages and reducing the gender-gap (Buehler & Handy, 2008; Furth, 2012), and can spark uptake from new users from latent demand (Félix et al., 2020; Young, Savan, Manaugh, & Scott, 2021). By the late twentieth century, the economic benefits of cycling infrastructure were already becoming well known. Beatley (2000) refers to Freiburg's rapid construction of 120 km of paved cycle paths and 250 km of gravel cycleways between 1992 and 1997 as explained by the city's deputy mayor for environmental protection, energy and forestry between 1990 and 1997 —Peter Heller— about the tremendous cost-benefit of investing in cycling infrastructure with much quicker impacts, for much lower investments and operational costs than public transport (pp. 175-176). Furthermore, numerous studies compare the economic

advantages of implementing cycling infrastructure—including the health benefits obtained by increasing cycling—such as greater life expectancy, reduced health bills, and better overall quality of life, with knowledge on the issue being accumulated over several decades (Blue, 2014; COWI, 2009; FHWA, 1992, 1994; Walker, 2021).

Even modest shifts from automobility towards cycling provide enormous public savings, researched among epistemic groups at least since the 1990s (Beatley, 2000, p. 189; FHWA, 1992) and analysed in detail by ‘*calculative devices*’ such as Copenhagen’s ‘*Bicycle Account*’ (Jensen et al., 2017) and losses per km travelled by car vs benefits per km travelled by bicycle (COWI, 2009). Gössling, Choi, Dekker, & Metzler’s (2019) recent CBA research corroborates the negative effects of automobility and the economic benefits of cycling and walking, pointing to an overall cost in the EU of €500 billion from automobility, which relied on heavy public subsidies and its negative impacts are systematically underestimated by current government policies. Contrarily, they find that the external benefits of cycling in the EU represents €24 billion per year and walking another €66 billion annually, recommending that these two active mobility modes be prioritised—for health reasons and for systemic adjustments—especially in cities (p. 72).

Beatley (2000) identifies environmental budgeting as being analogous to conventional financial budgeting, with government authorities preparing and enacting environmental expenditures to be budgeted for the following year or mandated in the same way they prepare monetary expenditures. Authorities require short- and long-term targets indicating how expenditures and revenues will be categorised within their budgets, either as environmental spending or environmental revenue. Beatley (2000) exemplifies how the expansion of impervious or paved surfaces—sealing, road construction or widening, parking areas—in a community could be accounted as environmental spending while ‘*desealing*’—or ‘*depaving*’—actions to return paved areas to permeable ground—with vegetation and trees—could be viewed as an environmental revenue (p. 333). These measures could be realised simultaneously with ‘*woonerf*’, reclaim the streets public space interventions, cycleway network implementations, or numerous other climate mitigations and/or adaptation measures realised by cities and aiming at boosting walking and cycling.

The extent to which the ecological budget is balanced at the end of the year involves calculating net ecological spending and determining whether it is within the amount initially budgeted. This budgeting has been employed in ‘*environmental budgets*’ at the municipal level, but it could also work with regional and national budgets if regional and/or national-level policymakers are willing to intensify environmental policy further into financial programming. As a starting point policy brokers could introduce municipal ‘*environmental budgets*’ or ‘*climate budgets*’ in local government procedures and hold annual regional summits on this issue—for instance metropolitan area level—with cycling and walking as crucial modes for environmental and climate mitigation revenues. Contrastingly, the cost of automobility, the infrastructure it requires, and the externalities it generates should be accounted for also, including the disproportionately high cost it represents on environment and budgets (Gössling et al., 2019, p. 66). National governments could equally include environmental budgeting in their annual budgets and major economic plans, and link these to national public investments to avoid counterproductive outputs, which compromise environmental and climate action goals.

Besides public policy priorities, observable through where funding is made available and what investments are realised. National tax policy can also introduce cycling and walking into the broader fiscal agenda. As part of a wider ecological neutrality or balancing policy, the Dutch national tax system was modified in the 1990s to promote more sustainable mobility. Businesses were granted tax-free reimbursements for employees who use public transport while similar benefits were restricted for car use, and employers paid employees for bicycle purchases with other tax-benefits also being included, such as tax-free cyclist insurance and rain gear (Beatley, 2000, pp. 252-253). Tax incentive bike to work programmes have come to spread throughout Europe, with around 300 different incentives and purchase premiums available in 21 European countries, including 13 incentives in Portugal; all bicycle purchase premiums, four from the national government and another four from Lisbon’s municipal government (ECF, 2021a). The only other municipality in Portugal promoting cycling incentives was Castelo Branco and the regional governments of Azores and Madeira

archipelagos. No other AML municipality has such incentives, and metropolitan area-wide specific incentive does not exist either.

Taxing consumption and reducing the immensely disproportionate public funding attributed to car infrastructure at all scales of government is another issue of economic and financial concern (Beatley, 2000, p. 73; Nivola, 1999a). Road building induces traffic demand and sprawled land occupation, besides requiring massive funding, contrarily traffic evaporation policies can be promoted by public funding preferences and environmentally sensitive fiscal and investment policies.

Following Portugal's 2011 bailout, the OECD observed that sustainability was still an issue to be more thoroughly addressed by national policies, especially due to high levels of road transport emissions, local air pollution incidents and high levels of particulate matter due to the growing number of diesel vehicles, and the need for increased public transport infrastructure and better road pricing (OECD, 2012, p. 10). Recommendations focused on the country's major cities and the need to consider environmental policies to pay-back numerous dividends:

The authorities should be ambitious in this area, for example by widening the coverage of and increasing parking fees, introducing congestion charges in major cities and making greater use of road tolls, as increased charges for individual transport can help to reduce congestion and air pollution which is high in urban areas (air particulates exceed EU air quality standards in the Lisbon and Porto areas). These measures can also provide fiscal revenue and increase efficiency by making users pay closer attention to the social costs of individual road transport. (OECD, 2012, p. 19)

During the recovery from the 2010-2014 financial crisis —with an IMF bailout in 2011— Portugal's national '*green fiscal reform*' of 2014 was drafted, with a period of public consultation involving participation from numerous sectors of society, including the Portuguese Automobile Club (ACP) —an influential automobility interest group— but also comprehensive inputs requesting modal shift measures sent by the urban cyclists' association MUBi and several concerned citizens, aiming at boosting modal transfer from automobility to financially and environmentally sustainable modes (Comissão para a Reforma da Fiscalidade Verde, 2014c; MUBi, 2014c). The original draft was submitted for public consultation identifying significant carbon emission reduction measures in several economic sectors —including urban policies, spatial planning and the transport system— with a thorough analysis of congestion charge models employed by several cities around the world as an attempt to restrain automobility (Comissão para a Reforma da Fiscalidade Verde, 2014b). Despite such measures being reinforced by some of the inputs provided by citizens and MUBi (Comissão para a Reforma da Fiscalidade Verde, 2014a), to date systematised universal road pricing and/or congestion charging measures haven't been implemented in any Portuguese city, and an unambitious policy output was legislated and approved by national parliament with impacting car-restraining policies excluded from the final output (Assembleia da República, 2014b).

Policy brokers involved with the draft of the '*green fiscal reform*' did take note and respond to some of the different perspectives provided by citizens and MUBi —also regarding fiscal imbalances in the mobility system— with the subsystem timidly introduced into the fiscal agenda followed-up later by more ambitious actions promoted by the new minority socialist government cabinet formed in 2015, supported by the left-bloc (BE) and communist coalition (CDU). Nonetheless, in an apparently '*please all, harm none*' approach —leveraged on consensus— no significant car-restraining measures or coordination with stringent compact urban form land-use policies associated to '*green fiscal reforms*' have been applied to date in Portugal. On the other hand, financing attributed to electric automobiles and cargo vehicle purchase (€3,000,000 in 2021) is twice to 7.5 times higher than that attributed to purchasing bicycles, electric bicycles and electric cargo-bikes (€1,500,000 in 2021), with the sum conceptually attributed to cycling (€1,100,000) actually being directed to purchasing electric bicycles but also electric motorcycles and mopeds (República Portuguesa | Gabinete do Ministro do Ambiente e da Ação Climática, 2021b).

3.6 Citizens, associations, advocacy coalition building, and social movements

Oldenziel et al.'s (2016) historical research on *European Cycling Cities* and the following *Your City Next* publications provide a growing work base for identifying cyclist coalition action in several European cities—and a non-European city, Johannesburg, South Africa (Morgan, 2019)—researching historical moments of citizens organising for collective action, creating associations and broader coalition building, linking with social movements and providing solutions for policy change involving the cycling subsystem. Different perspectives are employed identifying cyclist coalition action in diversified yet comparable contexts. Broad-based cyclists' coalition action has also been observed involving numerous actors and interactions in several Iberian Peninsula cities also, none of which was included in the original *European Cycling Cities* book. Seville's dramatic policy change, for instance, involved coalition building since cycling entered the policy agenda in 2003 (Walker, 2015), with an intensive period of policy output production—observed between 2005 and 2011—and the corresponding outcome of cycling's significant uptake (Geller & Marqués, 2021; Marqués, Hernández-Herrador, & Calvo-Salazar, 2014, p. 770; Marqués, Hernández-Herrador, Calvo-Salazar, & García-Cebrián, 2015).

As with Jensen et al.'s (2017) suggestion of the importance of new perspectives provided from epistemically prepared CBA's of cycling in the urban system, Brey et al. (2017) identify CBA as a key replicable factor for justifying municipal investments in comprehensive, large-scale cycling infrastructure, revealing positive impacts upon current net value (CNV) and internal rate of return (IRR) on investments, but also reinforcing coalition building by informing, providing the public with greater awareness of the benefits of change and mitigating potential conflicts before they start:

(Serving) as a pedagogic instrument to raise awareness of the potential economic benefits of urban policies based on aggressive urban land use to promote bicycle use in cities with no tradition of cycling. This education should contribute to mitigating the degree of conflict associated with a land policy that breaks with the traditional status quo. It can in fact be concluded that, in the case of Seville, the policy's socio-economic success and its widespread perception has more than likely been the balm that has healed the conflict to the point of rendering it negligible (although it is still bubbling under the surface in certain areas, such as the still imperfect coexistence of cyclists and pedestrians). ...elements that can be used as a basis for similar transformations to Seville's, with minimal conflict, in other cities, such as the two nearest, Huelva and Cadiz. (p. 137)

Following Seville's initial five year cycling boom, Marqués et al. (2014) conclude of cycling rates stalling due to new constraints from counterproductive policies, namely the introduction of national legislation with negative impacts upon cycling—especially Spain's cycling helmet law making it mandatory until the age of 16 and for all interurban trips—but also incomplete local cycling policy outputs—namely infrastructural gaps and limitations—especially in bicycle parking and intermodality issues mentioned at the time (pp. 778-779). Other specific local issues which were aligned with the cycling boom also provided resistance points in favour of active mobility and deterring automobility's comeback when the pro-cycling policies were implemented. Seville's compact historical city centre—characteristic of many southern European cities—and its tradition of cyclists' activism and associations played a key role in the city's transformation. Local activist associations had been striving for policy change persistently since 1987—to get cycling on the agenda, and engaging in effective formulation and implementation of the city's cycling network and public bikeshare system—by linking municipal efforts with citizen participation in a 'Civic Cycling Committee' (*Comisión Cívica de la Bicicleta*) as well as soft-measure programmes promoting cycling, namely car-free day, bike to work, bike to school, and bike for health initiatives (Marqués, Hernández-Herrador, Calvo-Salazar, & García-Cebrián, 2015, pp. 35-36).

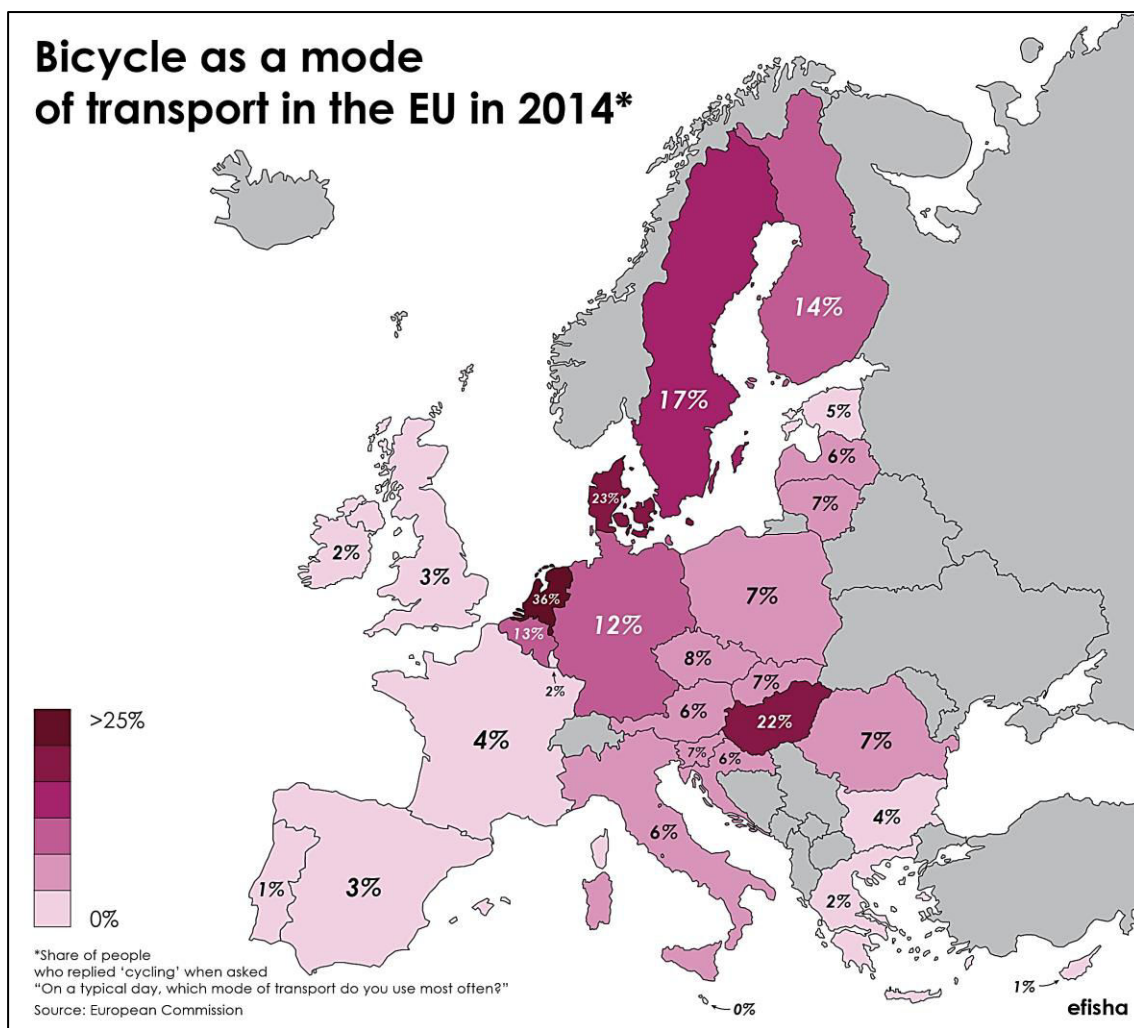


Figure 40
Indicative cycling modal share in EU countries and the UK
 (Shapiro, 2021)

Despite Seville’s successful policy implementation and citizen involvement strategies, Castillo-Manzano & Sánchez-Braza (2013) claim that public consultation and information dissemination could have been more encompassing and effective in garnering wider social involvement, which to a certain extent was lacking during Seville’s initial large-scale impulse for implementing and expanding its cycleway network and bikeshare system (pp. 1025-1026). One possible frailty of Seville’s ‘Civic Cycling Committee’ was that at an initial stage of implementation the city had very low cycling rates and involvement was more appealing to local activists and existing associations. More public outreach efforts than those conducted may have been effective to further increase involvement from general citizens and attract a broader base of support, from more diverse social segments. On the other hand —despite an apparent political party ideology bias associated with the cycling infrastructure implementation, which was used to feed local controversy and opposition (Castillo-Manzano & Sánchez-Braza, 2013, pp. 1022, 1024-1025)— cycling’s significant uptake evolved in a way that cyclists who were initially viewed as a small minority group in the mobility system emerged as an increasingly accepted group and integrated in Seville’s mainstream mobility scenario (Malpica, 2010).

As with Lisbon’s transition —which also witnessed a relatively quick boost in cycling— Seville started with extremely low rates of cycling but currently has 9% modal share (Geller & Marqués, 2021, p. 387) being very close to becoming a

'climber' cycling city. The importance of coalition building is interrelated with achieving this 'tipping point' when cycling becomes mainstream in the mobility system.

It is the phenomenon of policy change creating increasing cycling that results from the cyclists' coalition persisting in and advancing sustained interactions and from effective coalition-building mechanisms that reinforces the process once the 'tipping point' is reached.

Another city in the Iberian Peninsula with intense cyclists' coalition action is Vitoria-Gasteiz, in the Basque Country. With 12.3% cycling modal share, Vitoria-Gasteiz is considered the city with the highest rate of cycling in Spain climbing from 3.3% mode share in 2006, to 6.8% in 2011 and 12.3% mode share in 2014, accompanied by a corresponding decrease in automobility (Barberan & Monzon, 2016, p. 314). Cycling has been normalised and is generally viewed as a viable transport mode in Vitoria-Gasteiz (Lois et al., 2016, p. 190), with the city positioning itself as one of the top '*climber cycling cities*' in Southwestern Europe. Barberan & Monzon (2016) point to Vitoria-Gasteiz' public policies as a key factor for implementing effective strategies aiming at decreasing automobility in the city —recovering public space and making it more liveable and inviting to promote active mobility— first by launching the city's comprehensive Sustainable Mobility and Public Space Plan in 2008, complemented one year later with a Bicycle Mobility Master Plan.

Actions realised through these plans focused on implementing a comprehensive cycleway network, bicycle parking facilities, cycling-traffic courses, and new cycling regulations, complemented by periodical urban mobility surveys designed to monitor development. Apparently, the combination of these measures, applied strategically has made cycling a viable option for most of the city's residents, despite need for improvement by making cycling a viable mode of transport to everyone, including balancing the gender split, the need to deal with issues of travel distances, and leveraging and disseminating better quality of information from the data obtained (pp. 314, 317-319).

Regarding policy process in large cities —specifically when cycling becomes a legitimate mobility practice that can lead to broader-based social awareness of that travel choice— and from there lead to coalition building, Braun et al.'s (2016) findings from a citizen survey conducted in Barcelona suggest that a variety of planning and policy factors —namely cycling infrastructure, public transport availability, and travel demand incentives— are associated with deciding to cycle as a viable mobility mode for daily commutes (p. 175). Barcelona's active travel policy has resulted in a greater number of citizens walking and cycling, presenting considerable health and economic benefits to mobility system users and the general population, and even greater potential is foreseen if articulated with public transport and health policies (Pérez et al., 2017, pp. 320-323). Communicating the benefits of cycling —as the CS has done in Copenhagen— can provide relevant information to produce social impacts. Furthermore, Barcelona's specific urban morphology —inherited from the Plan Cerdà— provides potential for increasing cycling even more so by integrating traffic and public transport policies and reducing automobility's presence in significant parts of the city with the implementation of the '*supermanzanas*' —the superblock concept (Villar, 2016, pp. 65,67-68). Besides implementing comprehensive cycling infrastructure and programmes, compact city form and land use improve conditions for walking and cycling —and through cycling as a mobility and social practice— increase citizen awareness and from there work as a mechanism for coalition building involving even broader issues such as equitable housing and commercial policies, aiming at central, denser locations with broader diversification of economic activities. The specificities of each different city —or each neighbourhood— may enhance conditions for cycling creating greater propensity to adopt this mobility option as a social practice and from there for cyclists to develop coalition actions and broader alliances. Cyclists' interactions for effective advocacy coalitions include activism and the need to address citizen involvement and social movements (Horton, 2009).

3.6.1 Cycling citizens

Keeping in mind the significant value that a diversified and robust cyclist citizen base means for being able to achieve policy change, Aldred (2013) finds that “*Within any one context the label of ‘cyclist’ will differ in salience and meaning, depending on the context and on the individual and their other social identities.*” (p. 253) Policy brokers’ perspectives of cycling have shifted due to persistent outside pressure from citizens, a recurring pattern observed in the historical perspective of contemporary ‘*champion cycling cities*’ (Berkers et al., 2018, 2019; Berkers & Oldenziel, 2017; Emanuel, 2016a; Oldenziel & Albert de la Bruhèze, 2016a). Pre-existing social pressures from entrenched dominant systems cause political constraints felt by policy brokers —pointing to the fundamental role of ‘*citizens*’ and their collective action for systemic change— with a long history of ignition sparking as a response to local car-centric or automobility related plans and large project implementations (Lorimer, 1978, pp. 239-252). In national and urban cultural settings where cycling was viewed as a mainstream mode of transport and a ‘*national habitus*’ —a commonly shared cultural status transversal among Dutch society (Kuipers, 2013)— the struggle for systemic change implied easy acceptance to an accessible alternative to the ‘*system*’ of automobility. The spark for cyclists’ coalition influence in the policy process ignited early on in various social struggles, politicians noticed and citizens’ perseverance and aspirations seeped into the institutional policy process (van der Zee, 2015). But what exactly is the role of citizens in contexts with lower rates of cycling?

Citizen articulation for ‘*outside pressure*’ in cities with low rates of cycling is equally important to connect social movements with the institutional policy process, especially since it is the individual citizen and the interactions that start organisation and future coalition building through personal practices that are most visible at the local scale and can point to travel modes that are an alternative to the automobile. The cyclist citizen can ‘*practice what he/she preaches*’ when cycling to school, work, or running errands, or to a social encounter. Lois et al. (2016) observe that citizens’ beliefs about the physical well-being, health benefits and economic advantages are common key strengths of bicycle-use understood by both cyclists and non-cyclists in a comparison of citizen perspectives between residents of Madrid —a Spanish city with very low rates of cycling— and residents of Spain’s top ‘*climber cycling city*’ Vitoria-Gasteiz (p. 189). Citizens generally view cycling positively as a mobility option when associated as an opportunity for daily exercise, useful for countering sedentary lifestyles (Walker, 2021, pp. 113-121, 166, 236-240, 253-254), and an appealing urban travel mode which makes one feel healthy (Heinen & Handy, 2012, p. 265-267, 273, 277-279). The multifaceted roles of a cyclist citizen provide equal bridging points among other non-cycling citizens, since cyclists may also drive a car, use public transport, or walk for different urban trips. Aldred (2013) suggests that cyclists may attempt to see their own and others’ behaviour through the identities of users of other modes of transport, which they may also practise, or not (p. 264).

Anable & Gatersleben (2005) found that car-users also perceive cycling as performing better than automobility regarding the instrumental aspects of health and environmental benefits and match the perceived benefits of car-use for cost, stress, and excitement. Moreover cycling is the next best mobility alternative for car-users, with perceived benefits regarding flexibility, freedom and control —preferable to public transport and being dependent of schedules— and thus additionally reinforcing the possibility of cycling as a travel option (pp. 175-176).

Páez & Whalen (2010) found a greater degree of dissatisfaction in automobility and public-transport university student commuters regarding their travel time when compared to walking or cycling. In fact, according to their survey, under certain circumstances pedestrians and cyclists revealed willingness to spend more time travelling to the university campus, unlike car and public transport commuters (p. 547). Likewise, Paige Willis, Manaugh, & El-Geneidy (2013) found that cyclists are the most satisfied commuters, even when they are dissatisfied with their city’s mobility network (p. 145). Heinen & Handy (2012) confirm that cyclists find cycling enjoyable, making this one of the deciding factors for this mobility choice in very different cities, regardless of location (p. 272). Turcotte (2006) points to cyclists as those citizens who most enjoy their commute; more than walking, and significantly more than automobility and public transport. In fact, 19% of citizens who cycled to work considered it the most pleasant moment of their day vs 2% of car-users (pp. 37-40). Additionally Woods & Masthoff (2017) suggest that cyclists are passionate about their mode of transport (pp. 216, 219),

implying that —as citizens— bicycle-users will be more likely to participate in collective action towards getting more people cycling. In this respect, van Bekkum, Williams, & Morris (2011) point to the important role of cyclists in raising citizen awareness of the benefits of cycling and to overcome barriers to activate latent demand to effective modal shift, developing strategies to cope with challenges and facilitate cycling as a viable mode of transport regardless of the city's mobility issues (pp. 210-212). Cyclist citizens in fact make their mobility choice a visible practice also.

Based on the insights corroborating cycling's appeal, it can be concluded that mobility campaigns focusing on reducing automobile-use by stimulating public transport are overlooking latent demand for cycling from car-driving citizens specifically. This flaw is thus ignoring the potential of modal transfer to cycling, and for greater citizen involvement in their urban mobility system's effective modal shift from automobility to more sustainable modes of transport.

Citizen participation for modal shift to cycling may reach the '*tipping point*' relatively early in the policy implementation phase, mobilising greater segments of the public and bringing return upon investment through increased cycling even in cities starting from a low cycling rate. Factors such as relatively short travel distances, reduced travel times, cost savings, exercise/health benefits, and the relative independence provided by cycling are appealing aspects for more people to cycle (Paige Willis et al., 2013, p. 145). Outcomes are in part related to the urban setting —how public policy has shaped a locality's landscape— and the built environment which can either improve or deteriorate a territory. These are features which influence citizens' perceptions and propensity to cycle. Citizens may become more aware of landscape particularities when they shift to cycling —which in turn can motivate more citizens to organise and respond to related policy issues— reinforcing their role as cyclist citizens, helping them shape more cycle friendly policies as has occurred in events in several localities with high rates of cycling.

3.6.2 Cycling associations

Lois et al. (2016) claim that cyclists show fellow citizens of the viability of cycling as a mobility mode, thus influencing their immediate setting. While in the many cities with low rates of cycling the subsystem is commonly viewed as an acceptable for leisure or sports practice it is frequently dismissed as not being a legitimate mobility option, being put into question as a mobility alternative. Cycling for normal mobility can be rejected and considered to be '*infringing social norms, perceived as extravagant or marginal*', for instance. In comparison, in cities where cycling is mainstream it is normal as a social and mobility practice, accepted and generally approved of (p. 190). Heinen & Handy (2012) indicate that cyclists exert greater social influence upon other citizens' modal commute choice in cities with higher rates of cycling, also influencing choice for bicycle commutes from early life experiences (p. 277). This encouragement through example works as a mechanism for association and broad-based coalition building as different people adapt attitudes and social norms while participating within the mobility system as cycling citizens, sharing common beliefs regarding their preferential mode of transport in the city.

Pucher et al. (2021) underpin the crucial role of cycling advocacy at all levels of government and how these have been involved in the growth of cycling in cities around the World. Yet —as addressed conceptually in section 2.4.3 Citizens' spark— for '*outside influence*' in a setting which is generally unaccepting of cycling, the role of citizen initiated transformative actions is crucial. Citizen participation in decentralised grass-roots movements has played a decisive role in disseminating the cyclists' advocacy coalition message in tough environments. When top-down guidance is missing, bottom-up policy influence has been the most effective mechanism, contributing to coalition building by example, word-of-mouth, and friendships.

Scholarship on cycling in cities has acknowledged the importance that citizen participation has had influencing policymakers for change in all types of contexts. In cities which currently enjoy high rates of cycling, policymakers' perspective of the subsystem shifted due to early '*outside pressure*' emerging from citizens during the 1960s and 70', a recurrent phenomenon. A commonality observed in these struggles is that of opposition to massive automobility-centred planning which emerged in the post-WWII years and indirectly related to factors such as the 1973 and 1980 Oil Crisis. The initial citizen social movement action —of the 1960s and early 1970s— organised and coalesced in various policy sectors, entering the institutional sphere where permeability existed, persisting and growing until today (Berkers et al., 2018, pp. 12, 30-50; Berkers et al., 2019, pp. 37-51; Emanuel, 2016a, pp. 83-85; Feddes & de Lange, 2019, pp. 71-73, 76-78; Feddes et al., 2020, pp. 140-147; Oldenziel & Albert de la Bruhèze, 2016, pp. 21-24; van der Zee, 2015). From a comparison of two cities with relatively high rates of cycling in a generally low-cycling country —Hull and Cambridge, England— Aldred (2013) suggests that the absence of a local cyclists' association advocating for pro-cycling policies specific to their own city implies less interactions and less policy influence with local government and municipal structures (p. 269).

Informal grassroots associations

As discussed conceptually regarding advocacy coalitions, CM cycle rides have played prominent and impacting citizen coordination at both the local level, and as a global social movement held regularly in hundreds of cities and towns around the World. Furness (2007) points to the impacts of CM on '*the progress of formal bicycle advocacy*' (p. 299) ever since 1992 when local cyclists took over the streets of San Francisco every Friday during the evening rush-hour, as part of an '*organised coincidence*' which in fact is a regularly scheduled —yet impromptu— cycling citizens' meeting. CM has matched other mobility policy related —but not specifically cyclist oriented— anti-automobility protests which had surged since the late 1960s. Decentralised actions organised by citizens questioning the '*system of automobility*', its externalities and dominant appropriation of public space and natural resources emerged at the time.

The first globally articulated '*World Cycling Day*' joined cycling citizens in massive demonstrations on 4 June 1977 in Amsterdam, Montreal, and Paris. Cycling citizens organised to demand rights for cyclists, pedestrians, and public transport users in face of the growing road danger and health problems caused by automobility, in a struggle aligned with support for liveable cities and equitable access to public space in the city (Oldenziel, 2016, pp. 188-189). Citizens participating in the initial protest rides and later the regular CM cycle rides revealed the existence of a large number of cyclists as a critical response to inequitable space allocation in the city and also a performative critique of automobility by providing an alternative vision of street space (Furness, 2007, pp. 299-300, 314).

CM provides an opportunity for citizens, activists, and bicycle advocates to collaborate and question local mobility systems, but also from impromptu artists to join in and add some fun to the venue, attracting even greater attention. Pinder's (2005) analysis of artists and cultural practitioners suggests that critical engagement with public space creates an artistic critique of the current urban realm while involving the public's participation in these actions (pp. 388-390). CM cycle rides introduce this dimension of cycling citizens involved in readapting public throughfares —using the bicycle as the transformative tool— with citizens either participating by simply cycling or passers-by observing this uncommon alternative possibility of urban life and how public space is used. Likewise, Furness (2007) hypothesises CM cycling participation as a potential "*form of hermeneutic mobility that is intentionally designed to encourage a reinterpretation, and possible revaluation, of both the ideological norms that govern car culture and the practice of bicycling itself. Critical Mass actively experiments with sociocultural dynamics of both automobility and velomobility, (Horton, 2006) but it does so primarily through an intervention in urban space.*" (p. 302)

For cities with low cycling rates the uncommon scene of mass cycling becomes an impacting moment for communicating the potential for alternative forms of mobility and street space, beyond symbolism and protest. In these settings

Critical Mass is an experience that goes beyond symbolic action, in spite of its enormous symbolic importance. It is a public demonstration of a better way of moving through cities. But during the time it is underway, it is more than a demonstration. It is a moment of a real alternative, already alive, animated by the bodies and minds of thousands of participants. (Carlsson, 2002, pp. 81-82) (Furness, 2007, p. 307)

Besides protest rides and regular CM events, cycling citizens' contestation has also included environmental celebrations such as World Earth Day, and citizens' grassroots demonstrations contesting controversial public investments such as road building, airport expansions, nuclear power plant construction, peace marches, and heritage protection events, among other policy conflict issues. In most cases these contestations evolve around projects which generate considerable externalities and have been decided without adequate public consultation, lacking in-depth environmental impact assessments, and involving policy decisions taken in closed institutional policymaking spheres.

The idea for enhanced citizen participation and citizen empowerment through cycling can be viewed as a challenge to 'the system' which is seeking to assure the *status quo* without taking into consideration the negative impacts it causes, and where dominant established systems have a preferential voice; 'the system of automobility' and 'the king of the road' are an important part of this sociotechnical framework. Protests contesting dominant coalitions can in some cases be viewed as defiant actions by those who are happy with the *status quo*. Conversely, they are also a means for coalition building—through citizen involvement—as they legitimately use public space and join like-minded citizens from diverse areas struggling for desirable alternative perspectives. San Francisco Bay Area's cyclists for instance joined local activism and local bicycle messengers—a common sight in the 1980s and 90's in several cities—which in turn helped spread the CM movement globally, coordinating activism and engrossing membership in cycling advocacy groups (Carlsson et al., 2012, p. 14). Lisbon case-study Interviewee #6, an activist in Lisbon claimed that "Critical Mass was important, it was the cradle of many things" and that "once a month you went there, and you had your tribe. ...Only when you start to see, to get to know people, in an informal way, projects start to emerge."

As discussed previously—in section 2.4.2 Policy networks—implementation structures (Carlsson, 2000) are created by cycling in CM—albeit in a temporary and defiant manner—introducing a first step for cyclists' coalition building, inverting the roles of how common citizens live and view public street space in automobility-centred localities and societies. This 'bold' cycling citizenship action redefines public space—i.e., citizens engage in a transformative policy action temporarily—questioning the dominant 'system of automobility'. CM is a transformative street level coalition building mechanism—a 'movement' or 'just a bike ride'—where cycling citizen association starts. From word-of-mouth, pamphlet, mobile phone messages, and social network dissemination to on-site route selection, CM is a voluntary performance without any hierarchical structure. Furness (2007) points to the importance of decentralised participation and dissemination, which he names 'xerocracy', from the (Xerox brand) photocopied pamphlets originally used:

Cyclists who circulate political ideas and images frequently connect bicycling to issues of ecology, autonomy, and public space through techniques that stand in direct contrast to those of the centralised, corporate institutions of automobility. Therefore, xerocracy is not only a means to shape participant and public perceptions about the act of biking (through facts, statistics, images and personal narratives), it is also part of a larger communicative shift where cyclists celebrate their vision of preferable alternatives; namely xerocracy over corporate media, and 'bicycling over car culture' (Carlsson, 2002a, p.237). (p. 301)



Figures 41 and 42

Decentralised CM dissemination on bicycles and on-line
(Oeiras CM, April 2015, Lisbon-Oeiras CM June 2018⁹)

CM cycle ride dissemination based on decentralised political ideas has been further expanded by increasing communications technologies and social networks. One mobile phone application, for instance, coordinates cyclists so that groups are assembled in real time, aiming at creating CM cycle commutes through ‘flock formation’ (García-Herrera & García-Meneses, 2020). The effective role of technology for greater participation and everyday impact is a growing dimension of participation, requiring further research on outcomes and their link to citizenship practices and coalition building. On the other hand, related technology and securitarian control issues are also an emerging area of study beyond the scope of this thesis. Issues such as barriers created to street level coalition building also exist and require further research, especially in more authoritarian and highly policed localities.

Protest cycle rides in general—and CM in particular—could be sufficiently impacting to the point of experiencing problems with the police in settings where systemic openness to questioning automobility’s dominant role is missing. Numerous cases of over-muscled policing attempts to prohibit encounters and radicalises cycling. Unjustified arrests and numerous problems with the police have been reported in heavily car-dependent societies such as some cities in the UK (Richards, 2013; The Guardian, 2008), and New York City and Portland in the US (Carlsson et al., 2012, p. 13), but also occasionally in different localities in other countries around the World, raising local debates on civil liberties and democratic culture.

Coordination, association, and coalition building

The relative success or failure of an advocacy coalition can be viewed within a bounded time-period—considering the variables at play in the contextual struggle—to understand how the coalition effectively influences—or fails to influence—policy change through policy actor coordination, as they associate and formalise into organisations, engaging with issues and specific episodes being dealt with. Sabatier’s (1988) ACF notion of competing coalitions applies through the same organisation principles underpinned by Norton’s (2008) assessment of how automobility socially engineered and dominated public perception of street space: “Another lesson of the dawn of the motor age is that it is not enough

⁹ Lisbon-Oeiras CM publication photograph by António Maldonado Cruz.

that a social group perceive its interests. If its fight is a hard one, it must organise. Faced with a shared system that had a threatening and obdurate construction, social groups backing the automobile coordinated their efforts. Prevailing constructions of traffic accidents and traffic congestion.” (p. 257)

Stewart (2009) refers to the principle of sustaining coordination as a design value for policy choice in conflicts (pp. 28, 38); for coalitions to successfully achieve change, the importance of organisation applies. The formation of a highly organised automobility coalition occurred in the early 1920s in the USA, formalising there in 1924 with a series of events and associative responses to the social contestation of road danger caused by automobiles (Norton, 2008). The street space coalition was not sufficiently coordinated with a broader base of policy actors, and pedestrians and streetcar operators weren't able to influence the policy process or advance in areas of policy learning with epistemic communities or to address meta-issues which only entered the political debate over four decades later —environmental, health, economical, etc. Issues such as the advantages of sustainable transport vs the negative impacts and externalities of automobility weren't focused upon (Geels et al., 2012). To aggravate matters, cyclists' coalition elites migrated —as did many of their associations— to automobility between the 1910s and early 1920s leaving the cycling subsystem underrepresented in the policymaking sphere, relegating cycling as a mobility solution for the blue-collar industrial masses and the poor (Reid, 2015b), in what was a much more class-stratified society.

Between the late 1910s and the mid-1960s, encompassing organisation by cyclists and thorough coalition action was missing —despite a few symbolic victories of visible booms in cycling since the late 1960s— with momentary revivals being linked to specific periods such as the 1973 Oil Crisis (Grove & Pflieger, 1973) or even more recently the onset of the COVID-19 pandemic in 2020 (Buehler & Pucher, 2021a; Reguly, 2020). Despite these occasional booms cycling suffered a massive loss during the second half of the twentieth century (Reid, 2017) —and in Portugal, as with most European countries— a complete recovery hasn't been achieved since its 40% modal share on national roadways in 1950 (Junta Autónoma de Estradas, 1950, 1955, 1965). In the sphere of competing coalitions, automobility outsmarted cycling during the twentieth century, or as Norton (2008) phrased it: *"To change a well-entrenched, shared technological system, and to preserve the change, social groups must organise. Motordom never forgot this lesson."* (p. 259)



Figure 43
COVID-19 'bike boom' at the Algés – Cruz Quebrada cycleway, Oeiras May 2020

Organising from social movements to a cyclists coalition implies that ongoing social struggles for a climate action, a better environment, public health, reduction in road danger and reclaiming public street space can be analysed as a policy conflict between competing coalitions. When one of those coalitions becomes invisible to citizens and policy makers the policy issue disappears, as occurred with cycling —also with walking and public transport— with the upsurge of automobility in the first half of the twentieth century (Reid, 2017, pp. 19-50). To render these coalitions visible, the existence of numerous social movements since the mid-1960s was decisive and has left lasting impacts to this day. In fact, even in one of the most prominent ‘*champion*’ cycling cities Jensen, Cashmore & Elle (2017) note that:

Cycling is not a new phenomenon in Copenhagen. Available data indicate that there were approximately 80,000 bicycles in Copenhagen in 1907. Yet, the prevalence of cycling as an urban phenomenon does not mean that it has constituted a discrete and well recognised object. For example, although the dominant mode of transport in the 1930s, cycling was rendered almost entirely invisible in urban governance in the 1960s and 1970s based on a widely held belief that automobility was the future of urban transportation. (p. 466)

Yet it was in cities with traditionally high cycling rates that the cycling subsystem was quicker to overcome automobility’s systemic dominance —with citizens being able to organise and coalesce in numerous urban struggles— involving contestation in a diversity of related issues epitomised by public space distribution, the menace of road danger, city heritage conservation groups, and environmental struggles. In face of increasing automobility cities with traditionally high rates of cycling were the first to experience policy actors entering the institutional system and coalescing in these diverse struggles with effective results. The first cities where social movements successfully confronted the challenges that were being posed upon city life were those which also managed to integrate policies with sustainable urban mobility as part of the general policy package and integrate transport and mobility planning with urban planning and environmental politics.

Institutional and systemic organisation

Cycling citizens have organised from various social movements —gaining ground during intense urban debates— also achieving the first steps to establish local cyclists’ coalitions, working beyond the aims of grassroots movements and the spin-off associations which emerged from these, mostly in the centre and north of western Europe, but not also in several North American cities and elsewhere. While these movements emerged in established democracies in the late 1960’s and 1970’s, various other countries weren’t democracies yet —or were just starting to transition from authoritarian regimes to democratic processes— as was the case for Portugal and for Spain. In fact, concerning the institutional transitional problems, Huntington’s (1991) claim that “*democracies are created not by causes but by causers*” applies (p. 107). Klein & Tremblay’s (2010) research on social actor involvement in urban governance illustrating how outcomes are influenced by inclusive policies is consistent —from their comparison of Montreal with other North American cities— with social cohesion and territorial development at the city-scale, and the need to include a broad scope of social actors to formulate and implement effective city policies. In fact, according to their research, “*Montréal’s case study illustrates the constitution of a large coalition driven by civil society-based organisations, especially those anchored in social movements*” (p. 568).

Regarding city-level policy process, Klein & Tremblay (2010) further emphasize the importance of having social (policy) actors at the table with corporate and elite interests to avoid being excluded from the effective decision-making process (p. 569). Similarly, Pinson’s (2011) ‘*project networks*’ as instruments of governance in cities emphasizes how citizen involvement organising into local associations enhances broader community perspectives in city governance decisions, as these associations are made and managed by interdependent actors who formulate norms and policy, holding common issues, and incrementally realising or influencing city transforming projects (pp. 20-25; 30-31; 180-184). Pinson (2011) underpins this inclusionary process as it evolves into coalition-building between different city policy actors when

they enter the system and work with it over time —also shaping it— while advancing their ‘*project networks*’ (pp. 81, 113, 243, 276, 282-285).

From collective non-hierarchical initiatives such as CM and street-level protests to full-fledged citizen association into institutional organisations developing over time —with persistence and interrelating actors— de la Bruhèze & Oldenziel (2018) describe how “*activists played a crucial role in revitalising Germany’s urban cycling*” in the late 1970s, evolving nationally from local community groups, such as the “*Aktion Maxvorstadt*” in Munich. These groups complemented their activism with local CM-style cycle rides mobilising citizens —including families— to increase public awareness and involvement, but also rousing the local media —which subsequently launched a dedicated report in the *Süddeutsche Zeitung* newspaper— followed by a debate with experts, politicians, and cyclists, promoted by its main media competitor *Abendzeitung* in a key policy conflict location in Munich, the *Englischer Garten* (pp. 39-41). A greater number of different actors started getting involved as these links developed from citizens to organisation and media coverage, boosting the message to politicians, making them more aware of cycling and its political impact as a policy-issue. This bottom-up approach to the policy process, required top-down policy responses for change. The case with Munich —as with many cities with moderate to higher rates of cycling common to the central European mainland— illustrate how the first steps towards institutional organisation were taken to create a cyclists’ advocacy coalition in large cities.

One further step into entering the institutional sphere is that of seeking opportunities from local particularities. In Munich, cyclists’ aspirations were supposedly included into the urban governance system with Munich’s Inzell Initiative —an initial policy output aiming at integrating ‘*outside*’ pressure— by striving for consensus among policy actors in what was planned and implemented in that large city’s mobility system. While the Inzell Initiative is viewed as a relatively successful mechanism by Baumann & White (2015), it is also exemplified as a ‘*mixed bag*’ —falling short of the city’s real potential regarding modal shift— since the city’s governance posture of ‘*serve all and offend none*’ in various ways sidelined cycling despite achieving limited incremental change (Albert de la Bruhèze & Oldenziel, 2018, pp. 45-53). Munich’s policy setting has various particularities —that of being the headquarters of a powerful local automobile industry included— yet the consensus-based model is not a complete failure, and the city’s cycling rate (14% modal share) has grown and is slightly above the 13.1% German national average and almost double the 7.4% EU average (The Gallup Organization, 2010, p. 30). Consensus-driven models such as Munich’s illustrate potentially broader implications for policy change, as organised policy actors can be included in the policy debate and —at least incrementally— influence or have a say to inform decisions (Baumann & White, 2015). This could be particularly effective in other cities which already have existing cyclists’ associations in the field but don’t have high cycling modal shares and still view the subsystem as an ‘*outside*’ policy issue, providing a possible governance framework for greater cohesion in the coalition, and overall subsystem inclusiveness.

3.6.3 Epistemic cyclists’ communities

A key group of broad-based coalition policy actors with social impact working at the institutional level is that of epistemic communities, functioning either parallelly or beyond the scope of organised cyclists’ associations. These communities are composed of scholars, researchers, knowledgeable experts such as city consultants and planners, working around the same policy issue and sharing common beliefs regarding policy orientations for the subsystem, in this case analysing different aspects of cycling and working with a common value base on the matter. From section 2.4.2 - Policy networks, Haas’ (1992) definition of an epistemic community is that of a “*network of professionals with recognised expertise and competence in a particular domain and an authoritative claim to policy-relevant knowledge within that domain or issue area*” (p. 3).

Epistemic community actors working with and within the cyclists' coalition share the common values of striving for modal transition from automobility towards cycling in their city and region. These epistemic actors are either aligned with policy entrepreneurs or working as such —sometimes being able to interrelate with policy brokers— informing the governance policy process decisions with knowledge they have advanced and are advancing, but also communicating their findings to citizens and networking with other policy actors within their study context. Knowledge of the cycling subsystem has emerged from numerous sources —with epistemic community actors working in various fields of expertise— through entrepreneurship, planning consultancy, and increasingly, universities and research centres advancing knowledge. As focal points for academic life, research and knowledge exchange, universities have acted as incubators, provide a setting with greater propensity for cycling as a mode of urban travel. In fact, the location of epistemic groups can act as pilot localities for change. (Mota et al., 2019, pp. 229, 233-234). Wang, Khattak, & Son (2012) identify university campus populations as presenting greater acceptance of daily active travel, mostly since students walk and cycle more than the general population, especially those living on-campus or nearby and especially during weekdays when university activities are more intense (pp. 134-136). While this pattern does not necessarily encompass the epistemic community itself, it does provide a significant focal settings for cyclists' epistemic communities to implement their practices before expanding to the rest of the city (Mota et al., 2019).

Epistemic localities

In fact, many of Europe's top '*champion*' cycling cities are university cities with relatively large academic populations, and these were among the first to implement comprehensive pro-cycling policies; namely Delft, Groningen, Freiburg, and Münster, but also cities with the highest cycling rates in countries with low cycling modal shares such as Cambridge, England and Davis, California (Handy, Heinen, & Krizek, 2012, pp. 259-263, 266-272). These university cities have cyclists' epistemic communities also working either with academia, local governance structures, the surrounding community, or an arrangement involving all of these. On a more general level —regarding universities as a physical cluster for cycling intensity related to the campus context— according to Beatley (2000), university students are more likely to cycle and to support political candidates who support cycling investments (p. 176). Aldred (2013) observes that students at Cambridge University are not allowed to take cars to campus (p. 257), while Pucher (1997) suggests the presence of large student populations is positively related to cycling uptake (p. 35), and Handy et al. (2012) suggest that a strong university presence is not only related to increasing cycling rates in smaller cities, but also more conducive to a progressive local culture and openness to adopt innovative programmes (pp. 279, 282).

Likewise —as mentioned previously— Páez & Whalen (2010) found that the enjoyment and positive utility of cycling to campus commutes realised by university students favour this mobility practice (pp. 547-548). Furthermore, Mota et al. (2019) underpin that universities are increasingly active collaborative centres working with governance structures involving business, communities and policy actors through knowledge, innovation, and technology transfer due to their expertise (pp. 233-234). Epistemic communities generally work with greater exposure of active mobility and acceptance to it —and an increased propensity to adopt cycling as a feasible mode of urban travel— and the corresponding pro-cycling policies necessary to favour it. But how can cyclists' epistemic communities create social impact as policy actors in the cycling policy issue?

Epistemic communities' role in policy change

Evidence shows that epistemic cyclists' communities have provided a fundamental role in advancing effective policy change in cities where they exist as part of the local cyclists' coalition. Jensen, Cashmore & Elle (2017) find that epistemic practices can stimulate urban governance changes by making cycling visible where it was previously ignored. Researchers, planners, and policy entrepreneurs as social impact policy actors have used epistemic practices to assess dominant social-technical systems critically —and of equal importance— to publish and communicate these findings as

part of a perspective which considers the potential of cycling as a legitimate practice with positive impacts on urban and mobility systems. Gössling (2013), for instance, claims that Copenhagen's progress and self-recognition as a 'champion' cycling city was researched to "derive new insights as to how urban transport choices can be influenced and changed", as it underwent "a genuine urban transport transition, achieved through a combination of policies and measures." (p. 204)

Epistemic community involvement can be viewed as a 'soft measure' campaign itself, producing the scientifically proven justifications for implementing 'hard measures' (cycling infrastructure) in the city, and publicising its benefits. Regarding Copenhagen's cycling revival, local epistemic actions were pivotal to inform local government and to provide findings disseminated through the CS justifying 'hard measures' and guiding the 'soft' policy implementation based on the knowledge it was advancing for strategic policy guidance, as described by Gössling (2013):

Soft policy campaigns seek to mediate an understanding that bicycling is fun, faster, comfortable and safe, and associated with tangible personal and societal benefits. Market-based measures have had a less significant role in the urban restructuring process, and are essentially restricted to high parking fees and the free transport of bicycles on trains, i.e., representing an internalisation of environmental costs through charges and subsidies. Progress on widely communicated goals including trip shares, cycle speed, accident numbers and perceptions of safety is measured and communicated in bi-annual Bicycle Accounts. Politically, costs of infrastructure construction are justified on the basis of the calculation of the socio-economic costs of bicycling in comparison to automobility, i.e. also representing a process of internalizing the costs of different transport modes." (p. 204)

These 'soft measures' have functioned as advanced focal policy outputs, with policy brokers being informed by the epistemic community, implicitly backing infrastructural 'hard measures' developed over a mid- to long-term time frame supported by regularly updated and publicised benchmarking reports and evidence applied to long-term visions for the city (Koglin, te Brömmelstroet, & van Wee, 2021, pp. 352-353, 356). Policies introduced in Copenhagen since the 2000s were preceded by epistemic research reports developed since the mid-1990s; these were crucial instruments for formulating and implementing a variety of pro-cycling policy outputs. According to Gössling (2013), Copenhagen's policy outputs are mostly cycling infrastructure, but the 'soft measures' of communicating the positive impacts of cycling were fundamental to support a pro-cycling policy development vision to citizens. The broad social messages is not only aimed at the public—but also politically to the electorate—while being useful to market Copenhagen's status as a 'champion cycling city'. Infrastructure development includes the implementation of a vast metropolitan area-wide 'cycle super highway' network and interconnected links, widening the existing cycleways to accommodate the growing number of cyclists, and providing additional bicycle parking throughout the greater urban area (Gössling, 2013, p. 204).

Jensen et al. (2017) assess that epistemic experimentation reflects the city's epistemic community's urban mobility transition as it interrelates with the dominant 'sociotechnical system'. By adopting and advancing changing perspectives from analysis of the phenomenon in the policy realm influence was exerted to advance in policy change: "...the way in which sociotechnical systems are acted upon (or governed) is inextricably linked to the epistemic practices through which a system is made visible. Experimentation involving new calculative practices may thus provide a source of leverage in generating alternative, more sustainable ways of knowing urban sociotechnical systems and hence actively governing sustainability transitions." (p. 460)

Shove & Walker (2007) point to epistemic communities' tendency to assume a common vision "defined and shared by a constituency of institutional actors" with "interest in how societal aspirations and shared problem definitions are articulated." Furthermore, they argue that the political orientation of these epistemic communities functions by managing an 'orienting vision' of the policy debate, i.e., "The process of abstracting the 'it' in question—the policy, the goal, the system—from its historical and contemporary environment is not just a technical matter of analysis but a political, constructed, and potentially contested exercise in problem formulation." (p. 765)

Likewise, Jensen et al. (2017) point to epistemic communities' function of measuring and evaluating *'the system's'* properties and performance within a given setting. These assessments, they claim, are important for governance processes, since they make sociotechnical systems governable by organising policy complexities *"into a limited set of politically relevant and concretely defined phenomena... (making) governance possible by installing a set of prioritised visibilities... which render some phenomenon visible as objects, while rendering others opaque."* (p. 461)

Epistemic cyclists' communities have played an important role over time in several *'champion'* cities with high rates of cycling, evolving since the last quarter of the twentieth century in policy, social, and community engagement as it evolved as part of the broader cyclists' coalition action. In Copenhagen, for example, Emanuel (2016a) describes how local epistemic policy actor perspectives evolved as they informed and interrelated with society and the city's urban governance structures (pp. 78, 80-81, 84-87). Jensen et al. (2017) claim that Copenhagen's epistemic group practices employed quantitative data and analysis to influence policy change, inform of qualitative alternatives, and from there inform and reset priorities with the *'calculative devices'*, which are *"any analytical apparatus used to structure knowledge production... to produce and organise knowledge about a sociotechnical system"* (p. 463).

These *'calculative devices'* work beyond conventional CBA assessments, functioning as pivotal policy outputs, evolving perspectives from police report on traffic incidents produced at least since the 1930s to the more recent *'Bicycle Account'* and socio-economic impact analysis. While the police traffic report set a negative tone upon cycling as a *'marginal activity'* and was used as a quantitative instrument to frame policies placing the onus of responsibility upon cyclists —transmitting a negative idea of cycling— recent policy outputs shed light upon the benefits of cycling by employing quantitative data also. The *'Bicycle Account'* and socio-economic impact analysis produced by the epistemic cyclists' community advanced new views onto the benefits of cycling since they were launched in 1995 and updated in 2009, integrated into the governance system at the institutional level (Jensen et al., 2017, pp. 466-469, 472).

Epistemic policy outputs have also been used to promote city branding through their competitive edge. Following the VCC held in Copenhagen in 1989, cycle policy and planning has become mainstream in the city (Emanuel, 2016a, p. 85). According to Jensen et al. (2017) Copenhagen's pioneer *'Bicycle Account'* was devised as a municipal policy output for an international cycling conference to be held in the city, and adopted as a biannual assessment by the municipal government as an epistemic product to advance bicycle-use as an urban experience, and make its benefits visible, based on the principle that *'what is measured counts'* (pp. 469-470).

Policymakers' preference formation considers a limit of issues to be discussed institutionally (Jalali, 2018), based on differences of degree instead of differences of kind (Druckman & Lupia, 2000, p. 2). This is how policy issues can be kept off the political agenda and work either against or for the intents of policy brokers' personal ambitions or coalition objectives, with responses prepared by epistemic communities working with that issue; either publicised and revealed or ignored and kept off the political debate. In the case of *'cycling cities'* with increased cyclists' engagement, local actors address and respond to lags in governance goals, plans, legislation, and/or norms, which hinder cycling and inform more positive political attitudes towards the subsystem. This applies to *'champion cycling cities'* such as Copenhagen or Amsterdam, but also to *'climber'* cities and *'starter'* cities with cyclists' coalitions.

Cities with lower rates of cycling have revealed different intensities of knowledge-based interactions over different time, as exemplified in different moments with Seville and Lisbon. In these cases well guided policy entrepreneurship and epistemic practices function as pivotal interactions to reach *'tipping points'* for effective policy change. Jensen et al. (2017) suggest that the new visibility provided by epistemic communities contributed to significant changes in the relation between governance structures and cycling as a policy issue —with change experienced in both the discourse and rationalisation of cycling— as city-wide phenomenon requiring institutional engagement. Following the implementation of the biannual *'Bicycle Account'* and integrating cycling as part of the city's policy, Copenhagen municipality's founding of a *'Cycling Secretariat'* (CS) in 2006 meant that an institutional department for dealing with all cycling issues in the local administration would work transversally informing various levels of decision-making (pp. 470-471).

Contrarily, in cities where cycling hasn't entered the systematised local policy process, cycling policy issues are commonly dealt with on an *ad hoc basis* in the absence of a strategic municipal framework such as an integrated Sustainable Urban Mobility Plan (SUMP). Appropriately developed SUMPs integrate the cycling subsystem and inputs from more specific cycling strategy dedicated departments, such as a CS. However, when cyclists' epistemic communities are involved in the institutional arrangement and given coordination responsibilities working transversally with other city-wide planning issues, engagement is taken to a greater level of visibility, articulation, and solution development. In fact Jensen et al. (2017) suggest that epistemic actors and their practices being integrated into the institutional policy arrangement since the mid-1990s —especially with urban planners— improved cycling experiences, facilitated its presence in decision-making, and placed it as a central piece of the urban culture and mobility system in Copenhagen. Policy brokers chose to increase budgets allocated to cycling infrastructure and policies since quantitative data helped inform and shape policies linked to policy narratives which were socially appealing and easily understood by the public. The '*Bicycle Account*' made city governance more accountable whenever new data was published since it became visible and was scrutinised (Jensen et al., 2017, p. 475).

Cities with epistemic communities focusing on their policy issue at the local level are likely to exert greater policy influence in the institutional framework. Besides the urban scale, epistemic communities have also worked in national and international networks, informing about the knowledge advances, and making the subsystem more visible through quantitative and qualitative practices, and publications analysing these. In fact, some of the most effective coalition action in Lisbon's setting is associated to numerous findings shared by epistemic communities as they advance new knowledge through the research conducted, providing new insights by interacting with local governance structures, and reaching out to citizens and local stakeholders. Section 4 .10.4 delves deeper into the role of Lisbon's epistemic cyclists' communities.

3.6.4 Social movements and cycling

The cyclists' coalition can be understood as part of a broader social movement; *i.e.*, the link between the social movement, citizens involved, the policy process, specific cycling subsystem policy actors engaged, and bicycle-use as more than just a mobility mode, but also a social practice (Aldred, 2010; Cox, 2015b). "*Cycling is never 'just cycling'*" (Aldred, 2012, p. 84). Cycling is a mode of transport which raises fundamental questions regarding the current sociotechnical arrangement and questions priorities in the existing urban realm and its mobility system. In this respect, cycling can be understood as a political act and a social movement manifestation in itself, originating from a variety of different social conditions and backgrounds (Schwartz, 2010). Horton (2009) researched bicycle-use's relation to anarchist tendencies and environmentalist movements opposing automobility and rethinking the city critically since the 1960s, with anarchism looking at the bicycle as a vehicle for protest, and environmentalism engaging with cycling as a mobility practice for daily life (pp. 11-12). Aldred (2012) finds that cycling advocacy in the UK has worked in conversation with environmental groups (p. 94), and according to Horton (2006) cycling plays a key part in both the individual projection of environmentalism and its social and collective goals of achieving greater sustainability (pp. 54-55).

Cycling as a tool for social movements' visibility has also rendered different perspectives within the social, historical, and political setting they operationalise within —providing greater visibility to aligned social causes— and marking the difference in settings where bicycle use is not a mainstream mobility practice, or where it exists but receives poor political responses —in many cases being stigmatised and connotated with marginality and poverty, and in others only being addressed in central, sometimes gentrified, upscale parts of cities (Blue, 2014, pp. 122-124; Soliz, 2019, pp. 111-113). Regarding the complex relation between cycling and aligned social movements, Aldred (2012) finds that "*cycling has always been constructed in relation to social movements and social identities, and so the politics of cycling varies depending on the relationship of cycling to politics more broadly.*" (p. 83)

Furthermore, as a mechanism for collective action —and from there, to coalition building— Cox (2015) observes that “*Social movement perspectives provide valuable standpoints from which to examine a range of forms of collective mobilisation.*” Yet cyclist’s actions can be approached as a phenomenon from different dimensions, including research on social movements and their relation to the cycling subsystem: “*Papers that explicitly address social movement studies in their examination of cycling, are not as numerous as perhaps one might expect, although there are a number of important exceptions to this. However, many more utilise key insights from the field as means to study cycling and cyclists’ actions, especially in their collective dimensions.*” (Cox, 2015, p. 2)

In fact, collective action may result from issues beyond the specifics of cycling, and associated with other political struggles and connections to the environmentalist movement (Horton, 2009). In cities with low rates of cycling, protests are commonly not centred on cycling as an issue —but around other problems where bicycles are useful tools for protest, or even a symbol of change— being relevant for passing the broader message of social struggles. As with other environmentalist movements throughout Europe, the “Earth First!” environmentalist group’s struggle in the UK during the 1990s exemplifies how cycling was adopted as an important symbol against automobility-centred transport policy in that country (Horton, 2009, p. 12). Similar roles for cycling have been adopted since the 1970s —and continue to date— in various climate action, environmentalist, anti-nuclear, and social cause protests in many countries around the World. Diverse forms of organisation employing the bicycle as a vehicle for protest have been employed in different settings, from cyclists’ entrance into the institutional process through policy associations in Germany (Brand, 1999, p. 45), to different examples of cycling protest rides in the USA (Angelique & Cunningham, 2006, p. 49), Australia (Branagan, 2014, pp. 1, 2, 6, 9-11), and numerous other countries, sometimes aligned with humour as a social critique —in Japan for instance (Brown, 2015, pp. 74-75)— and local amusement and long distance rides, in France, Spain, and Portugal (Valentines-Álvarez & Macaya-Andrés, 2019, pp. 75, 78). Bielak (2015) claims that collective cycling is linked to community building among protestors, marking a clear difference in cities with low rates of cycling, but being more diluted in cities with higher rates of cycling since there is less of a perceptible difference with the mainstream social setting (pp. 5-6). Likewise, the Lisbon activist’s opinion of the monthly meeting of the “*tribe*” in CM cycle rides expressed by Interviewee #6 confirms this perception in cities with lower rates of cycling.

Cycling citizens —or collectively organised policy actors working through activism, epistemic communities, or other fields of participation— can be visible, but they can also be ignored, looked upon passively or with contempt, hated as villains, or, alternatively, loved as heroes. When involved in the struggle to advance their goals as part of an effective local coalition, cyclists interact within a broad base of other policy actors which coalesce around the common goal, playing an even ampler role in framing policy narratives within the different social values of the time and physical setting they are living in. Oldenziel & Albert de la Bruhèze (2016b) underpin social movements as having influenced cycling practice and policy by framing it either as a negative or a positive factor in the urban realm during the twentieth and start of the twenty-first century (p. 11).

Coalition action has influenced opposing social viewpoints as specific policy issues are framed negatively or positively, in many cases reinforcing and polarising different positions within public opinion. Shanahan, Mcbeth, & Hathaway (2011) found that the influence of policy narratives on public opinion reveals a sequential approach to coalition action, more effective with like-minded citizens in a “*preaching to the choir*” context —exemplified by all types of actions from local activists’ meetings to international VCC events— strengthening their shared views, and less so incorporating divergent opinions, despite the possibility for change and conversion to the coalition’s point of view (p. 390). In some ways this sequential approach occurred with a changing view towards the public realm from the pre-automobility era streetscape with citizens’ perspectives changing as the automobility coalition influenced policymakers and society, transforming the traditional perception of the city street as a public space for everyone to a thoroughfare dedicated to accommodate for traffic speed and flows in the first place and side-lining everyone else (Norton, 2008, pp. 65, 245, 254). Jacobs, (1961) and Merrifield (2002) point to the automobility-centred transformation of New York city under Robert Moses’ leadership,

between the 1930s and the early 1960s massive road infrastructure construction to ease automobility at the cost of tearing apart neighbourhoods causing negative, lasting damage to the city and its community life.

During the first half of the twentieth century social structures were more rigid, with cyclists' associations failing to overcome socially embedded class divides or working outside established political structures, thus being subject to less scrutinised interests acting within the political arrangement (Cox, 2015, p. 7). Only in the late 1960s and 1970s did cycle activism recoup and take the spotlight—mostly as part of a larger social movement—fighting for environmental and social justice matters in Western Europe and North America. Likewise, a critical look at street space was reintroduced in the agenda through protest such as the 'Stop de Kindermoord' protests in the Netherlands, and epistemic actions such as Appleyard's (1980) 'Liveable streets'. Parallely, different levels of policy response to social movement actions were emerging where protest activity was most intense and where liberal democracies were most developed and governance mechanisms revealed some level of capacity for public participation. Cox (2015b), for instance, finds that Paris' April 23, 1972 'Bike-in' linked radical politics to cyclists' demands, in a concept termed as a 'vélorution' opposing road infrastructure along the left bank of the River Seine, with similar actions occurring later that same year in London, Rome, and New York, confirming that "*Significant among the emergent cycle activism was a strongly transnational influence and one which notably expanded concern beyond an interest purely in cycling and contextualised it within broader concerns for energy, pollution and social futures.*" (p. 10)

Notably, social movements worked within city contexts but had impacts reaching beyond national boundaries—as local broad-based environmental and urban issue actors embraced cycling with street level collective action working in parallel with institutional policymaking—challenging the political *status quo* priorities of that time: "*A broad coalition embraced the bicycle as the centrepiece of ecologically responsible transport policies, a position it was not to relinquish*" (Cox, 2015b, p. 12). Despite the high intensity of 'outside' street level pressure and 'inside' institutional policy actions developed during the 1970s, over time the social status of cycling was not very successful in many places (Reid, 2017a). Despite much rhetorical discourse from politicians—outputs in countries with low rates of cycling such as the UK or Portugal are few, or contrarily continue to cater for automobility even in the twenty first century—keeping significant outcomes for increased rates of walking and cycling at bay. Horton & Jones (2015) explain that such environments are "*thoroughly structured by the car, and drenched in pro-car messages*", keeping cycling as an 'unusual' mobility mode, ideologically repressed by not allowing city space to be transformed and reclaimed from automobility to walking and cycling (pp. 63, 72-74).

As discussed previously, temporary reclamation of city public space from what automobility has occupied, has been achieved by several 'performative critiques' such as direct citizen action through protest rides and CM events, and at a more institutional level, with temporary open streets initiatives run by local governments. In both cases, either through grassroots social movements or institutionally promoted, the underlying *critique* of the dominant ideology of automobility and its occupation of several domains of contemporary life become manifest:

When Critical Mass takes over a street it creates an obvious presence of cyclists in an environment that otherwise marginalises biking and restricts activities that hamper motorised transportation. City streets/roads are technically part of the public domain, but they are ideologically constructed to encourage certain forms of mobility while they inhibit others. Roads are the fundamental prerequisite for the system of automobility (Urry, 2004). ...roads have recently become a focal point for social movements and protest groups that struggle for transportation equity (Bullard, 2004, pp. 24-27), and the preservation of both communities and ecosystems (Aufheben, 1998; McCreery, 2001; Plows, 1998). By the nature of their technological exclusivity, roads/streets create an extended matrix of motorised space that dominates cities throughout the western world. (Furness, 2007, pp. 302-303)

Citizens' struggles contesting the system of automobility's intromission into the spheres of people's private and public life—through its narrowing down of individual and collective choices for both how to get around the city and the use of public space—inevitably led to the critical denominator of how cities and their streets have been politically processed to

assure a central role for automobility. The self-fulfilling ideological matrix of automobility —as underscored by Horton & Jones (2015)— contested by social movement actions creating, albeit temporarily, public spaces that are a product of and open to citizen's participation (Furness, 2007, p. 304), have cycling at the vanguard of reclaiming street and road space, and questioning the *status quo* of current social, urban, and mobility systems. As one of the facets of the reclaim the streets social movement, and directly linked to street level action just by the individual practice of cycling —*i.e.*, cycling citizen— and by its collective presence, CM and other bicycle protests also provide an opportunity for activist articulation, strategy development for policy influence, and enhancing actors for political community building by providing a broader reflection on what's wrong with today's city streets. Furness (2007) finds that

Often, this type of reflection and communication forges important bonds for activists who might not otherwise meet one another or understand the depth of their community. Through Critical Mass, activists share stories and common experiences, and use this as a basis in order to develop new activist networks and new modes of resistance. In this sense, the event functions like a 'situation' because it is both 'made to be lived by its constructors' (Debord, 1957, p. 25) and it can potentially sow the seeds of revolutionary discontent: "Such individuals share an alternative culture, but —for as long as they remain anonymous to each other— are unable to develop joint projects from their shared ways of life, values, and goals. Critical Mass made —and continues from time to time to make— visible and tangible the connections between them, transforming anonymous inhabitation of an imagined community into meaningful and possibility-laden participation in a real time face-to-face community. Herein lies the undoubted importance of Critical Mass; it is a tool not only for enhancing the activist identities of the individuals, but also for building a wider sense of political community (Horton, 2002, pp. 62-63). (Furness, 2007, p. 308)

As a manifestation of cycling's interrelation with reclaim the streets and environmental social movements CM direct street action may not in itself be enough to influence the policy process (Bijker, 1995, pp. 273). However, coalition actions comprehend a much wider variety of different actor relations and links, with protest rides garnering visibility and potential new support for the social movement —with participation being open to anyone—, thus providing a possible link to interested policy actors and expanding coalition membership, including those that may be less associated but possibly more influential or active in an overall political, epistemic, or other social or policy context. Interviewee #2, an epistemic actor in Lisbon resumes this link and how CM participants evolve:

There was a huge mass of energy which came from Critical Mass, and these are people who came together not only to fight for better conditions to use bicycles in the city, but also other projects, such as freeing up the sidewalks for pedestrians, cycling workshops, apart from more national legislation with MUBi, and then other protests with the Tua Dam, for example. These people end up having their own lives, they have children, they grow up, some go to other countries. That was all voluntary work, and things don't move forward... (Interviewee #2 – Epistemic actor)

External policy events are known to strongly affect coalition resources (Sabatier & Pelkey, 1987, pp. 248-249), and in localities with a low rate of cycling, the visibility of a CM or major protest ride may cause not only political impact, but also an increase of citizen interest and involvement in the cycling subsystem in general, and a renewed view of the policy issue and its viability. Carlsson et al.'s (2012) compilation of local descriptions explaining the evolution of CM during twenty years suggest replicable patterns of organisation and action, namely with the tools applied regarding the cycle ride and its dissemination, local schedule adaptations to the normal habits, the characteristics of the ride —more or less protest, more or less leisurely, more or less celebratory, more or less humorous—, the way cyclists interact with their political setting, and the complementary initiatives developed such as community bicycle organisations, meeting points, etc. all pointing to commonalities that can be applicable to each different context.

Considering the defiant, confrontational tone of CM and other reclaim the streets actions, these can be viewed as — even if small— significant policy events of citizen involvement, in settings where such a critique is not a central part of

the institutional process. Keeping the link between social movements and the existing institutional policy process in mind, and the way the coalition can produce this connection, Klein & Tremblay (2010) suggest that yes, when coalitions are anchored in society, their policy actors can influence governance and generate mutual learning: "...civil society organisations can take a significant part in metropolitan governance. ...consensus building attempts between actors, who harbour converging as well as diverging views, does not exclude conflict. However, it seems that conflict can be a source of mutual learning to foster compromises. These compromises generate a mode of action, a "culture of consensus-building" (p. 577).

Thus, while different contextual realities require different forms of organisation and interactions, the events may be useful to place the issue on the table and generate a discussion to inform policy brokers and local officials dealing with the policy issue. Different forms of governance partnerships involving coalition actors and policy brokers provides the material required to produce policy influence from the social movement sphere to the institutional realm, and this influence can be placed on the table with greater intensity when the variety of coalition actors involved is greater: Citizens, activists, epistemic actors, policy entrepreneurs, associations, political parties, media, etc. For the cyclists' coalition in particular, Batterbury (2003) is quite blunt as to the approach:

Planning is too important to be left to planners —especially those who do not ride bikes. The microgeography of the urban streetscape is best managed, and made more friendly and sustainable, by a coalition of citizens and professionals. This does not necessarily require social movements that are largely oppositional and free of influence from the state... But it does require that the new breed of social networks such as ECC (The Ealing Cycling Campaign) invest considerable energies in fostering, and maintaining, a working relationship with elements of the local government while retaining their own political space for action and debate. (pp. 166-167)

Social movements contribute to the policy debate from the 'outside', but it is through the multiple actions developed by the numerous coalition actors working in several different fronts, and using diverse means, when their aspirations are narrowed down to a manageable policy issue that they enter the policy process and enter the institutional level. These different levels include transnational interactions and exposure to broader international events —as illustrated by bicycle protest rides, CM, community bicycle organisations and other grassroots local initiatives replicated in cities around the World. Similarly, once the local level of links between social movements and coalition action is established and operationalised, associations, interest groups and epistemic communities can then proceed to launch international connections with social movement influence among diversified groups with transnational cycling interest groups; ECF at the European level, and the diversified networks which it promotes, such as EuroVelo cycle tourism network, the epistemic Scientists for Cycling meetings (S4C), and numerous programmes and initiatives, many coordinated by national member associations, and the World Cycling Alliance (WCA) and the Partnership for Active Travel and Health (PATH) at the global level.

Through the numerous and diversified policy interactions the relational network mechanisms cover different features of the policy debate which is worked upon by the coalition before being placed on the policy broker's table. From citizens' social practices to grassroots movement celebrations and protests to full institutional involvement and functional structures, be they the advocacy associations mentioned above, specific interest groups such as the cycling industry associations, epistemic communities, or other citizen interactions working at the institutional level —with media, political parties, associations, government structures, etc.— coalition action bridges cycling's role in social movements, refining its position and priming it to enter the institutional policy process.

3.7 Cycling's cultural status

Despite cycling's sustained revival in numerous cities since the turn of the twenty-first century, social perspectives viewing cycling negatively persists to date among several cities with low rates of cycling. In many of these localities, cycling became virtually invisible in the second half of the twentieth century, following massive implementation of automobility-based post-WWII policy and planning objectives (Albert de la Bruhèze & Veraart, 1999, pp. 14-18; Golbuff & Aldred, 2011, pp. 3-4; Veraart, 2016, pp. 200-203). Aldred (2012) claims that cycling was excluded from the dominant political ideologies of the post-WWII era —linking cycling revival and advocacy to dissatisfaction with welfare-state consensus— with cities in the Netherlands as the origin of automobility reversing policies starting in 1975 (pp. 86-87). Jacobsen (2003) finds that more people cycling not only provides greater visibility but also changes motorists' behaviour, increasing their awareness for pedestrians and cyclists (pp. 207-208).

Gössling (2013) points to mobility system transitions as being more likely when cycling gains momentum —with greater visibility and a larger number of cyclists— leading motorists to greater awareness and an increased cultural acceptance of cyclists' needs and rights, and increased public and political support for more investment in cycling infrastructure (p. 204), with higher levels of cycling leading to increased demand for pro-cycling policy formulation and implementation, and these in turn feed higher rates of cycling in a self-reinforcing process (Pucher et al., 2010). This escalation can reach the critical '*tipping points*' in mode share —which in turn reinforce policy interactions favouring the subsystem— as it gains higher rates of modal share and greater political legitimacy (Veraart & Schipper, 2020), exemplified by Berkers et al. (2019) in contexts with different cultural status attributed to cycling (pp. 51-55). Likewise, Gössling (2013) suggests that a period of strong increase in cycling in Copenhagen —where it more than doubled between 2000 and 2010— occurred following intense official pro-cycling communications, epistemic practices, and aligned policies implementing effective outputs, namely the dedicated cycleway network expansion. The robust growth experienced in Copenhagen during the 1990s contrasts to the city's low rates of cycling in the 1980s (p. 204), preceded by the city's lowest cycling modal share in the 1970s (Albert de la Bruhèze & Veraart, 1999; Oldenziel et al., 2016). Yet, while effective policy measures supporting cycling did reinforce a newly recognised positive cultural status which in turn helped sustain cycling's growth, cycling levels were already relatively high in this '*champion cycling city*' when compared to most other European capitals except Dutch capitals Amsterdam and The Hague. These high cycling modal share cities reveal patterns that are comparable between '*champion*' cycling cities, but not comparable or within easy reach of cities with very low rates of cycling.

Lois et al. (2016) suggest that the low-status image of bicycle users has changed in '*climber cycling city*' Vitoria/Gasteiz, where cycling is associated with young, active, and aware people, but not in lagging Madrid, where bicycle-use is scarce, commonly seen as infringing the social norm, and perceived as being extravagant or marginal (pp. 189-190). While the cultural status of cycling as a normal mobility practice is a requirement for effective mobility transitions, where this status is relegated to negative stigmas and identity issues cycling does not develop optimally, since it does not share an equal sociocultural standing within the urban and mobility systems.

3.7.1 Explanatory variables of cycling's social status

Aldred (2013) argues that despite the existence of twenty years of pro-cycling political discourse from national policymakers in the UK, the identity of the '*cyclist*' remains very problematic and socially stigmatised. From her findings on the influence of stigma upon cycling, Aldred raises the question of how policy-makers should thoroughly consider the unintended negative consequences of inadequately developed policy (pp. 252-253). In this respect, gender and age are two variables which explain part of the social status of cycling.

Gender

Women cycling, can suffer numerous socially imposed constraints, relegating this mobility mode to being unviable in low cycling rate cities. Women cycle less than men for a number of reasons—including socially imposed constraints—with less cycling among female than male adolescents, adults, and senior populations (Garrard, 2021; Garrard et al., 2012; McDonald, 2012b, 2012a, pp. 238-240). While in ‘*champion cycling*’ localities cycling is a common travel mode for all types of population groups and gender gap is practically non-existent, in lagging localities cycling with children, pregnant, or in numerous other situations which are the normal part of daily life and/or family routines are out of question, raising questions of equal access to public space and the availability of equitable urban streets and a correspondingly unbiased mobility system, available to all: “*In places where bicycling is the norm, there is no gender gap at all.*” (Blue, 2014, pp. 144-148)

Age

Age is another social explanatory variable regarding cycling. While in societies with low rates of cycling the bicycle as an object is commonly associated to as a toy or leisure product—also cycling associated with childhood (Vivanco, 2013)—and viewed as a symptom of irresponsible parenting or a delinquent’s mode of transport in lagging contexts (Kingsley, 2010; Skenazy, 2009, pp. 9, 19). Social prejudices, exclusionary measures and biased laws placing greater burden and blame on cyclists—especially younger ones—are socially accepted in many societies where automobility is dominant and cycling is unusual, with cycling helmet and/or high viz impositions and recommendations being clear examples of counter-productive policies which avoid dealing with the cause of injury and death: road danger generated by automobility.

Regarding contexts with low rates of cycling, the FHWA’s (1992) original National Bicycling and Walking Study census-based analysis of US city population groups during the 1970s to early 1990s found that age was the most significant demographic variable for utilitarian cycling, with bicycle commutes decreasing in frequency as age advances. According to the data analysed cycling was most popular for young adults, while regarding commutes it drops drastically after the age of 45 (pp. 1, 15, 84). Issues regarding the status of cycling among older population groups requires a closer analysis, especially since other—more recent—analysis point to a diversity of findings. Plaut (2005) found that only 10.5% of cycling commuters were over 55 years old, and Green, Steinbach, Datta, & Edwards (2010) reported that the average cycling age was between 25 and 44 years old. Contrarily, Garrard, Conroy, Winters, Pucher & Rissel (2021) found that in contexts where cycling conditions are favourable—Netherlands, Denmark, Germany, and Japan—high rates of cycling are common for older ages, and in some cases surpass the rates of cycling observed among younger adults, tending to increase in middle-aged groups and starting to decline gradually only after the age of 70. They also observe that the value placed on favourable cycling conditions is not only environmental—the existence of extensive, well designed and connected cycling infrastructure—but also environmentally influenced,—besides the existence of cycling infrastructure, the policy being applied in the given context, and the sociocultural environment’s acceptance of older people cycling and their cultural status (pp. 237-238, 241-246).



Figure 44
Adolescent cycling in São Pedro do Estoril, Cascais (June 2021)

Regarding younger populations, and especially university student groups as identified in section 3.6.3 above, numerous studies find academic student population group as the '*low-hanging fruit*' presenting greater willingness to adopt cycling, with a greater tendency for having a progressive attitude which may look upon cycling positively (Handy et al., 2012, p. 279). Baltes (1996) found higher levels of cycling from data collected in US metropolitan areas with academic students according to the 1990 US census, and Dill & Carr (2003) found that in major US cities 21% of cycling commuters were students, but only 11% of all commuters —using all modes— were students. They also found a significant correlation of cyclists with the existence of cycling infrastructure and higher fuel prices (pp. 118, 122). Gatersleben & Appleton (2007) found that students who cannot afford an automobile and didn't like to rely on infrequent bus service had a positive perception of cycling: "*For many of these people a bicycle can provide an excellent form of flexible transport.*" (p. 310)

Relatedly, Heinen & Handy (2012) observe that individuals' positive perceptions of cycling also point to a greater personal intention for non-cyclists to transfer to this mode in the future (p. 260). Similarly, people who cycle occasionally have a very positive view of cycling while those who have never considered cycling had the least positive view of this mobility mode (Gatersleben & Appleton, 2007, pp. 309-310).

Cyclists' social status

Lois et al. (2016), find that in cities with low cycling rates groups which don't identify themselves with cycling as a mobility mode may see the cyclist as a villain (p. 189), while Marshall, Piatkowski, & Johnson (2017) find that cyclists are disproportionately blamed for not obeying the rules, having to resort to '*scofflaw*' cycling; *i.e.*, bending the rules and defying legality for the rational reasons of assuring safety and functioning efficiently within a mobility system which omits, ignores, marginalises, or excludes cycling as a legitimate mode of transport (pp. 806, 826). Mandatory cycling laws are also symptomatic of cyclists' marginalised social status, by aiming restrictive measures upon cyclists despite a lack of scientific evidence that such laws improve road safety, aiming policing resources at the subsystem instead of the automobility subsystem which is liable for much greater material damage and human injuries. Aldred & Jungnickel (2012)

note that in mass motorised systems cyclists are perceived as problematic since bicycle-use is not the *'proper'* transport mode for roadways (p. 527).

In highly motorised settings, infrastructural provisions for cycling tend to be lacking, increasing inequalities and mobility poverty. In these settings, victim-blaming upon cyclists and relativizing deaths caused by irresponsible system planning and car-driving contrasts with societies with high rates of cycling, where anti-social motoring and placing cyclists in danger is deemed unacceptable (Aldred, 2012, pp. 100-101). The local specificities of the cyclists' cultural status are to be kept in mind when analysing the policy process—defining the most adequate means of formulation, implementation, and what outputs will be most adequate—for optimal outcomes in a given setting. Aldred (2013) suggests that the promotion of cycling requires knowledge of the different relations between contextual matters and social identities, especially regarding how cycling is understood and experienced by different people, genders, ethnicities, and social groups (p. 268).

Different factors affect people's perception of cycling in their specific contexts. Cyclists tend to be more aware of other cyclists, of the existence of cycling infrastructure in their neighbourhood or nearby, and seeing other people cycling frequently is related to a higher demand for cycling (Dill & Voros, 2007, pp. 13-16). Within the same line of thought, Gössling (2013) considers the crucial importance of communicating a clear political vision favouring cycling as a key precondition to improve its social status and leverage increasing implementation of cycling infrastructure, involving more citizen cyclists in the transition process (pp. 204-205). Increasing this citizen involvement is in itself a process of coalition building, easing the way for the implementation of pro-cycling measures when cycling modal share is higher and social acceptance increases.

Cyclists' behaviour and cultural status

In contexts with low rates of cycling—especially settings that are politically and spatially subjugated to automobility—cyclists tend to be stigmatised through different biases built into the physical environment—such as high speed roads and the barriers created by these—and socially accepted prejudices. Aldred (2013) explains that cyclists face pressure to manage the negative perceptions directed upon them from motorists—which they assume in their behaviour—negotiating street space as marginalised actors in the system: *"Cyclists' defensive and self-depreciating attitudes are also indicative of a context with a low cultural status of cycling."* (p. 268)

Cyclist's individual behaviour is influenced by habits and the surrounding social setting. Barberan & Monzon (2016) point to travel habits and cycling experience as key responsive elements, associated to personal familiarity and motivation,—*i.e.*, work or school commutes vs trips with other purposes (p. 313)—while Lois et al. (2016) find that cyclists' interaction with automobility is generally considered conflictive, and a struggle by cyclists to conquer a space that motorists do not want to give way to (p. 189). In fact, automobility's appropriation of public space has functioned in parallel with a frequent lack of acknowledgement—or interest in acknowledgement—by motorists of the presence of cyclists in traffic, reflected in the corresponding unintentional or intentional antisocial behaviours from motorists (McKenna & Whatling, 2007, pp. 456-458) and a history of conflictive behaviour from both motorists and motor interests, imposing the rules of automobility upon city streets as the dominant mode (Norton, 2008).

The cultural status of cycling is an unavoidable variable within the equation of policy change for increasing cycling—to understand the setting but also the coalition and the relations it must deal with—and the goals it aims at. In fact, Gössling (2013) considers that a commonly accepted cyclist identity may be the decisive outcome of an urban and mobility transition process, representing a goal for cities to aspire to (p. 205). Cycling citizens are key in the policy process for change.

Social biases grafted into the law

A common social bias is the safety perspective which places the onus of one's safety on personal protection, instead of designing a forgiving environment and reducing the cause of harm. The existence of 'victim blaming' policies, such as mandatory helmet laws, does not point to conclusive evidence of increasing cyclists' safety (Lemon, 2018; Robinson, 2006), but a vast amount of evidence suggests that such laws are counterproductive (BHRF, 2016; cyclehelmets.org, 2021), and how this restrictive approach has utterly failed (cyclehelmets.org, 2020; Turner, 2012). Commonalities detected are the negative impact helmet laws have on the 'safety in numbers' of having more people cycling for safer streets (ECF, 2012; Jacobsen, 2015). Helmet laws are restrictive, deterring people from cycling in general and present a series of social costs regarding civil liberties and freedom, legal questions, and introduce negative public health impacts, such as discouraging children from cycling and increasing the ratio of serious injuries inflicted upon cyclists (Clarke, 2015, pp. 31-32).

Policing and cycling's cultural status

Policing communication and priorities are also indicative of cycling's cultural status in a given location. Jensen et al. (2017) identify Copenhagen's police reports —published from 1930 until the 1990's— as portraying cycling negatively and diverting policy actors' attention away from the numerous benefits brought about by cycling, to focus exclusively on its risks. The political rationale of cycling placed the burden of responsibilities on the victims, downplaying its legitimacy and benefits in the urban mobility system. With these reports, cyclists were viewed as problematic and marginal actors, requiring government intervention to assure public safety (pp. 466-469).

Negative bicycle-exclusionary practices extend to police behaviour, and contrarily, bicycle-friendly practices also extend down the chain of policing strategy and command. In localities where cycling is considered a legitimate mode of transport, police enforcement tends to be relaxed regarding minor legal breaches by cyclists (Brailsford, 2015) —due to a broader understanding of cyclists' behaviour as they relate with their built environment and other traffic users by both governance structures and police forces (te Brömmelstroet et al., 2014)— and policing resources tend to focus on the major cause of road danger, material damage, and human injury and death.

Where the cultural status of cycling is low, the police can act as an agent of self-reinforcing exclusionary measures, negatively focusing upon cyclists (Aldred, 2013, p. 266). Common examples include enforcing 'scofflaw' cycling where adequate, safe provisions don't exist (Marshall et al., 2017), including policing of cyclists for using sidewalks/pavements and other pedestrian routes in locations where automobility is built-into the street system, dominating roads and streets with high traffic speeds and volumes. In extreme cases, police tolerance of road-danger and other abusive automobility practices —such as car-parking in pedestrian routes and cycleways— is offset with disproportionate enforcement of minor cycling illegalities. Aldred's (2013) account of policing in Hull, England as viewed from cyclists interviewed exemplifies the problem of biased policing:

In Hull, pavement cycling has become a neighbourhood policing priority seen as risking the safety of others. Around half our Hull cyclists had themselves been stopped for pavement cycling with penalties varying from a warning, to a fixed penalty charge, to being sent on a police-run education course. Many said they had been cycling on the pavement because they found the roads intimidating or dangerous. Some said that they would continue doing this and felt that the way the police treated cyclists was illegitimate. ... You get told off for cycling on the pavement and there are notices to say that you will be fined for cycling on the pavement and the obvious thoroughfares for cycles are prohibited for cycles. (Hull, female, 30s)" (p. 266).

Similar misdirected policing priorities are observed in some parts of the AML —the most explicit being in Oeiras municipality on what should be part of the EuroVelo 1 route, the flattest most obvious path between the most densely

populated coastal city areas, also designated as a municipal cycleway in the Municipal Masterplan, cycling is prohibited most of the time and police enforcement is common— despite no alternative cycling route. On the other hand, policing of speed-limits and illegal parking on local streets, cycleways, sidewalks, and pedestrian crossings is a common and socially accepted practice by policing authorities.



Figure 45

Av. Marginal between Lisbon and Cascais (Paço de Arcos, Oeiras, October 2021)

An underdeveloped gap in the EuroVelo1 trans-European cycling route.

3.7.2 Conviviality, coexistence, and cycling's status

Common attitudes towards how public space is used are influenced by prevailing cultural norms in practice at the time. Conflicts from contrasting lifestyles suggest different cultures with new ethical and political issues emerging around mobility system policy between automobility-based population groups and cyclists. The overarching mobility policy debate reveals latent discussions between the different urban cultures found in large cities, which for simplicity's sake can be categorised into the automobility coalition and the cyclists' coalition. This latent conflict exposes the different actors and their positioning in policy events regarding cycling, and symptoms around the intensity of the policy debate involving the subsystem —petitions, protest rides, episodes of *'bikelash'*, and other discussions in local politics— especially relevant when the dominant automobility interests are pinched with redistributive policies applied upon the public road-space which motorists feel is theirs by right.

Even in cases where dedicated cycleways don't exist—in low cycling contexts such as Portugal or the UK— the mere idea of coexisting with cyclists can be viewed as a problematic issue by motorists. Aldred (2013) observes that *"Cycling two abreast is not illegal in the UK, but is seen as a sign of bad behaviour due to its perceived profligate sociality within a space where speedy movement is prioritised. Such social cycling reframes the road as a street where leisurely behaviour is acceptable, but this is contested by the participant who understands the road as a functional space of fast movement."* (p. 265) Car-drivers' sense of privilege to car-speed and public street or road space occupation is intensified

where automobility is more pervasive —one extreme example is on a motorway or a high-speed highway—but it also occurs on arterial city avenues, urban streets with through car-traffic, and short-cut driving and traffic-jam avoidance rat-running through relatively dense urban areas.

3.7.3 Urban-suburban divide

Differences in the social status of cycling within the diverse localities of a large metropolitan area are complex and multifaceted —with recent scholarship suggesting a growing urban/suburban divide in a diversity of policy issues— and a politicisation of several conflicts associated with gentrification and fragmented social cohesion (de Maesschalck, 2011). Access to cycling as a mobility mode is also an area of concern —related to previously discussed issues of mobility poverty and propensity for social exclusion in peripheral urban areas— especially since bicycle-use has a generally higher rate in central city areas and less so in the outlying metropolitan areas (The Gallup Organization, 2010, p. 31). Bearing in mind that the income ranges of cyclists is apparently higher in places where cycling is more usual and lower in low-cycling contexts (Rondinella, 2015, pp. 115-117) —pointing to a relation between mobility poverty and the cultural status of cycling— the subsystem's viability (and rejection) can involve political biases, polarisation, and the possibility of the discussion being '*suburbanised*' (de Maesschalck, 2011, pp. 713-714). Similarly, the discussion around suburbanisation and how to mitigate the urban/suburban divide have pointed to relevant insights associating the mobility system and urban policies (Nüssli & Schmid, 2016). Family size is also related to cycling —with a higher number of family members and bicycle availability being a factor associated positively to more cycling— while car availability is inversely proportional to cycling (Pinjari, Bhat, & Hensher, 2009). Similarly, Stinson & Bhat (2004), Plaut (2005), and Parkin et al. (2007) relate car-ownership and living farther away from the city centre to lower levels of cycling.

Car-ownership is associated to suburban lifestyles due to the long distances covered and the systemic lack of transport alternatives. Aligned with data collected by EU member states and processed by The Gallup Organization (2010) for the EC DG MOVE, Stinson & Bhat (2004) also identify a higher propensity for people to cycle in urban areas than in suburban or rural areas in Canada and the USA. They relate this tendency to the complex challenges created by urban sprawl and low-density land use which are associated with prohibitive distances, a common lack of cycling infrastructure and high-speed roadways with no alternatives for cycling (pp. 7-8). An apparent cultural difference between highly motorised suburban cultures with respect to a more diversified urban culture —using a wider array of mobility modes by being able to choose walking, cycling, public transport, shared mobility, and private automobility— points to a greater cultural acceptance of cycling in central city areas also (Green, Steinbach, Datta, & Edwards, 2010, pp. 7, 21, 51-52). Cycling's cultural status and social organisation are related, and the way the policy process influences the built environment, urban development patterns and territorial occupation affect this status.

Different perspectives reflecting the possible existence of a cultural urban/suburban divide, or more precisely, a motorised vs diversified view of the urban and mobility realm, may lead to contentious policy conflicts between these two contrasting ideas of the city. Similarly, very different levels of policy development have been achieved for modal shift towards active mobility in different municipalities of many large city areas, likely due to the —low level of— importance different municipal executives place on the cycling subsystem, and —on broader terms— the lack of a vision for sustainable mobility and urban policy integration. The level of policy conflict in the suburbs can also emerge in the political arena initially from '*outside*' the mainstream automobility-dominated culture —with influence being exerted by citizens and activists employing diverse means for collective action, including those previously mentioned: CM cycle rides, social network activity and use of available policy instruments, such as PPB proposals— but mobilising support can be extremely challenging.

In the AML's suburban Oeiras and Cascais Municipalities no PPB winning proposal cycleways have been implemented to date, with Oeiras rejecting such implementations in the last three editions —2014, 2019 and 2021— but a winning

proposal in the Cascais 2021 PPB points to a renewed possibility in that locality since the proposal is aligned with a previous municipal project. Lisbon Municipality's PPB cycleways weren't directly implemented either but in some cases ended up becoming integrated in large urban square renovation projects —under the *Uma Praça em Cada Bairro* urban squares programme— such as *Avenida da República - Praça do Duque de Saldanha - Avenida Fontes Pereira de Melo* central artery cycleway built in 2016 as part of an urban renovation project including sidewalk widening and increasing vegetation coverage and trees, or in the pop-up cycleway project implemented on the *Avenida Almirante Reis* traffic artery and on most of *Avenida 24 de Julho* both in 2020. Despite much discussion and contestation, including from political opposition, persistence from the cyclists' coalition and mobilisation to defend both outputs have prevailed, contrasting to the suburban municipalities which haven't managed to produce the outputs to date (2022).

3.7.4 Automobility' dominance and cyclists' persistence

Another factor pertaining to the cultural status of cycling is its practice as a social pre-existence —which never disappeared completely— but has revived and increased, with an exclusionary response from counter-coalition policy actors who aren't keen on seeing the subsystem on traffic arteries on an equal or equitable level with automobility. In this respect, Shove (2012) raises questions regarding the status of cycling in contexts where it is residual, using UK society as an example: Who keeps cycling *alive*, and how? With what *relation to non-cyclists*, and why? How vocabulary is employed regarding bicycle-use also provides insight upon the cultural status of cycling: “*More obviously, cycling can only symbolize resistance and can only count as 'alternative' in situations in which it is not a dominant mode of getting around.*” (Shove, 2012, p. 368)

Questions regarding the future development of cycling also emerge: Who are the actors wielding influence upon future policymaking in the field? What events will occur? Which are most crucial? What policy outputs are being aimed at and expected? What are the foreseen outcomes and how can we achieve these?

These are all questions applicable to an analysis of policy change linked to the cyclists' coalition interaction in the policy process. All are related to the cultural status of cycling at a given moment in the locality being analysed.



Figures 46 and 47 – Excluded persistencies in the AML

Figure 46 - ‘*Amolador*’ traditional knife sharpener (Oeiras, November 2018). Figure 47 - A child cycling after school (Lisbon, April 2019)

3.7.5 Transitions theory

Jensen et al. (2017) consider that Shove's (2010) insights into transitions scholarship has conceptually reequipped how environmental-related issues are addressed, bringing in new considerations regarding governance involving sustainability-related issues —and the fundamental transformation of large-scale sociotechnical systems that such a transition will inevitably require— within the realm of social theory relating to climate change. This transformation requires policy change to address the dominant '*sociotechnical system*' and the reciprocal relations it develops with society — which as Geels (2004) underpins— addressing how the dominant technological approach —also of automobility in a mobility system—, its regulation, user practices, and markets are operationalised (Jensen et al., 2017, pp. 460-461).

Regarding the predominant sociotechnical system and how it can be used to impose biases and condition certain population groups and individual choices, from Geels (2004), before him Franklin (1990), Winner (1980), and seminally Caro (1974), explain how exclusionary measures are built into infrastructure as a result of programmatically directed policy brokerage. The extreme case of Robert Moses' power brokerage and policy outputs such as the Taconic State Parkway connecting New York City to the upstate New York towns and park areas —designed with overpass clearances allowing automobiles to pass but not buses, thus excluding non-motorised populations, at the time poor and black people— is possibly one of the most explicit illustrations of how biases, social conditioning, the built environment, and how they are programmed into policy decisions impose prejudices, condition choices, and stall transitions towards a more socially equitable, cohesive, and egalitarian society (Franklin, 1990, p. 71; Geels, 2004, p. 903; Winner, 1980, pp. 123-124).

The processes of disappearance, partial continuity, and revival are related to exclusionary politics; processes which are considered relevant for understanding the paths of transition aiming at sustainable lifestyles (Shove, 2012, p. 363). On one hand regarding the process of disappearances, how have these occurred? When did they start regarding the specific subsystem being analysed? A more recent example of exclusion by means of technology and innovation related to the case study localities is exemplified by Portugal's national infrastructure management agency which stopped counting cycling on national highways in 2005 —then *Estradas de Portugal* (EP), currently *Infraestruturas de Portugal* (IP)—, aggravating a *status quo* problem of biases since the *new* digital road traffic counters used wouldn't count cyclists. The most sustainable traffic mode was simply excluded and not valued from then on.

Contrarily, considering exclusion and revival in the current systemic transition, Shove (2012) advances two points of relevance regarding the '*dynamic relation between incoming, outgoing and returning systems*' —both implicating policy brokerage insights upon the policy process— especially the outputs which emerge from formulation and implementation:

1. The competition between "*incumbent and incoming sociotechnical arrangements*" is likely to lead to the replacement or profound change of the current —automobility dominated— sociotechnical arrangement. Despite the process of change, these are not always coinciding in two different '*subsystems*' (i.e., cycling vs automobility) operating within a mobility system. Relevant new insights are achieved by focusing on the interaction between "*co-existing sociotechnical trajectories, and of the extent to which elements of past configurations persist.*" (p. 364)

2. Achieving sustainable lifestyles presents a political dilemma, since on one hand it "*might well involve the partial reinstatement of configurations that worked in the past, but that have been edged out of the way by other more resource intensive systems...*" Yet "*Institutional and infrastructural points of no return are, in any case, such that it is almost certainly impossible to recreate conditions that pertained when societies consumed and produced within the limits of what one planet could sustain – a point that Western Europe appears to have overshot sometime in the early 1970s.Going back to such an era is not a goal to which governments or environmental NGOs officially aspire, yet many of the practical steps people are advised to take if they want to reduce the size of their carbon footprint entail some kind of return.*" (Shove, 2012, p. 364)

Policy brokers are faced with a fundamental conundrum if they want to effectively transition to more sustainable policies: How can they broker and admit to the necessary drastic adaptations in such an ingrained mobility system and introduce these as an aim of the policy process? How is the concept of 'degrowth' socially and politically understood? What cultural biases do we have regarding simpler, more prudent lifestyles? Or do we have deeper natural aspirations morally linked to results which might be contrary to mainstream culture's idea of liberty and progress and revive more conscientious lifestyles—as González (1999) inquires—remembering Socrates affirmation that "*It is better suffer the injustice than commit it*" (pp. 132-136). This raises the ethical questions which apply to society regarding the fundamental challenges for policy change: crucially, the willingness to change the current mainstream social and political *status quo*—based on the pervasive high energy- and resource- dependent system of automobility and its human, social, environmental, and climatic costs—by endeavouring upon the difficult task of implementing policy change for a more peaceful and liveable world for everyone at all levels.

3.7.6 Lessons from cycling's collapse, survival, and revival

Based on Albert de la Bruhèze & Veraart's (1999) assessment of cycling in European cities, Shove (2012) reflects on the diversified trajectory of bicycle-use in various European cities in the second half of the 20th century. From this reflection, Shove (2012) suggests that further study is required to understand the different results regarding how sociotechnical regimes collapse, persist, and reappear in societies where the '*system of automobility*' (Urry, 2004) is fully established. Various complex factors require more research around the cultural status of cycling as it has changed and how it has persisted over time, adapting to obsolescence, sociotechnical regime collapse, persistence—or survival—, reappearance, and revival. Shove's (2012) insights into transitions raises questions as to the current status of cycling in different local cultures—with its relation to policy change to be kept in mind—, namely: "*Why have some attempts at resurrection proved to be so much more effective than others?*" And also, "*Given that the conditions responsible for the decrease in bike riding (including car dependence, suburbanisation) persisted through the 1990s, one puzzle is why the decline did not continue, especially in countries where rates of cycling still had further to fall. In response, de la Bruhèze (2000) points to countervailing pressures in the form of new concerns about the environment, energy/oil crises and the quality of life.*" (Shove, 2012, p. 369) These questions connect back to meta-issues previously described, and how the policy process has addressed transitions at the local level through learning and knowledge transfer, city networks and interaction with coalition mechanisms at various levels. But change also comes from other unexpected exogenous issues.

3.7.7 The COVID-19 pandemic

Opportunities for change and increasing cycling also emerge by means of unexpected, exogenous circumstances, with opportunities for reviewing the *status quo* in urban priorities and mobility systems. The COVID-19 novel coronavirus pandemic had drastic impacts in cities around the World when restrictive sanitary measures and emergency lockdowns were imposed by national governments from mid-March 2020. Lockdowns forced an unprecedented and immediate shift of most of the global population's daily mobility patterns, reducing commutes drastically and requiring logistical work-from-home and school-from-home based arrangements, reorganising many administrative services and education sector areas and a drastic reduction of car-traffic regardless of the physical urban environment (Albuquerque & Esteves, 2020; Apple, 2020; Google, 2020; Waze, 2020), but cycling didn't drop correspondingly and increased dramatically when cities reopened (Buehler & Pucher, 2021a; Eco-Counter, 2020). The status of cycling is also affected by daily travel habits associated with each locality and the roles of conciliating family life with work, family logistics, and daily chores, etc.,

within these settings, but the subsystem seemed to adapt to the new circumstances of the pandemic. Twenty years before COVID-19, Beatley (2000) had observed that various northern European cities were already adopting the possibility of ecologically minded housing developments with a high share of work-at-home arrangements, thought out as a measure to reduce commutes and car-dependence (p. 80).

The critical analysis for effective policy change regarding cycling —however— requires an in-depth focus of the policy response that each specific locality formulated and implemented for the post-pandemic period. Influence from cyclists' coalition actions for change as they relate to policy outputs and outcomes achieved provides some insights into policy response, including cycling. This interaction emerged in many cases since pre-existing epistemic activities, activism, policy brokers' capacity —and regarding the cultural status of cycling, social responses— where already working in the field before the pandemic and used this '*window of opportunity*' for policy change. Nonetheless several questions require more research to understand if and how change was achieved: Did each locality's governance structures take advantage of the drastic impacts, and did they use them to effectively transition away from automobility to a more diverse and sustainable mobility system? How was active mobility addressed? Was cycling taken into consideration? How? Much research is still necessary as the post-pandemic period ensues —including an analysis of the evolution of the cultural status of cycling— and how public policy responded, what precedents existed in the policy process, and how different approaches by local coalition action and governance structures performed regarding the policy issue of transitioning— from automobility— to cycling.

3.7.8 Cycling's cultural uptake

Oldenziel & Albert de la Bruhèze's (2016b) five-factor approach to advance knowledge of cycling in European cities, the coordination mechanisms within each coalition and how the policy process evolves by means of policy actor interactions and associations with corresponding outputs and outcomes shedding light on the cultural status and possibilities of cycling within a given setting. "*The cultural status of bicycles and their riders also determines the viability of urban cycling. ...The loss of [the] bicycle's cultural status was detrimental to cycling policy.*" Crucially, from cities with high cycling rates: "*The reversal came in the 1970s. ...It's new cultural position has boosted cycling policies in urban Europe and beyond.*" (Oldenziel & Albert de la Bruhèze's, 2016b, p. 12). Yet in cities with low rates of cycling and a meagre cycling citizen electoral base this reversal has just started and faces immense challenges, political risks, and the possibility of significant setbacks, and in some cases a robust revival hasn't really started at all. Five decades after the reversal of automobility and cycling uptake experienced in several European localities —in a transition process involving both increasing modal share and greater cultural acceptance— in others, substantively, this process of change hasn't happened. In others it has occurred as a geographically and/or temporally isolated phenomenon and still faces tremendous difficulties when it finally does try to enter the mainstream policy agenda of broader social engagement.

Precedents set by policy discussions and initiatives in the 1970s —which reinforced the leading position of societies where cycling was already enjoying a relatively high modal share— are worthy of analysis regarding a cycling revival. The Hague's policy output of producing the first automobility-light traffic calmed street cutting-off through traffic, reducing car speeds and significantly restricting carparking worked in parallel with cultural processes already underway at the time, influenced by reclaim the streets social movements. Fifty years later, comparatively, most of the AML's municipalities are far from sharing this policy orientation, and such social movements are weaker, as is governance permeability and links to achieve such a policy agenda from local coalitions. Lisbon municipality could be an isolated example of greater social and coalition intensity, but introducing such policy measures would bring contentious discussion into the political arena, as was witnessed in the 2021 local election campaign.

Epistemic actions were key in stimulating the kind of experimentation observed in the Hague—not only regarding cycling and automobility—but also residential area ‘woonerf’ realised in nearby Delft and Emmen. The first official ‘woonerf’, for example, originated as an institutional policy output from the Netherlands Association of Local Authorities in a 1975 report—gaining national legal recognition in 1976 (Kraay, 1986, p. 20)—the same year the first ‘woonerf’ was implemented in The Hague (Berkers et al., 2018, p. 46). It was the role of ‘learning’ that influenced policy actors to search for new solutions and accept policy transfer. Factors such as proximity may be associated to the institutional and cultural acceptance of these urban experiments. The Hague is located 8 km from Delft—where an epistemic community has been active over time, at the Delft University of Technology—with several benchmarks in urban spatial experimentation and cycling policy developed there (Berkers et al., 2018, p. 47). The Hague being the Netherlands’ seat of government may exert some influence as exposure to counter-expertise and user-based research from local activism can interact with local epistemic communities which are close to decision making in the national policy-making circles, providing ‘export capacity’ to other localities in the country.

Berkers et al. (2018) point to the professionalisation of The Hague’s activists during the 1980s formalised by their establishment of a local cyclists’ organised interest group—The Dutch Cyclists’ Federation - The Hague chapter—as a stimulating factor to further intensify impacts upon the policy brokerage process and to effectively participate in policy processing, thus influencing decisions for effective implementation of pro-cycling policy outputs (p. 46). Organised coalitions in capital and/or large influential cities have more tools available at hand to exert greater influence for the cultural acceptance of cycling throughout a country, and in Portugal due to their disproportionately large metropolitan areas these cities are Lisbon (AML) and Porto (AMP).

Similarly, in a completely different context, key policy changes occurring in Munich during the 1980s involved a new perspective on cycling, resetting urban mobility priorities and city street policies from a wide variety of well-coordinated citizens, associations from a diverse areas—such as Munich’s Catholic Youth Community Environmental Group—, researchers, and politicians (Albert de la Bruhèze & Oldenziel, 2018, p. 42). Yet unlike in the Hague, and despite intense policy debates, and media coverage of local citizens’ initiatives and epistemic actions, participation in the policy agenda with the Inzell consensus-based initiative—developed with local policy brokers and municipal officials—was insufficient when compared to the results cycling has achieved in Dutch cities. The diverse response observed between the policy debate in these two nationally influential cities point to differences in the local cultural status of cycling, the subsystem’s position among social values, the corresponding speed of implementation, and the level of impact that output production can achieve. These cultural differences are to be kept in mind regarding insights for policy change, and to identify replicable patterns where commonalities exist—to achieve effective impacts in cities in different settings—such as Lisbon, Porto, or other localities with low rates of cycling.

3.8 Conclusion and limitations of cyclists’ coalition analysis

Commonalities are observed among cities with collective action and cyclist coalition formation associated to producing policy outputs with outcomes, pointing to a correlation with change. Nonetheless, several caveats are to be kept in mind: namely that the descriptive insights achieved provide a significant starting point for general level analysis but are not sufficient in themselves for an in-depth analysis of each city’s specific policy process for change aiming at cycling’s uptake. Historical, social, and policy aspects are related policy areas of interaction between different policy actors—framing the subsystem at the ‘nexus’ where these three disciplines overlap—as illustrated in Figure 12, Simplified conceptualisation for framing the policy issue (see 2.5.8 Agenda setting and policy-issue framing, above), but different settings, different empirical and value lenses, and the counter-coalition are unaccounted for in this line of research. These

gaps correspond to research limitations which could be addressed with further research on those specific areas. Geographical, territorial and spatial issues are also not an ACF component in themselves, but instead are integrated as part of the policy actor interaction and the related policy areas that frame it, conditioned by history considering the ACF time frame, society considering citizens and social movements, and policy and its process decisions which shape and condition the built landscape.

Cultural and built landscape differences are to be kept in mind regarding policy change, pointing to the importance of case-study qualitative and quantitative analysis of cyclists' coalitions. In this respect, differences are a starting point to explore for '*new knowledge*', considering that local policy responses point to cultural variances regarding the subsystem's status. Cycling's social positioning is associated to policy decisions and vice-versa —considering that outputs manifest the extent of implementation and outcomes the extent of impact— while contextual factors enrich the ACF policy process methodology for the case-study.

Another limitation to cyclists' coalition analysis is that significant caveats are also identified regarding cycling's revival and cultural uptake. Transition involves increasing modal share but also greater cultural acceptance which varies between cities but also within the different localities and neighbourhoods of large cities, and coalition policy actions don't necessarily cover an entire city. As an isolated phenomenon in one city area —for instance, only at the core—could still be an '*outside issue*' in other parts of the city or most of its FUA, and still facing difficulties entering the policy process in a comprehensive way.

4. The Lisbon cyclists' coalition: a case study for policy change, 2009-2021

Just one caveat. It's a fuzzy logic, I don't think it's because these things happen that they have necessarily brought about change, what I'm saying is they are part of the change itself. When events, happenings, associations, gatherings of people who cycle happen, they are not necessarily bringing about change. Change is always in progress and is only recognised as change when there is a retrospective reading of the moment.

(Interviewee #8 – Activist)

With the Advocacy Coalition conceptual framework as the theoretical basis underlying cyclists' coalition achievements and failures —how commonalities found in policy struggles have been operationalised in general terms by these coalitions— this chapter provides a detailed case study analysis of Lisbon's cyclists' coalition's policy influence during the 2009-to-2021-time frame. The setting is Lisbon in a broad sense —differentiating between Lisbon Municipality at the core— including metropolitan area municipalities (AML) and a slightly fuzzier frame since pre-2009 events are related, but quantitative data collection is considered between July 2009 and December 2021. New knowledge advanced regarding the cyclists' coalition is studied from insights gathered through qualitative research on the Lisbon case-study incorporating my personal practitioner experience, documents read, policy actor interview, and a quantitative analysis for comparative research on the case study setting. The applicability of new knowledge explaining the role of policy change is useful for comparison with other contexts with different rates of cycling with the case-study providing practical new insights which may be especially valuable for placing cycling on the policy agenda in contexts with low rates of cycling, where it is excluded and dealt with as being unusual and an 'outside' policy issue. This case study provides a cross-section of how to understand policy development as it is happening —with the crucial role of the cyclists' coalition as a transformative element— and most significantly, how it can continue to effectively advance with the transition towards increasing cycling in a particularly difficult setting.

4.1 Case-study methodology

The case study analyses is based on personal notes and documents read, policy actor recorded interviews —semi-structured, anonymous, aiming at gathering information and network intensity among different policy actors—, and a comparison with a quantitative analysis of cycling traffic moving counts realised between July, 2009 and 10 December 2021, along two of the city's major traffic arteries covering two municipalities (Lisbon and Oeiras) and diversified city areas, namely the central city areas, peripheral areas North and West of the centre; riverside centre and West and inland, central business district, uptown to peripheral neighbourhoods North of uptown. The case study is designed to analyse policy process between 2009 and 2021, with a look on formulation, implementation, outputs, and outcomes and associating these to cyclists' coalition action. As part of a coalition analysis of public policy, the case study frames a qualitative analysis of cycling in Lisbon during the study time frame considering context, policy process and a quantitative analysis of the policy process illustrating policy outputs and outcomes, as simplified in Figure 48:

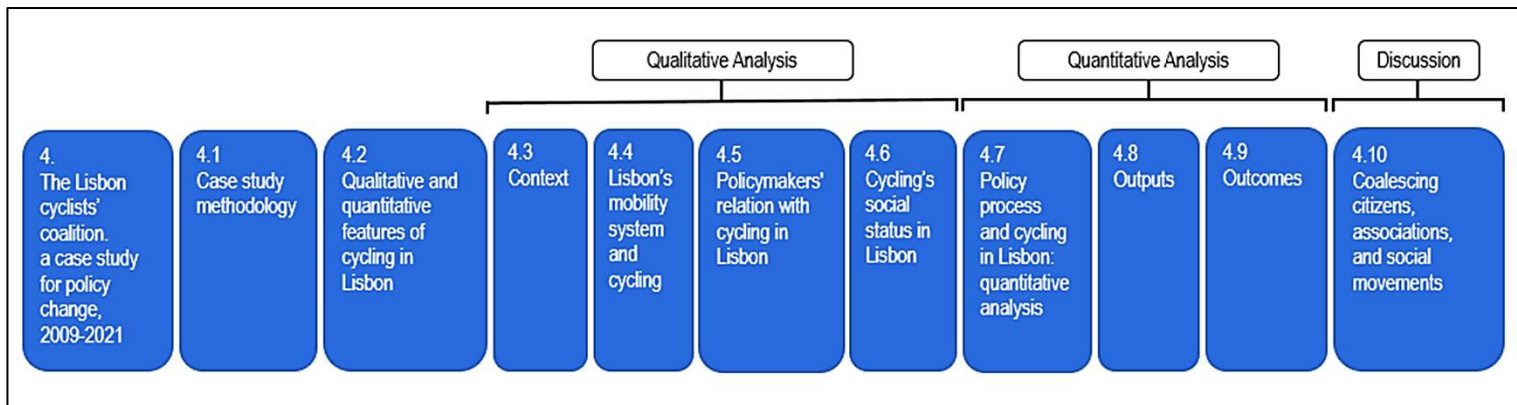


Figure 48
Simplified case-study chapter design

As with most ACF-based scholarship, research proceeds from qualitative analysis (Pierce et al., 2017, pp. 1, 10, 12-14, 22-24), but in this case quantitative data analysis is provided to better describe policy outcomes and interrelate process performance with the cyclists' coalition. This combined analysis links relevant knowledge by providing new insights which relate with the public policy process as it evolved during the study time frame, which is also useful to inform future decisions. Figure 49, below, provides a methodological sequence for the case study's qualitative and quantitative research.

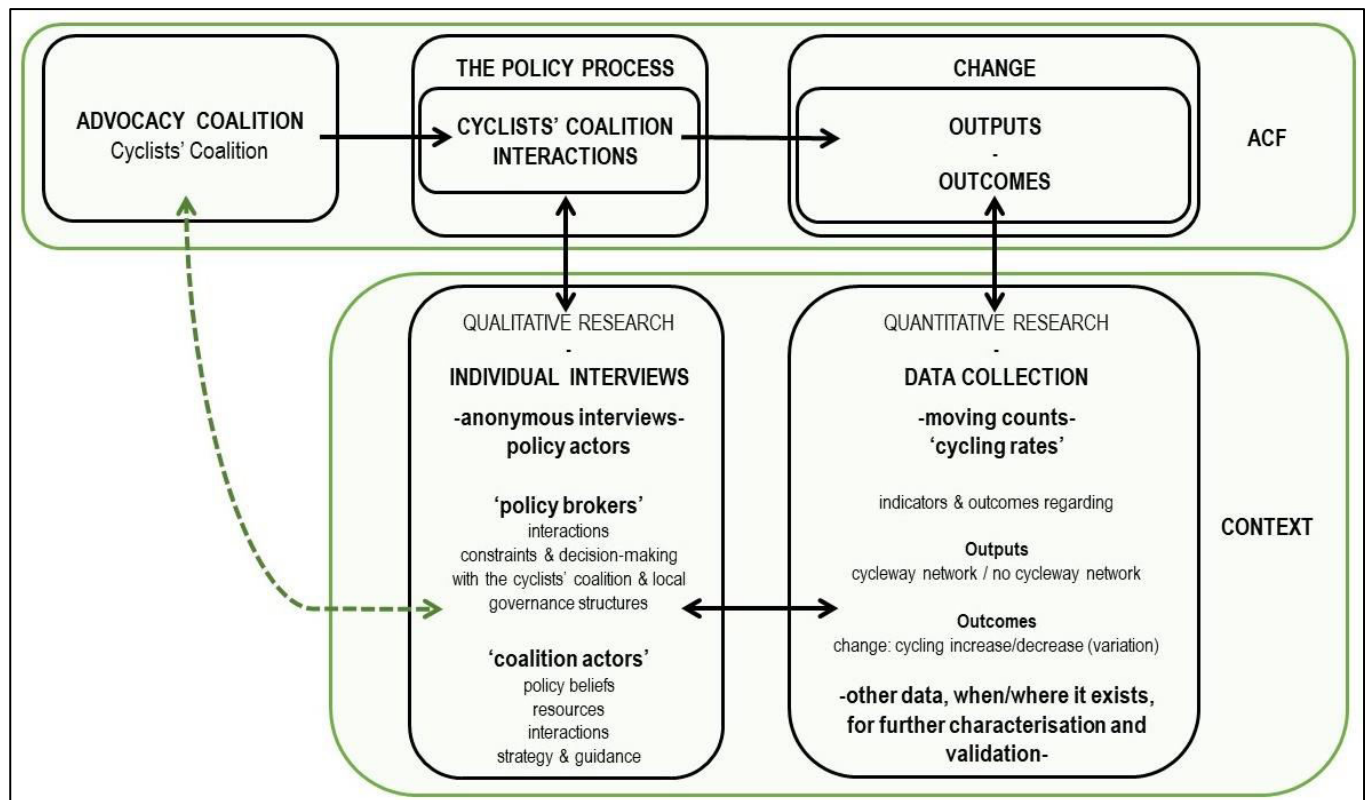


Figure 49
Methodological sequence for the case study's qualitative and quantitative data collection

4.2 Qualitative and quantitative features of cycling in Lisbon

Cycling is characterised as a specific phenomenon by means of contextual and policy process analysis, from document information gathered from a diversity of sources, interviews conducted, insights from personal professional experience with Lisbon municipality, and data collection analysed and conducted. The eleven individual interviews provide a clearer perspective of Lisbon's cyclist coalition interactions within the policy process, and —from data obtained through moving cycle traffic counts realised in the study area from 2009 to 2021—change can be confirmed quantitatively, focusing on the relation between policy process subsystem outputs and policy issue outcomes.

4.2.1 Qualitative approach: personal notes, documents, and interviews

With the aim of characterising the cyclists' coalition as a key part of Lisbon's policy change experienced between 2009 and 2021 —besides the personal notes taken from work experience, and documents read between 2018 and 2022 — interviews were realised in January, February, and early March 2020, before the COVID-19 pandemic emergency measures were applied in Portugal. These interviews were specifically programmed seeking new insights from different policy actors —and policy actor types— involved in the case study city's cyclists' coalition with involvement between 2009 and 2021, and in several cases also preceding this study time frame. Policy actors are understood in this thesis as the active '*rule users and makers*' (Geels & Schot, 2007) in policy development for change —but variety is key to assess a diversity of viewpoints regarding the phenomenon. Interviews applied Ingold & Varone's (2012) insights, specifically that interviewees —as policy actors— "*tend to replicate their personal belief systems, rather than that of their organization and that individuals are the ones who learn and act in a policy process*" (p. 326).

Coalition actor roles are differentiated from associations in interview questions by asking '*in your opinion*' vs '*in the viewpoint of your organisation*'. Contrarily to Ingold & Varone's (2012) approach to policy-brokers, this thesis' interviews encompass a broad range of actor types, thus interest in personal opinions which confront institutional rules, personal views in a relatively hegemonic policy context —*i.e.*, dominance of automobility-based policy rules—, and a focus on individual actors as much as it does on their associations. Not all interviewees are policy brokers, and —even when they are— considerations on the urban regime where policy influence '*from the outside*' is key for policy change are equally held as valid as are those of their collective associations and institutional perspectives. Furthermore, citizens are considered an equally important keystone to coalition action as are institutional policy actors, considering that in settings with low rates of cycling, utilitarian cycling is a political act even if inadvertently.

Marsden, Frick, May, & Deakin's (2010) seven policy actor types and their involvement in policy transfer and learning in city governance structures —as compared to the coalition actor typologies defined by Weible & Ingold (2018)— are categorised according to their level of participation in advocacy coalitions, and kept in mind as a basis for a more practical approach applicable for city governance structures. From this refinement, policy actor interviews are conducted considering the actors involved in the cyclist' coalition —gathering information on how actors interrelate and associate with each other, the different depths of engagement in policy change each actor plays, and their specific roles— applicable to research on the case study policy subsystem.

From Table 4 in chapter 2 above (section 2.3 Advocacy coalition actor types), policy actor types were organised and given an anonymous number, for the purpose of interviews, as follows:

Table 9 – Lisbon Policy actors interviewed

Advocacy coalitions (Weible & Ingold, 2018, p. 332)	City governance (Marsden et al., 2010, pp. 506-507)	Cyclists' coalition
Principal coalition actors	Elected officials, government administrators, suppliers, interest groups, residents, think-tanks, consultants, non-governmental organisations 'policy entrepreneurs' (who may be located inside one of the aforementioned groups)	Activists, researchers (date of interview) <u>Interviewee #2 – Epistemic Actor (20.01.2020)</u> <u>Interviewee #3 – Activist (22.01.2020)</u> <u>Interviewee #6 – Activist (28.01.2020)</u> <u>Interviewee #8 – Activist (12.02.2020)</u> <u>Interviewee #11– Journalist (10.03.2020)</u>
Policy brokers	Elected officials, government administrators	Policy brokers <u>Interviewee #5 – in office (24.01.2020)</u> <u>Interviewee #7 – in office (12.02.2020)</u> <u>Interviewee #9 – former (19.02.2020)</u> <u>Interviewee #10 – former (03.03.2020)</u>
Policy entrepreneurs	Local officials, governmental organisations, policy entrepreneurs	Policy entrepreneurs <u>Personal notes and insights</u>
General citizens	Residents	Could be any of the above <u>Interviewee #1 – Citizen (19.01.2020)</u> <u>Interviewee #4 – Citizen (24.01.2020)</u>

Since policy actor definitions are fuzzier than the specific actor typologies—with some of the individuals involved in an advocacy coalition fitting into more than one of the policy actor typologies—the categorisations are refined to fit into a format applicable to the case study. Insights obtained are useful for analysing the cycling subsystem, the implications of the policy issue, and different perspectives about the policy issue: the phenomenon of cycling's uptake in the city. Several of the interviewed actors fit into one or more roles of involvement in the subsystem at a specific moment in the policy process as it operates over time. For instance, a specific policy actor may have engaged in different functions over the study time frame; e.g., starting as a non-involved bicycle user since childhood (1978), participating in an advocacy coalition as a teenager (1986), cycling as a citizen, getting involved in leisure rides and related projects (2008), later evolving into activism and CM rides (2011), and from there entering the policy process from related professional experience and into the epistemic area (author). Or starting as an activist from the start and evolving into epistemic community involvement (Interviewee #2).

Generically, from information gathered in the interviews and personal experience, a citizen, for instance, may be an activist, belong to an interest group at a certain moment, and at a given moment become an academic researcher or get involved in the policy making sphere as a politician, a policy entrepreneur, or a consultant. Regarding greater involvement, Christopoulos & Ingold (2015) refer to 'exceptional actors' who at a given moment are policy entrepreneurs and in others policy brokers (p. 476-477). As addressed previously, entry into the cyclist coalition from activism, and from there to the institutional politics of cities has occurred in cycling subsystems in several benchmark cities such as Groningen with Max van den Berg entering local politics, exercising policy brokerage from 1969 to 2007 (Bruntlett &

Bruntlett, 2018, p. 45-49). The typological categorisation from Table 9 (adapted from Table 4 in Chapter 2) is useful for 1. - identifying policy actors' specific positions, patterns, and policy actions, 2. - identifying interactions in the policy process, the evolution of local cycling culture and its capacity to integrate into the local policy system, and 3. – in practical terms to organise interviews for this thesis.

4.2.2 Qualitative approach: interviews

Interviews help characterise different policy actors' interactions within the policy process and the developments associated to their level of participation and observation by identifying and confirming links between a diversified type of cyclists' coalition actors including policy brokers who are —or have been— political decision-makers; *i.e.*, mayors and deputy mayors. The time frame chosen, between 2009 and 2021 is paradigmatic, since Lisbon's former condition of a city with a an extremely low level of cycling and no visibility changed in thirteen years, as confirmed by both the quantitative approach presented in this thesis and complementary data sources, validating this change.

For comparison's sake —to further advance knowledge in the policy process— since policy performance differs between the AML's municipalities the study area includes policy actors from the two outlying municipalities of Oeiras and Cascais in the interviews, aiming specifically at identifying potential weaknesses, flaws, or gaps in the policy process and effective change in the different localities. Both Oeiras and Cascais municipalities are prominent AML localities, sharing the urban continuum with the core Lisbon municipality but not witnessing an equally expressive uptake. The interviews reinforce knowledge of policy mechanisms and interactions between cyclists' coalitions and policy brokers, clarifying the level of intensity of the cycling subsystem and the policy issue in the case-study setting's political debate. For instance, interviewees #5 and #7 —high-level policy brokers from Oeiras and Cascais— both compare their localities to Lisbon, one admitting a lag in his municipality (Oeiras), and another speaking of a healthy competitive edge (Cascais). Interestingly Cascais had the highest cycling modal share in the AML (1.4%) in the 2018 metropolitan area mobility survey, while the municipality situated between these two regional '*champions*' [sic] —Oeiras— had among the lowest (0.2%) in 2017. Nonetheless —and considering the overall very low rates of cycling—3333 despite both municipalities revealing an uptake in cycling between 2011 and 2021 (INE, 2012, 2022b), Cascais registers a decrease in cycling when comparing results from the 2017 mobility survey with the 2021 national census, while Oeiras presents an uptake (INE, 2018, pp. 188, 195; INE, 2022b).

Interview objectives

For greater conversational fluidity, interviews were conducted in Portuguese considering the study area's language. Noticeably, all interviewees revealed a high level of knowledge of English when questions were posed or repeated in English, for instance when interpreting the Nolan (1971) diagram. Anonymity was always assured to avoid constraints due to personal reasons or personal involvement in the policy issue, politics, political parties, and politics, to protect policy actor's personal identities, thus avoiding ethical issues. The anonymity also holds an advantage considering that a replicable nature for the insights achieved is being sought and therefore identity and links to political party politics or programmes are avoided.

Interviews were semi-structured, relying on specific starting open-ended questions and personal perspectives or insights to initiate the conversation. The aim of seeking links between the policy actors meant that information —which would correlate with the policy process and with quantitative data outcomes— sought insights on policy influence in formulation and implementation and the role of the cyclists' coalition in dealing with cycling in the different localities addressed, and establish relations —or lack of— with cycling's uptake.

Policy broker interviews

Interviews conducted with policy brokers identified these political figures as policymakers with responsibilities dealing with—or having dealt with—the urban and/or mobility subsystems. The profiles include four deputy mayors with direct or indirect supervision of the mobility system, two who were in office at the time of interview (interviewees #5, #7), one who had been in office previously during the study time frame (interviewee #9), and one who was deputy mayor not directly related to mobility or utilitarian cycling, but related with cycling, namely through political areas of leisure, physical activity and sports (interviewee #10). All of the policy brokers interviewed had been deputy mayors sometime during the study time frame, between 2009 and 2021.

Policy brokers interviewed were “*those individuals ... whose primary goal is consensus and the mitigation of conflict*” (Weible & Ingold, 2018, p. 332), identified with the political figure of the deputy mayor for mobility, a political actor who mitigates issues between cyclists’ coalitions and the competing interests of automobility, in cases where their actions may also be delegated by the mayor, since they do have to report back to the municipal ‘*sovereign*’. Portugal’s local political system is particularly mayor-centred (Jalali, 2014, pp. 239, 254; Mouritzen & Svava, 2002, p. 58; Teles, 2014, p. 8), with the figure of the municipal deputy mayor in charge of mobility in all cases providing a very clear picture of the subsystem’s importance in the municipal executive cabinet, but not always capable of advancing the programmatic agenda they might personally defend. The way in which interactions, relations, and issues regarding cycling and its conflicts with other modes—vying for valuable and scarce city street space and budgets—also provides relevant insights on cyclists’ coalitions which become clearer with these interviews, providing a picture of how the policy process has dealt with cycling in Lisbon during the 2009-2021 study period.

Coalition actor interviews

Cycling coalition actors interviewed include both ‘*principal coalition actors*’ and ‘*auxiliary coalition actors*’ (as per Weible & Ingold (2018), p. 332, and Table 3, in section 2.2 What are advocacy coalitions?) without specifying the difference between principal and auxiliary actors for the case study, since at different moments in the analysis time frame individuals have navigated through the social process in diverse policy actor functions on one hand, and apparent auxiliary coalition actors have in several ways manifested that as cycling citizens they are performing the principal action at stake: cycling. Their actions happen simultaneously with the advancement of the policy process itself, and as interviewee #8 – Activist, resumes eloquently regarding the fundamental role of cycling citizens:

“they are part of change itself”

‘*Citizens*’ (interviewees #1 and #4) have advanced very complete, well-articulated assessments of the cyclists’ coalition, revealing greater involvement and a clearer understanding of interactions than initially expected when thesis research began. This reveals that cycling’s uptake may be more pervasive than expected. Furthermore, citizens identify the kinds of resources and barriers they have faced in trying to influence policy development in Lisbon—which is not only indicative of the image they have of different institutional spheres in general, and policy makers in particular— but of a thorough knowledge of the physical and operative setting they’re living in.

Interviewed policy actors share the general cyclists’ coalition goals and have collaborated to different degrees in policy associations, events, venues, and other interactions during the thirteen-year study time frame. These coalition actors may be involved in a diversity of initiatives and projects, including citizens involved in cultural initiatives (interviewee #4), journalism (interviewee #11), but also epistemic work (interviewee #2), institutional advocacy and activism (interviewees #2, #3, #8), among other varied areas of intervention. Several actors could also fill in different roles during different phases of the study time frame and the years immediately preceding it, or expectedly following.

Who was not interviewed?

Policy entrepreneurs were not interviewed —despite being crucial characters in the cyclists' coalition— as they assume different roles at different times and exert an exceptional level of policy influence, and the particularities and sensitivity of their interactions in the policy process could reveal their identity, as such I decided not to interview these pivotal policy actors. Their actions, nonetheless, are present throughout the policy process, contact with several policy entrepreneurs was established throughout the thesis' development, and reference to their work is made in the case study —either indirectly or directly— referring specifically to (policy) entrepreneurship.

Interview questions and relevant answers

Interviews were conducted between January and March 2020, considering the following given premisses:

- a) Cycling was analysed as a policy '*subsystem*', considering the conceptual ACF definition of subsystem (Nohrstedt & Olofsson, 2016; Weible & Ingold, 2018, p. 330).
- b) Interviews were realised with a diverse range of individuals, *i.e.*, policy actors interrelating with and outside the specific policy subsystem. Questions were structured and the discussion was open, with this semi-structured format focusing on each policy actor's personal insights and/or roles when applicable. The format was designed to identify personal perceptions of actions associated with any of the formulating, implementation, outputs, or outcomes associated with the cycling subsystem in the policy process.
- c) Questions sought to reveal policy process actions which may be replicable. Relevant actions, moments, outputs mentioned —and how they are associated to the type of policy actor— are considered as qualitative evidence providing new insights by connecting the conceptual ACF interactions applicable in different public policy areas on one hand —cycling, reclaim the streets, modal shift towards decarbonisation, urban model, etc.—, and geographical areas —such as cities— on the other.
- d) Policy actors interviewed and perspectives identified from policy process interactions were also sought, as observed in the scholarship on advocacy for active mobility, interactions with municipal governance structures, and government perspectives (Richards, Murdoch, Reeder, & Rosenby, 2010).
- e) Thesis research informed the typological categorisation of policy actors, namely 1) their specific roles, 2) policy involvement and/or observations thereof, and 3) how they influence or are influenced by policy actors, political associations, and organisational structures and political resources which have been the most effective in advancing policy learning and/or policy change.

Each interview evolved into an informative discussion, providing relevant insights from either the interviewees' specific answers or observations. The question and excerpts which were considered most relevant for informing the research question of '*How do cyclists' advocacy coalitions influence policy change and development related to decision-making involving a city's mobility system?*' have been integrated throughout this thesis with a special emphasis on the case study research when qualitative findings corroborate hypotheses or raise insightful questions —but also occasionally—, when applicable and within the same line of thought, to the preceding conceptual and general coalition sections. The interviewee observations collected reveal new knowledge, addressing different dimensions of cycling from these diverse policy actors and their own points of view and perceptions which are integrated into this case study as qualitative findings just as valid and complementing the quantitative data collected, and linked for general insights. The interview transcript with all of the relevant insights is provided in Annex I (Portuguese original and English translation).

Opening discussion and starting questions: Identifying subsystem.

The preamble to the interview, opens the discussion and, to a certain extent, questions the broader socio-political scenario regarding cycling in Lisbon, Oeiras, and Cascais between 2009 and 2021, and in addresses the phenomenon of cycling's uptake, the policy issue being analysed:

It's visible that there is an evolution of cycling in Lisbon, it is undeniable. ... It is also undeniable that many people are seen using their bicycle as a means of transport. ... If it could be faster, and if there could be more done, I think there could be. A lot of people want to cycle... if we provide safe conditions, people appear. ...In Lisbon it is still very unsafe to cycle. ...Another thing that is needed is to simplify. To make cycling easier."
(Interviewee #4 – Citizen)

Several questions were posed to interviewees as the discussion evolved, in a flexible and relatively open manner to avoid constraining their opinions, to gather greater insights, and formulated to generate a more profound discussion on cycling in Lisbon, Oeiras, and/or Cascais, during the study time frame and preceding it. The questions were posed freely within a broader discussion, with some being omitted if they had already been addressed in previous interviewee responses:

1. What was the first issue sparking your (or your organisation's) engagement in policy-influence for greater rates of cycling?
2. In your opinion what issues caused the formation of a cyclists' advocacy coalition? (from Rubin, 2018, p. 9)
3. What were extended context issues which emerged over time and mobilised the cyclists' coalition? Any movement which you (or your organisation) took note of in particular?
4. In your opinion, how did policy issues regarding cyclists' concerns evolve initially?
5. Did you (your organisation) engage in policy development regarding cycling? If so, when? (In other words, when did you and your organisation start interacting with the [cyclists'] advocacy coalitions?)
6. Would you position yourself as ideologically conservative or progressive? On a left-right / authoritarian-libertarian diagram —Nolan (1971) chart— where would you position yourself? Where would you position your organisation?

Policy process questions

7. **[Identifying Beliefs and Biases]** What's your opinion (or as a representative of your organisation) of automobility's role in the city? Can you (and your organisation) envision the municipality you live in with less cars? How many less? Can you (and your organisation) envision this city without cars? In your opinion, which modes of transport do you think will play a central role in this city in 20 years?
8. **[Identifying an ideological shift]** In your opinion has society shifted their views of cycling and the role of public street space (PT: *via pública*) since 2009? Has your organisation shifted? In your opinion when did this occur? Can you attribute any specific event or group of events which influenced this change?
9. **[Identifying policy events]** If you could define one principal event which boosted cycling in the city, which event would you point to? Any other events you would consider relevant?

Identifying cyclists' coalition actors

10. What kind of cooperative behaviour of the organisations could you attest to in the coalition network regarding changing perspectives towards cycling in Lisbon (Oeiras, or Cascais)? (from Wagner & Ylä-Anttila, 2018, p. 878)

11. With which (organisations, or others, specify) does your organisation cooperate regularly? A discussion ensued with several interviewees from this point on in the interview. From Wagner & Ylä-Anttila's (2018) ACF analysis of attempts to introduce change in the policy agenda, the following approach and subsequent questions were posed to interviewees:
12. What organisation can link the various different and opposing actors?
13. a) *Which organisations saw their preferences on these issues reflected in the law, and b) What role did cyclists' coalitions play in the policy process?*" (p. 885)

Identifying pivotal actor interactions

Pivotal policy actor interactions are identified in several ways, including within and between organisations involved in the policy process. From Sabatier (1988), the most relevant policy actors are policy-brokers providing insights upon how significant levels of influence are developed from their sensitivity to other policy actors influencing from 'outside' and exchanges while brokering at the institutional table during policy formulation, and the actions that precede and ensue these moments. The pivotal role of policy entrepreneurs is also researched but addressed in anonymity as previously explained, with their actions being mostly backstage informing policy brokers and coordinating with a multitude of different policy actors.

Policy entrepreneurship has been key in disruptive moments of the policy process, producing quick outputs when necessary—for instance by introducing pop-up cycleways on the institutional agenda of their locality—, or problem-solving in face of menace from the dominant—automobility— coalition, avoiding the 'devil shift', and opposing coalition polarisation and conflict exacerbation. Mintrom & Norman (2009) summarise the crucial role of policy entrepreneurs in negotiating with the conflict, proceeding with policy change, and 'leading by example': "*Risk aversion among decision makers presents a major challenge for actors seeking to promote significant policy change. Policy entrepreneurs often take actions intended to reduce the perception of risk among decision makers. A common strategy involves engaging with others to clearly demonstrate the workability of a policy proposal.*" (p. 653)

Considering this predicament when attempting to deliver policy outputs which aim for change in a locality with low cycling rates and generally low political support, the following questions were asked:

14. Which actors do you see as most averse to taking risks in the subsystem? Which do you see as most able to take risks? To what benefit? Which do you see mediating different groups?

Identifying policy actor networks

15. What are your organisation's principal partners for policy influence (in the AML, in Portugal, and internationally)?
16. Which organisation do you see as a central actor in Lisbon's cycling subsystem? What level of contact does your organisation have with it (very frequent, relatively frequent, regular, occasional, rarely, none)?
17. Do you identify any organisation who is really interested in developing the AML territory from a cycling culture perspective, focusing on area wide cycle mobility policies and planning?
18. What kind of policy actors would you see as most effective for participating in policy development towards a more robust cycling culture?
19. What—contrasting— events over the last decade illustrate the importance of an open, inclusive governance which provides the opportunity for the most generally beneficial project to emerge from a process favouring cycling culture in the AML?
20. Do you identify any specific social compromise, or commitment?

Identifying counter-coalition actors and views

Regarding inclusion of the cycling subsystem's in public policy, the national organisms are perceived as counter-coalition forces at times, namely the National Road Safety Authority (ANSR), Portuguese Infrastructures agency (IP), and the Police (PSP), as are other organisations perceived as leveraging greater influence in policy making, namely the Portuguese Automobile Club (ACP) and the road safety interest group (PRP). The following questions were asked regarding these organisations:

- a) Do you view them as opposed to the Traffic Code of 2013/2014?
- b) Are they opposed to national targets on Climate Change?
- c) What are their opinions on to the national bicycle strategy of 2019?
- d) What are they opposed to?
- e) Are these organisations "*perceived as being markedly more influential*"? (from Wagner & Ylä-Anttila, 2018, p. 886) Why?

Events - Identifying the relevance of external factors

21. Regarding the cycling subsystem, are there any specific external factors you can identify as influencing policy change in Lisbon's cycling mobility scene? Which events occurring since 2009 —or before that— would you consider had the most impact on the cycling subsystem in Lisbon? (from Sabatier & Pelkey, 1987, p. 248-249) Have these had an impact on your organisation? What impacts did they have in particular?
22. Which one external episode do you consider has had the greatest impact for increasing cycling in Lisbon since 2009?
23. Which factor within Lisbon, Oeiras, or Cascais municipality do you consider has had the most impact since 2009?
24. Regarding changes in legislation, what are your views on policy issues regarding cycling:
 - a) On the national traffic code?
 - b) On municipal programs and investments in Lisbon, Cascais, and/or Oeiras?
 - c) Has your organisations changed its position regarding cycling's status over the last decade in the AML?
 - d) Any significant changes that you consider regarding the most influential actors involved in policy development at the local or metropolitan level in Lisbon? At the national level in Portugal?

Ideological positioning and possible political party involvement

Interviewees were then asked where they would position themselves on a Nolan (1971) left-right/authoritarian-libertarian diagram, in an attempt to address ideologically conservative or progressive tendencies associated to their personal positioning. When asked to position themselves in the diagram, the liberal (left) was the most representative 5/11 (46%), followed by the 3/11 (27%) centre between liberal and libertarian, 2/11 conservative right (18%), and 1/11 centre very slightly left leaning (9%). When asked if they could locate the organisation they work with, interviewees either didn't respond or answered that such a correlation is not possible. Interviewees #2, #3 also commented that it is very difficult, or practically impossible, to politically position cyclist's organisations, and Interviewee #3 pointed out that there are MUBi members from all political quadrants.

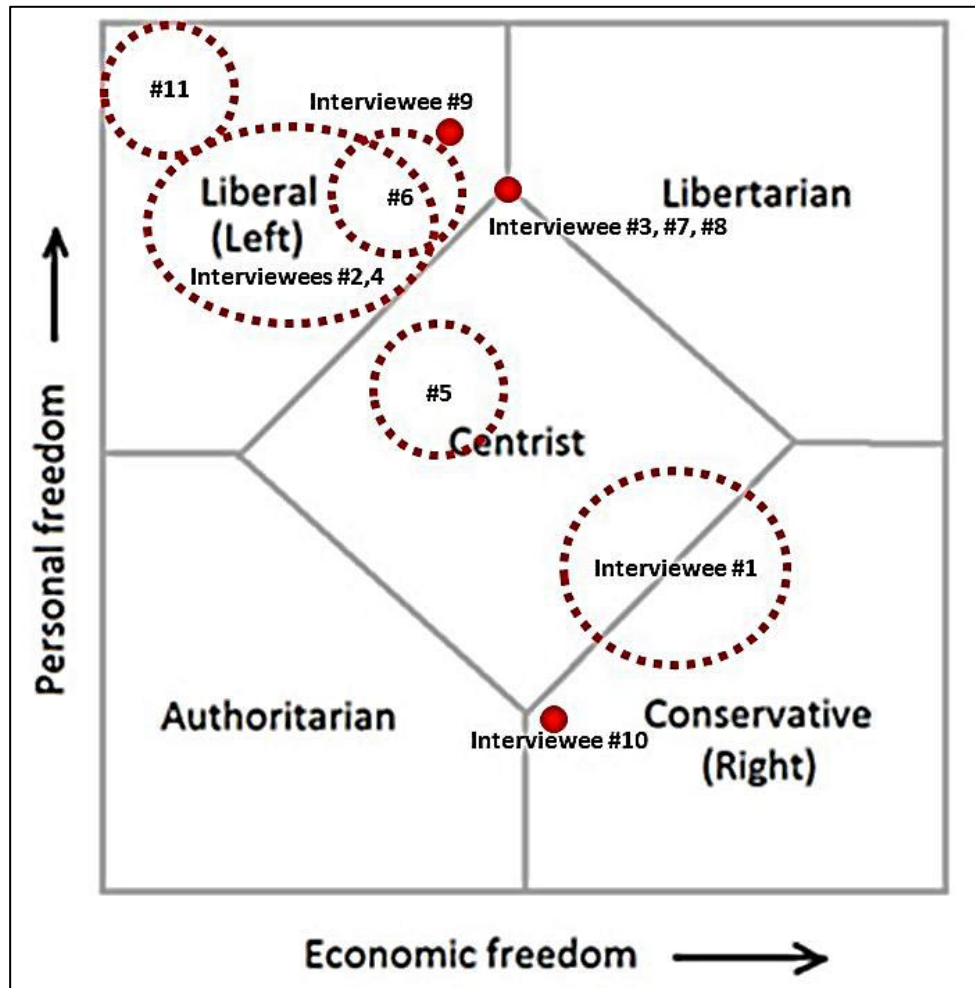


Figure 50
Interviewees' political positioning on a simplified Nolan (1971) chart

When Interviewees were questioned whether they could relate any specific political parties revealing effective commitment to cycling —regarding both national or local politics in Lisbon and the AML municipalities— none of the interviewees could identify a political party which had explicitly defended cycling. With Interviewees #4 – Citizen and #6 – Activist providing relevant insights as to the political positioning of cycling: “In concrete terms I don't see any party with an effective commitment (to cycling)” (Interviewee #4 – Citizen), and an evolutionary twist to CM: “When Critical Mass emerged, there was no doubt that it had more left-wing people and some were almost anarchists. Then it became more mainstream. (There are all types) which is good in this regard” (Interviewee #6 – Activist). Within a similar line of thought, Interviewee #5 – Policy Broker, suggested that relating cycling to the political positioning of only one party could also be detrimental to cycling.

Regardless of party politics, by excluding a pro-cycling agenda from political party programmes in a setting —with low cycling rates— which aspires to transition to more sustainable social model, cycling as a mobility practice solution for the public and the average citizen are left out of the message and out of the central political debate. An omission that not only reflects the choices the public and each party's electorate face and value in daily life (Jalali, 2017, p. 61-62), but also a way of keeping the political debate open for prioritising the *status quo* in mobility —i.e., automobility— as the central factor when a cycleway is built instead of valuing the benefits of the alternative introduced. As suggested in section 3.5 Policymakers' relation with cycling, and how these interactions are informed by epistemic communities in the

policy process (section 3.6.3), Jalali's (2018) classroom explanation on the mechanisms of linkage between citizens and public policy specifies how preferences are shaped by '*only consider[ing] the alternatives that are mentioned*' (Jalali (2018), as cited in 3.5 Policymakers' relation with cycling).

4.2.3 Quantitative approach: outcomes – data sources on cycling and moving counts

Regarding quantitative data-collection to confirm the connection between public policy and outcomes Weible & Carter (2017) note that

sharing and publication of datasets will foster work at the nexus, and facilitate the identification of data needed to work across partitioned fields. The end goal is to generate specialised knowledge of the policy issue at hand, as well as to generalise across policy issues and governance contexts Most important, explicit and clear conceptual definitions, paired with transparent and replicable operationalisation, are essential for the development of nexus-oriented research and resulting knowledge. (p. 41)

One of the common difficulties with cities with low rates of cycling is the political lack of interest in the subsystem's uptake, aggravated by a lack of reliable data required to effectively quantify and infer the dimension of cycling: How many cyclists use a certain route? What's the overall modal share for cycling in the overall mobility system in a country, a city, or a specific route?

In Portugal, overall cycling modal share has only been calculated among the country's population since the 2011 national census and using an imprecise method since only the mode with the longest leg of travel to work or school commutes were counted (IMT, 2014); the shorter legs of multimodal and intermodal commutes were excluded, as were all non-commuting trips. Despite an apparent correction in the 2021 census, non-commute trips were still excluded, which may exclude an even greater number of trips since work-from home arrangements have increased since the onset of the COVID-19 pandemic. Moreover, despite cycling being included in systemised traffic counts on the country's national highway network in 1937/38, and regularly from 1950 to 2005, central city areas were mostly excluded and since 2005 national highway digital counts omitted cycling altogether, as previously discussed.

In face of an apparent lack of available data recent improvements on data collection are significant in Lisbon municipality, with the introduction of cycling traffic counters and an increase of cycle traffic count campaigns being performed and surveys prepared. Lisbon has a fixed digital counter in a cycleway on the uptown Lisbon Duque d'Avila Avenue, since 26 January 2016 (Câmara Municipal de Lisboa, 2021d), recent municipal cycle traffic count campaigns throughout various city arteries (Moura, Félix, & Cambra, 2017, 2019; Moura, Félix, & Reis, 2021, 2020) and most recently, 34 cycle traffic sensors placed at important cycling routes throughout the municipality of Lisbon (Câmara Municipal de Lisboa, 2021i). In the AML Cascais municipality also has fixed digital counters in two cycleways operational since 27 and 28 April 2019, both with public information on the data collected. Similarly, several other Portuguese localities outside the AML have installed fixed counters, with public daily counts disclosed on the same platform; namely Guimarães (2), Maia (1), Torres Vedras (1), and three in the municipality of Loulé: Vilamoura (2) and Quarteira (1) (Eco-Counter, 2021).

Survey data collected includes the national census from 2011 when cycling was disaggregated from motorcycle use (IMT, 2014; INE, 2012), a relevant mobility survey was also conducted in the AML and AMP in 2017, interviewing approximately 46,000 households and providing significant new insights regarding Lisbon's and Porto's mobility systems in general, including cycling (INE, 2018) and the 2021 national census (INE, 2022b). Despite recent improvements regarding an increase of useful quantitative cycling information being collected and made available to the public, there is still a general lack of data outside of Lisbon municipality and insufficient dissemination: Besides the JAE highway

counts conducted between 1937/38 and 2005, to my knowledge there were no official cycle traffic counts conducted in Lisbon prior to 2009 or during the case-study time frame between 2009 and 2016. To date (December 2022) —with the exception of Lisbon since January 2016 and Cascais since April 2019— the local-level cycling data collection continues mostly non-existent in the peripheral areas, and to my knowledge there aren't any other cycle traffic counting campaigns to date in any of the AML municipalities.

Considering this generalised data deficient scenario for most AML localities outside Lisbon municipality, the importance of non-official counts is crucial. The moving cycle traffic counts that I've conducted since 2009, provide a clearer understanding of the visible resurgence of cycling in Lisbon and Oeiras, an unknown reality in the AML during the study period. A fundamental research gap from the lack of quantifiable data is explained: a robust revival of cycling is not a product of chance but is related to policy outputs. Data collection is an extremely powerful epistemic action in any context, including in localities with low cycling rates. The picture of how cycling is performing locally is a support element for coalition arguments aiming at optimal outputs, and from there influencing outcomes. This correlation can also help underpin how cyclists' coalitions have influenced, shaped and/or transformed (or not) cycling policy, a central hypothesis to this thesis.

4.3 Context

Lisbon is Portugal's capital and largest municipality, city and metropolitan area, one of Western Europe's largest FUA conurbations with a greater city are composed of the core Lisbon municipality with 544,851 inhabitants, and a metropolitan area consisting of a total of 18 municipalities, with 2,871,133 inhabitants covering 3,015 km² (INE, 2021). Lisbon's mobility system indicators are —on a general level— comparable to several other European counterparts and to some of the better-performing North American cities (Van Audenhove et al., 2014, pp. 14, 18). The complexities of Lisbon's urban and mobility systems are thoroughly entangled with its metropolitan area (AML), and particularly with the territorial sprawl which conditions many of its residents' mobility patterns. This urban dispersal is also administratively correlated to the political and institutional arrangements formed by local governments lacking a cohesive regional governance arrangement for the entire area. Coordination does exist, but within a much weaker framework than that of local governance, where political commitment and decision-making exerts greater power.

The AML exist as an administrative entity, but its powers are dictated by the 18 municipal governments and overall a fragmented governance framework persists in several crucial urban infrastructural and policy areas, accentuated by some of the key infrastructure for local and regional mobility links being governed by national government agencies with appointed leadership —most metropolitan-scale traffic arteries and rail infrastructure by IP, train service by CP, subway by the national government run Metro de Lisboa, and the road-safety authority ANSR. Furthermore, the lack of a strong regional regulatory framework to guide policy implementation in key areas as sensitive and crucial as mobility systems and urban and land use planning undernotes several differences in the 18 municipalities' political priorities, and the absence of an effective metropolitan-scale strategy and governance structure to implement and coordinate numerous important transition policies in various critical areas.

Despite a recent unification of the metropolitan area's public transport system, the draft of the PAMUS — AML (2016) metropolitan area action plan, and the ENMAC (2020-2030) national cycling strategy, the lack of integrated active mobility, public transport and land use policies is critical. Municipalities are not all rowing in the same direction. In fact, one of the citizens interviewed mentioned that municipalities in the AML do not give the same attention to cycling:

I think there's interest in making cycling grow in Lisbon, they're working on it. In Oeiras I don't see anything, I think there's nothing, they only do something to say that they're doing something, but in reality, they don't do anything. Cascais gives some attention to cycling, not as much as in Lisbon, but yes, they're doing something."
 (Interviewee # 1 – Citizen)

Another interviewee, a former policy broker, underpins the need for change and cycling infrastructure, but also the problem of automobile dependence:

For me to go to the café ... I get in the car, even though I don't mind walking or cycling at all, but it's inaccessible. ...I used to do everything by bicycle, but there were a lot less cars. Now I don't feel safe. ...There is a huge need for public investment in this area, because as soon as there are cycleways these trips become possible.
 (Interviewee #10 – Former Policy Broker)

Cycling infrastructure provision, coordination, and integration are improving, but still far from achieving optimal outputs or adequate participation mechanisms involving the local populations. Since there is no specific metropolitan level governance mechanism coordinating structure for active mobility in general—and the cycling subsystem in particular—crucial investments in cycleways, a common bikeshare system, or public transport integration are achieved piecemeal by leading municipalities. Lisbon has led the way, and Cascais has revealed sporadic, inconsistent tendencies for leadership, Almada also had a brief period of lead, but all other municipalities lag behind. Cascais and Almada haven't produced consistent lasting change either. Cycling policy and metropolitan links are solved bilaterally between municipalities, and a permanent coordinated AML mechanism to define strategies aiming at a comprehensive walking and cycling coordination with municipalities does not exist.

The investigative approach employing Oldenziel & Albert de la Bruhèze's (2016b) five-factor analysis—adapted to advance knowledge about Lisbon's cyclists' coalition—organises the information collected and data available and produced—*i.e.*, moving counts, in section 4.9.1—with insights and answers to the research hypotheses, by looking at the developments achieved during the thirteen-year 2009-2021 time period in Lisbon. Focus is mostly on Lisbon and the two outlying municipalities of Oeiras and Cascais, but other AML municipalities are also addressed since these are in the urban continuum of the FUA and are part and parcel of Lisbon's urban and mobility systems and vice-versa.

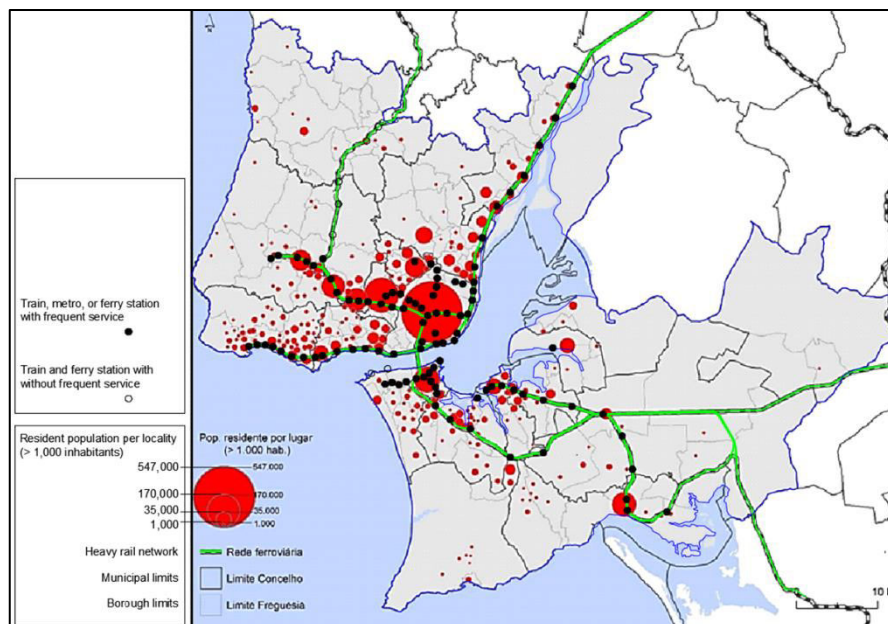


Figure 51

The Lisbon Metropolitan Area (AML)

Population per locality (2011), heavy rail network, and its 18 municipalities (From AML (2016) PAMUS)

4.3.1 Lisbon's topography and geographical features: epistemic demystification

The AML's hilly territory and geographical particularities such as the river estuaries and coastal profile are a contextual issue built into Lisbon's and the AML's fabric, and although these aren't the thesis' focal issue —and the natural features of landscape itself aren't analysed as a specific barrier to cycling (which they clearly can be, especially if cycling is neglected in land use and urban planning)— they are clearly a determinant to be kept in mind. In fact Franco (2011) acknowledges that the AML's humid and hilly areas significantly condition spatial planning options and should be taken into careful consideration regarding their continuum and balancing natural characteristics between the rural and urban realms (pp. 20-23).

Three crucial landscape issues affecting cycling negatively in some parts of Lisbon —with greater intensity in the outlying AML territory— are unarticulated land use, urban morphology, and housing provisions. The effective role of the cyclists' coalition has been most active in a predetermined environment, where sprawl and several natural elements have conditioned the urban morphology. The AML's major natural barriers include the Tagus River, Sado River, and their estuaries, the stream and valley systems working transversally to these major rivers and coastal areas —especially in the Northern half of the AML—, and several mountainous regions with significant altitudes, namely Serra de Sintra (Sintra and Cascais municipalities, 529m), Serra da Arrabida (Setúbal and Sesimbra municipalities, 501m), Serra de Montemor (Loures municipality, 357m), Serra da Carregueira (Sintra municipality, 334m), Serra da Alrota (Loures municipality, 308m), Monsanto (Lisbon municipality, 227m), Serra de Carnaxide (Amadora and Oeiras municipality, 211m), and a large hilly expanse covering most of the north-western AML (Sintra, Mafra, Amadora, Odivelas, Loures, and Vila Franca municipalities), and escarpments along the Tagus Valley (Loures and Vila Franca municipalities), and Caparica Coast (Almada and Sesimbra municipalities) (Franco, 2011, pp. 69, *Anexo 5C. Declives – Carta 11, Anexo 7. Áreas Declivosas – Carta 18*).

In fact, out of the AML's 18 municipalities only one-third are relatively flat, all located on the South bank of the Tagus River and the south-east quadrant of the metropolitan area: Alcochete, Barreiro, Moita, Montijo, Palmela, and Seixal. These relatively flat municipalities present equally low cycling rates, with none presenting the highest cycling modal share in the AML, and only Alcochete and Montijo municipalities consistently presenting higher modal shares than the metropolitan area's 0.5% overall averages in 2017 and 2021: Alcochete 1.3% and 1.1% (2017 and 2021, respectively), Barreiro 0.5% and 0.4%, Moita 0.3% and 0.6%, Montijo 1.0% and 1.1%, Palmela 1.1% and 0.4%, Seixal 0.8% and 0.4% (INE, 2018, pp.184, 187, 192-193, 196-197; INE, 2022b). Likewise, research has identified similar patterns in cities with steep slopes and similar geographical features with relatively high rates of cycling (Cervero & Duncan, 2003), pointing the way for an answer to Veraart & Schipper's (2020) fundamental question, addressed in the starting point of this thesis: *"Does policy matter?"*

The way topography is addressed as an excuse not to cycle can determine some policy values, used to justify cycling's exclusion from some localities or to simply keep it off the policy agenda. In Lisbon, a key policy action regarding hilliness emerged from Rosa Félix' epistemic actions when developing her master's thesis, where she identified hilliness as a factor to be addressed in a cycling route planner and developed an evaluation and GIS tool to map these and include them in city plans (Félix, 2012, pp. 18-19, 50, 55-61, 69-75). From her numerous findings regarding measures to address in the city's cycling landscape —the street network's altimetry and slopes advanced new knowledge and perspectives in 2013— when Rosa Felix developed a citywide map of the slopes on Lisbon's street network (Félix, 2013). Her findings revealed that topographically Lisbon's landscape was very different from the commonly held assumption of being a hilly city, contributing with crucial new epistemic insights which demystified the hilliness heuristic: *"The median slope of the streets of Lisbon is 2.6%. 49% of the roads are flat or nearly flat (0-3%) and about 72% of the roads are perfectly cyclable (0-5%)."* (U-Shift, 2021a)

Félix (2013) clarified with facts —with numbers which countered Lisbon’s self-concept as a hilly city— demystifying the exaggerated common assumption by employing a ‘*calculative device*’. Rosa Félix’ epistemic work has since been widely used by a diversity of coalition actors to inform of the city’s cyclability and to promote cycling as a viable subsystem in the city’s urban and mobility systems. Her street slope map played a crucial role reframing the discourse regarding the city’s hilliness among citizens, activists and their social network communications (Carvalho, 2013), but also reaching institutional spheres, with Lisbon Municipality’s Pedestrian Accessibility Team using those parameters and graphical representation in its street slope map (Câmara Municipal de Lisboa, 2016).

Félix’ (2013) map proved to be an extremely powerful epistemic product —providing a picture of an important dimension of the city’s potential for cycling— and functioning as an impacting tool to elucidate the policy process, and from there, to change Lisbon’s policy actors’ perspectives of their city’s landscape and the discourse around the cycling subsystem’s potential in that urban realm. As an epistemic product, the street network slopes and cyclability effort map reached the local government’s technical departments and policy brokers, in a way analogous to Copenhagen’s ‘*Bicycle Account*’ which opened-up new policy perspectives towards cycling from that city’s governance structures by using ‘*calculative devices*’.

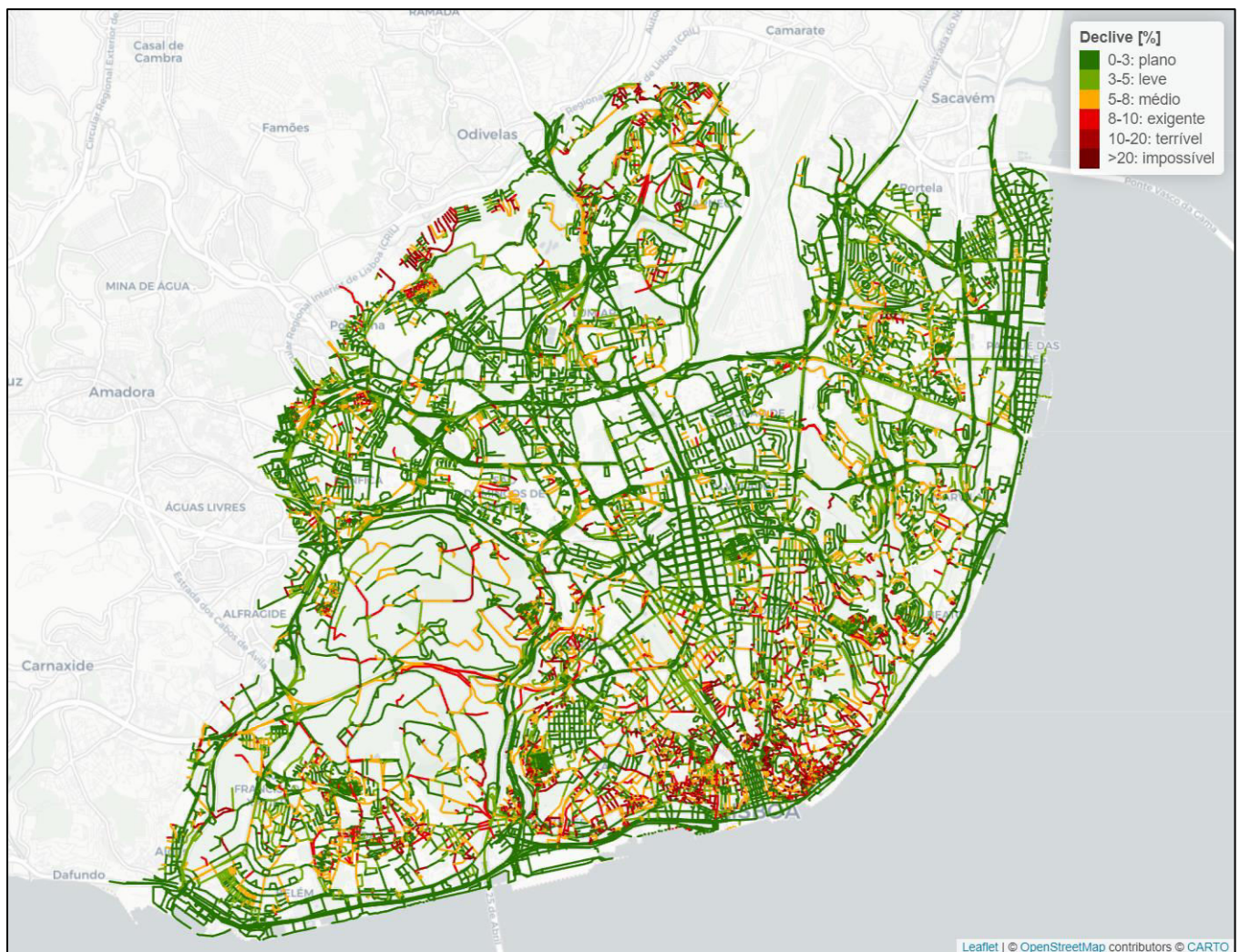


Figure 52
Rosa Félix's (2013) map of Lisbon's street network slopes and cyclability effort
 Legend: Slope [%] 0-3 flat; 3-5 slight; 5-8 medium; 8-10 demanding; 10-12 terrible; >20 impossible



8

Figures 53 and 54
Cascais and Oeiras street network slopes and cyclability effort map, developed by Rosa Felix (2021)
 (U-Shift, 2021a)

Félix' (2013) map and research employing a Geographic Information System (GIS) application evolved with her development of a replicable '*calculative device*' available for defining the best cycling routes based on cyclists' experience regarding itinerary profiles—including slope—, choice, frequency of use, road danger incidents and crashes, and suggestions and opinions from users, complemented by other information collected, to improve street and cycling infrastructure network management in Lisbon (Félix, 2012, p. v). Félix' invaluable GIS research with the University of Lisbon's *Instituto Superior Técnico* U-Shift Mobility Research Lab has been shared and replicated as a '*calculative device*' street-slope instrument applied in numerous other cities, including Almada, Amadora, Cascais, Oeiras, and Loures in the AML, Porto and Vila Nova de Gaia in the AMP, Aveiro, Braga, Coimbra, and Guarda also in Portugal, and Zurich, Amsterdam, Leeds, São Paulo, Medellín, and the Isle of Wight (U-Shift, 2021a). More cities will assuredly be researched using this powerful '*calculative device*', on its own and in combination with other sources of information, enabling epistemic action to better address the potential of cycling in different localities.

4.3.2 Lisbon's land use, morphology, and housing

Kemperman & Timmerman (2009) find that cities with denser and more mixed-use urban development point to better environments for cycling. Contrastingly, outside the consolidated urban areas, the AML is an extremely complex landscape dominated by fragmented, sprawled localities, mostly served by an extensive road network which expanded dramatically since Portugal entered the EEC (EU) in 1986, massively financed by European funding. Contrastingly Lisbon's railway infrastructure maintained the same structure, increasing capacity on two of the five rail arteries, creating a new linking within the major national trunk railway across the Tagus River in 1999, plus a significant expansion of the city's subway system in Lisbon, Loures and Amadora and the introduction of new light rail infrastructure on the South Bank of the Tagus in Almada and Seixal. Regarding cycling, however, and despite the intensive investments in the AML's roadways and some significant improvements in heavy and light rail since 1986, no complete regional level cycling infrastructure links exist to date in the AML. The problems of land use fragmentation and disarticulate housing policies are corroborated by two different interviewees: an activist and a journalist:

Lisbon with its many satellite towns are fantasies, they are Frankensteins, a combination of the old and the new... urbanism done before the automobile, making cities before the automobile is different from making cities, from urban planning with the automobile. ... at this moment it has become a parasite: it needs the city to live on, but it also contaminates it, it also harms it, it also spoils it. But it's a more complicated matter.

(The mayors) can't help associating that the automobile is somewhat of an extractor, a bit of a modifier of the real estate market. It's probably cheaper today to have an automobile and live in Setúbal, Palmela, Azambuja, or Sintra, and come to work in Lisbon, than (to live) in Lisbon. ...Lisbon City Hall connived with the promotion of tourism that completely changed, in a matter of a few years, the real estate market in Lisbon. Many people had to leave Lisbon. How are we going to solve the automobile problem if my rights conflict with the right to housing? Politicians are navigating by groping around a bit. (Interviewee #8 – Activist)

Imagining a scenario that I think is realistic, it's far from reality, but it is realistic... I would say a third of today's cars. ... I think they are very different municipalities, in Lisbon it is clearly possible, Cascais I don't know that well, I do, but not that well. And I think that, for example, in the case of Oeiras, I think that Oeiras has several realities, because it has several zones, each one of them has its own characteristics. There are areas where there is a great potential for reducing automobile dependency, and these are areas that can very easily be very well connected with public transport, and which also have a potential for cycling and walking. And then there are mobilities, which because of the suburban expansion of the city, and from car-centred thought, were developed in an isolated way, these are areas that are predominantly residential, and therefore, have no other uses, where people must travel over long distances, obviously public transport also has a role to play there, but it is a different challenge to reduce automobile-dependency in these places. Therefore, I think that mainly in Lisbon there is a great potential, in Oeiras there is also a very significant potential, but it depends on the places. Talking about Algés is one thing, talking about any area near Tagus Parque is another. (Interviewee #11 – Journalist)

Considering the disperse development and lack of alternative mobility beyond automobility, municipal-level cycling networks vary greatly in the AML, from Lisbon municipality's expanding connected cycleway network already serving some important city areas but still having major gaps, to no other municipalities presenting an integrated network, and overall, a lack of integration between housing and transport policies at the FUA scale. Given the disarticulate land use patterns between municipalities, other comprehensive infrastructural provisions could at least mend some missing links and access to train stations, but cycleway provisions or an AML-wide bikeshare programme and pervasive bicycle parking don't exist at the metropolitan level either.

During the first three quarters of the twentieth century territorial plans in Portugal were generally centralised and operationalised by the national government, with limited programmatic features, fragmented territorial scope in relation to the country's total surface area, and no systematic updates. Simultaneously, the country's specificities were rapidly developing during the post-WWII era but several of the few regional plans produced were either not approved, not updated, or not implemented. The omission of regional plans in Portugal's two large FUA in the early to mid-1960s, coincided with the rural exodus to the large cities, the country's co-founding of the European Free Trade Association (EFTA) in 1960 and its rapid economic and industrial transformation at the time. Both Lisbon's and Porto's regional masterplans presented at the time (1964) were not approved.

Franco (2011) underpins that peripheral urban expansion all over the country was mostly decided by private sector speculation, and no regulatory framework established an integrated land use planning policy (pp. 4-5). Urban mobility and compact city integration concepts were emerging in several cities and entering the policy process elsewhere in Western Europe but far from being discussed in the Portuguese policy setting at the time. Following the 25 April 1974 revolution, Portugal experienced deep social and political transformations, and greater efforts for land use planning and integrated policies began to emerge very incipiently. Nonetheless, evolution of the urban, ecological, and mobility systems planning was mostly sectoral and comprehensive integration only began taking form then, with the institutional

framework developing slowly since. Considering the two most recent Portuguese regime eras covering most of the last century —before democracy in 1974 and during the stable liberal democracy since— Franco (2011) summarises Portugal's land use background as follows: *"In short, between the first and second eras there are programmatic and normative plans, binding for the private (developers), but non-articulated with Masterplans and with strategic plans, and with non-binding generic guidelines for private (developers), whose articulation with the Masterplans never happened. It is thus impossible to say that there was effective regional planning in Portugal, as urban expansion carried out by the private sector proceeded and was not controlled by effective plans."* (p. 10)

As with most other Portuguese cities, Lisbon's metropolitan area expanded significantly during this era, transforming the rural urban peripheries into a fragmented and sprawled landscape with no comprehensive land use-morphological-mobility system integration policies in place. Housing developments and large isolated commercial, business, and industrial areas have expanded and in 2022 continue to do so in the peripheral municipalities, intensifying urban sprawl which has functioned as a self-reinforcing mechanism for greater automobile dependence (Newman, Kenworthy, Newman, & Kenworthy, 2021; Newman & Kenworthy, 1989), supported by dispersed activities, long distances between these, and road infrastructure as the fundamental link.

In fact, exaggerated road-building has been recognised as a negative factor in the AML's contemporary development (Teixeira & Sampayo, 2018, p. 10), with road building and car-parking representing a disproportionately large sum of public budgets with high environmental, social and economic costs in Portugal's cities (OECD, 2012, pp. 10, 19, 37), built-up areas in both Lisbon's and Porto's FUA increasing faster than resident populations between 2000 and 2020 (OECD, 2020, p. 8), and over 50% of Lisbon's population living in the outlying metropolitan area municipalities (OECD, 2020b, p. 96). Not surprisingly, conditions for cycling are extremely inadequate —with the built-in deterrents of dispersal and distance typical of sprawl— further augmented by an arrangement which has excluded cycling from planning and infrastructural provisions. In most of the AML cycling is still excluded from key policy measures, inadvertently stigmatised, and cycling rates are extremely low, and an unsupportive mainstream culture centred on automobility is politically backed by a policy debate prioritisation focused on the closed circle issues of provision for automobility, reinforcing the cycle of automobile dependence as conceptualised in Litman's (2004) evaluation of impacts on policy and planning priorities (Figure 37, below).

In localities with low rates of cycling, designing-in cycling into policies and planning is generally ignored, and when introduced in a policymaking environment —not used to working with this 'new' layer of the mobility system— some crucial decision makers at both the political level —policy brokers— and technical level —municipal officials, government agency officials, project design consultants— often look at accommodating cycling as an external imposition from a minority epistemic or activist group or from policy entrepreneurs, and in these settings the possibility of disregarding or sacrificing optimal solutions occurs in the final project outputs as a way of avoiding policy conflicts and stalls. As one anonymous policy entrepreneur stated, *"introducing cycling infrastructure in Lisbon's setting is the art of managing what is possible."*

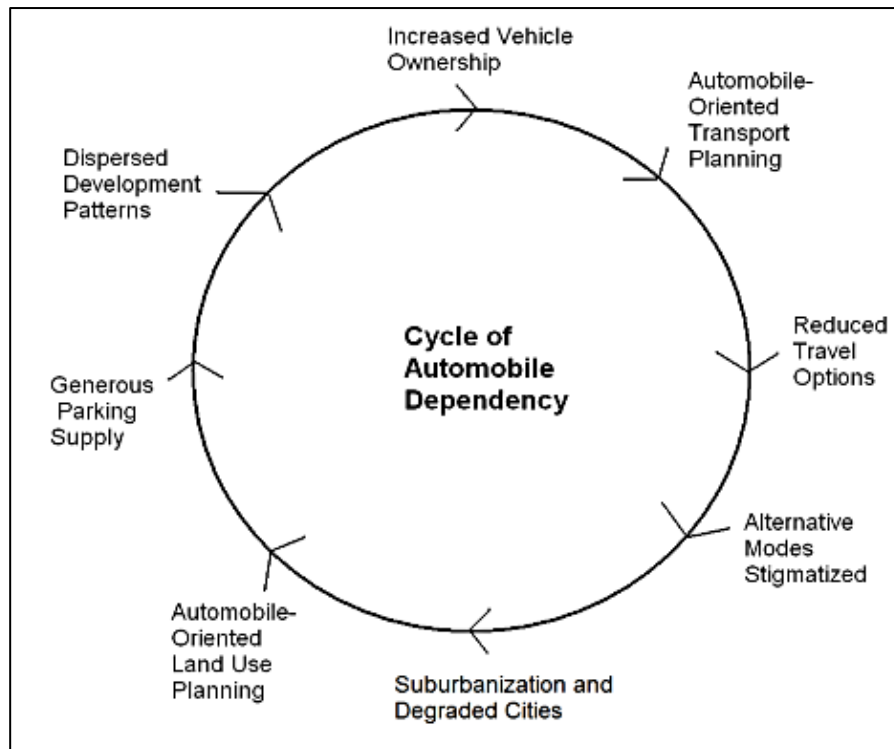


Figure 55
Sprawl and the closed cycle of automobile dependence
 (Litman, 2004, p. 3)

4.3.3 Lisbon's mobility policy setting

Considering the AML's large geographical area, its urban mobility system in some ways positions itself closer to better performing South and North American cities than to the best European cities (Van Audenhoove et al., 2014, p. 6). Lisbon's population density is within the parameters of a compact European city, yet its cycling network is fragmented and less developed than most comparable large Western European cities (Table 6, in section 3.1.1 – City indicators). When the cycling facilities are considered at the AML regional scale the scenario is even less developed with no regional connected cycling network, vast urban expanses and interspersed areas with no cycleway infrastructure, no integrated metropolitan area-wide bicycle parking facilities or bikeshare system integrated into the public transport system. Secondary soft-measures such as AML-wide systematised incentive programs to boost cycling and regional level bike-friendly business programs are also non-existent.

Lisbon municipality has a consolidated and relatively dense urban territory with compact urban policies and neighbourhood rehabilitation as a central part of its Masterplan, with cycling and walking being addressed and public transport conceptually prioritised, but a central role is still attributed to automobility in practice, observable by the street network hierarchies, car parking minimums, and a series of exemptions permitting the construction of new parking facilities (Câmara Municipal de Lisboa, 2012). In the outlying AML municipalities integration between different transport modes caters to automobility also, and the most recent housing and urban developments continue to be market-based, with regulatory compact city policies and integration of TOD—with walking and cycling as urban development priorities—not being considered. Dispersed occupation and public infrastructure—including street space detailing—continues perpetuating automobility-based travel as the fundamental connection, in a self-reinforcing land-use and daily travel behaviour pattern. Oeiras' and Cascais Masterplans—both approved in 2015—are backing more roadway planning

and construction to cater for automobility-based urban expansion based on real estate developments that have been approved. Both municipalities have two new parallel high-traffic arteries -*Via Longitudinal Sul* (VLS) and *Via Longitudinal Norte* (VLN)- between three existing traffic arteries: the VLS between the four-lane *Av. Marginal/N6* coastal highway and the six-lane A5 motorway, and the VLN between the A5 motorway and the six-lane IC 19 motorway north of their municipal limits. The VLS and VLN cross Cascais and Oeiras municipalities connecting with the periphery of Lisbon municipality and are served by a series of other new roadway links being built incrementally, further densifying local road networks (Câmara Municipal de Cascais, 2015, art. 107, 109-112; Câmara Municipal de Oeiras, 2015, *Planta de Ordenamento*).

All AML municipalities have minimum car parking requirements for housing and for numerous activities inscribed in their municipal masterplans. Road-infrastructure, programming car-parking requirements, and free or very low user cost carparking is still common throughout the AML in 2022, with Cascais and Lisbon having a larger coverage of tariffed parking. Other automobility-centred measures are observed in the AML—with Almada recently announcing the widening of its central traffic artery to accommodate more car traffic and transforming a gravel road in a protected sand-dune coastal ecosystem area into a paved road—to ease automobile traffic access to beach areas (Morais, 2021; TVI24, 2020) and Oeiras aiming at building 14 new carparking lots during EMW 2022 (Cassiano, 2022). Political discussion proposing more roadways and more carparking facilities are still common in the AML, and another bridge—or a tunnel—across the Tagus River, connecting Algés (Oeiras) to Trafaria (Almada), has also re-emerged recently from Oeiras' mayor, Isaltino Morais (Lusa, 2020b).

The absence of a regional-level governing organism for the AML—with political legitimacy and policy brokerage capacity to design a comprehensive strategy sustainable urban mobility strategy—with regulatory capacity to define common commitments and goals for the 18 municipalities, has also allowed automobility to keep filling this policy gap. The existence of a framework of municipal masterplans since the mid-1990s, several effective measures from isolated municipalities, and national initiatives demanding some intermunicipal coordination don't suffice for encompassing coordination demanding policy change within the local governments. The metropolitan area's sustainable mobility action plan (PAMUS-AML 2016) and the national cycling strategy (ENMAC 2030) aimed at promoting intermunicipal cycleway implementation are two important instruments designed to assure intermunicipal cycling infrastructure and funding from the EU and national government budgets. Nonetheless these instruments are voluntary and depend on municipal policy broker's commitment to improve their cycleway networks.

Interviewees acknowledge Lisbon Municipality's leadership regarding mobility policies in the AML—with a clear focus on public transport and the integration of cycling—but perspectives also denote insufficient integration or urban policies which associate mobility to housing and land use policies in both the core and outlying municipalities:

There is an unprecedented protagonism from Lisbon City Hall. ...The Critical Mass rides, a proto-MUBi. ... MUBi completely lost its stake, or its conviction, that (dedicated) cycleways were not the way, it's peremptory, it's notorious. Lisbon, in my opinion, due to external pressure from the European Union or Brussels, had for many years illegal levels of air quality, and this must have practically forced a make-up process of the city's image, through public policies, which later also translated into cycling policies. Cycling policies are in everyone's eyes, infrastructure realisation was the only way to attract more users. A bikeshare network, which a few years ago was unimaginable, was also welcome. It's in plain sight. The (Lisbon) City Hall is also 'covering the sun with a sieve' with these cycling policies, because it is the same City Hall that allowed the construction of several underground carparks in the city centre. (Interviewee #8 – Activist)

The backbone (of the urban and metropolitan mobility system) will always have to be public transport supported by active mobility and micromobility. (Interviewee #3 – Activist)

In Oeiras I don't see anything. (Interviewee #7 – Policy Broker)

Overall coordination regarding cycling is still very incipient. The AML does not have a coherent, direct, and connected system of cycleways and cycling modal integration policies aren't comprehensive. Municipal master plans (PDM) aren't integrated with sustainable urban mobility plans (SUMPs) in 2022, in fact none of the 18 AML municipalities have an operational SUMP policy cycle involving local government, stakeholders, social actors, and citizens. To date, very few Portuguese municipalities have SUMPs activated as an effective policy cycle as part of their governance agenda with regular open and participated meetings. These meetings should be regularly held and informed with monitorisation information (Figure 56), to reach binding commitments among the local social, business, and governance community (Rupprecht, Brand, Böhler - Baedeker, Brunner, & Rupprecht Consult - Forschung & Beratung GmbH, 2019; Wefering, Rupprecht, Bührmann, & Böhler-Baedeker, 2014).



Figure 56
Rupprecht et al.'s (2019) SUMP policy cycle

Lisbon is the AML municipality which has taken steps closest to launching a participated SUMP by presenting a strategic mobility vision with clear goals —MOVE Lisboa— corresponding to the first milestone to prepare such a policy instrument (Câmara Municipal de Lisboa, 2020c). MOVE Lisboa includes a corporate mobility pact with 57 city-based businesses committing to a 26% CO₂ emission reduction by 2030 and carbon neutrality by 2050 (Câmara Municipal de Lisboa | WBCDS, 2019). These are first steps, as are other policy preceding issues such as the creation of the city's integrated parking and mobility company introducing a public bikeshare system —EMEL—, the cycleway network being expanded including PPB proposed cycleways, the tram and bus company —Carris— being transferred from national to municipal ownership, and metropolitan area-wide public transport tariffs, tickets and passes being integrated. Despite the pact and significant measures achieved —and despite signs of impressive political commitment observed in many of these

measures— goals are still not integrated into an open formulating and implementing policy cycle producing binding SUMP participation, outputs, and monitorisation.

4.4 Lisbon's mobility system and cycling

Car trips represent 59% modal share in the AML according to the 2017 mobility survey conducted on Portugal's metropolitan areas (INE, 2018, p. 102), and 55.8% modal share according to the 2021 national census (INE, 2022b). Automobility's interests are represented by a broad base of actors (Norton, 2008, pp. 203, 212), with their actions replicated in different localities, which in Lisbon's started in the early 1930s producing the first significant automobility policy outputs with the car-inducing urban expansion generated by the Lisbon-Cascais *Av. Marginal*/N6 coastal highway completed in 1942 and the Lisbon-Estadio Nacional motorway —part of the current A5— inaugurated in 1944 (Sousa, 2013, pp. 344, 379). Lisbon, Oeiras, and Cascais were the municipalities where automobile-centred planning first started to take form in Portugal, aligned with developments observed in some other European and North American cities which were also being rescaled to a regional level before WWII and later generalised throughout Western Europe and North America in the post-WWII era. Since 1934 Portugal's national Roads Department (JAE) established the guidelines for Lisbon's westward expansion and played a crucial role initiating its urbanisation in the areas surrounding the *Av. Marginal* coastal highway (Sousa, 2013, p. 348), with urban planning being conducted by French urbanists Agache from 1936 to 1940, and DeGröer afterwards until final approval in 1948 (Gaspar & Simões, 2006, pp. 279-281; Pereira, 2009; Pereira et al., 2009).

The plans were realised in coordination with highway and major infrastructural works built since 1938, and regional and local policy instruments effective since then. The Lisbon–Cascais traffic artery was regulated by the resulting masterplan: *Plano de Urbanização da Costa do Sol* (PUCS) developed since 1936, and being the regulatory instrument in effect from 1948 until 1994 —when Portugal's first generation of systematised municipal masterplans (PDM) came into effect— including those of Lisbon, Oeiras, and Cascais municipalities. A particularly visible detail of how the PUCS advanced automobility's interests is the expansion of localities' urban perimeters —their relationship with the coastal highway— with projections for an inland expressway being partially completed in 1944 (8 km) and concluded in 1991 (25 km), with a further final extension of 0.4 km concluded in 2016.

An interesting case in point is the residential neighbourhood of Junqueiro, planned between 1934 and 1938 —situated between the historical town centre of Carcavelos and the Carcavelos beach (Cascais municipality)— flanked by the *Av. Marginal* coastal highway, built between 1938 and 1942. Junqueiro's development principals were based on those of Radburn, New Jersey; '*a town for the motor age*', separating motor traffic from pedestrian routes —located 19 km from Lisbon's downtown, as Radburn is located 18 km from New York City's Manhattan downtown— following the first car-based regional planning orientations from New York's 1929 Regional Plan and Paris' Prost Plan of 1934 (Gaspar & Simões, 2006, p. 279). Relatedly, the automobility coalition had been working between a diversity of automotive interests —in Portugal the powerful Automobile Club (ACP) and the Roads Department (JAE), epistemic groups at IST, urban planners, and policymakers— which composed a broad-based coalition establishing significant political influence during the twentieth century (Sousa, 2013, pp 321-338). In effect, the two municipalities of Oeiras and Cascais had already been linked with Lisbon municipality by train since 1889 —electrified in 1926— prompting urban development around stations and establishing an impromptu TOP pattern. Yet it was through construction of the coastal highway and the country's first motorway that automobility began to play a central role in public policy since 1934 with the *Costa do Sol* Urbanisation Plan (PUCS); the first urban plan for these two coastal municipalities integrates with Portugal's first

automobility-purpose infrastructural system. Roadways were the anchor of this urban expansion linking Lisbon, Oeiras, and Cascais (Pereira, 2009, p. 40), and automobility interests its driver.

In this municipality I could tell you that the automobile is a means of transport, but in this municipality the automobile is also a flag of social status. The automobile, specifically in this municipality. And here people have a lot of cars, they have classic cars, they have collections, so it is in this culture. And that is why it is increasingly difficult; it is very difficult for me to do the disruption that I am doing. I envision a municipality with a lot less cars than what I see now. We are going to close the entire downtown...to the car, this will be done, we will have direct, electric shuttles, making the commuting movements from the parking lots to the town centre. And then in here just bicycles, scooters, whatever. And so, that's the move we're going to make. We did it a little bit different from Lisbon, we will only do it when public transport, the new competition, is in the air. I don't know if you know, it's in court, as soon as it's unblocked, we'll double the provision of public transport, the only municipality in the country that will do it. In addition to public transport being free in the municipality..., all, bicycle, train, and bus... (for) residents, workers, or students, if they are students with registration for more than one year. With one of these three requirements, you won't even pay for trains ..., buses throughout the municipality, and bicycles throughout the municipality... With the new public tender... we have more than doubled the offer (of public transport). Therefore, we won't allow people to have the excuse that there is no public transport, there is, there will be... And, therefore, the effort is to close down, to limit individual (motor) transport as much as possible. We'll start with the old town centre and embrace other challenges (in other towns in the municipality). The municipality is a large municipality, it has a complicated orography, and therefore automobility will always have some role, but we increasingly want it to be a role." (Interviewee #7 – Policy Broker)

Lisbon had masterplans in effect since the nineteenth century, with Portugal's Minister of Public Works —Duarte Pacheco— accumulating functions as Mayor of Lisbon, contracting Étienne de Groer in 1938 to develop the General Plan for the Urbanisation and Expansion of Lisbon. DeGröer's masterplan also became effective in 1948, coordinated with the PUCS, extending along the westward coast to Cascais. Lisbon's 1959 masterplan (*Plano Diretor de Urbanização de Lisboa*) reinforced road infrastructure, bypasses, and traffic arteries in the city and planned more expanding arteries, proposing a major bridge to the south over the Tagus River and northwest of the city. Lisbon's 1967 masterplan further reinforced the role of automobility, with traffic arteries planned to cut through many parts of the city, with expressway bypasses and expanding northwards also.

Contrarily, the 1994 Lisbon masterplan introduced concepts of green infrastructure, and cycling—which had been ignored in previous plans— finally appeared in the 2012 masterplan, which is currently in effect (Câmara Municipal de Lisboa, 2021c). Cascais' and Oeiras' 1994 municipal masterplans (PDM) defined a series of zoning and land-use parameters as did most of Portugal's first generation PDM, establishing arterial roadway corridors and dispersed public facilities, *i.e.*, car-centric planning instruments stimulating automobility throughout their municipal territories, updating land-use patterns from the obsolete PUCS and expanding coverage to encompass the entire municipal territory of each municipality. But both municipalities perpetuated and augmented numerous automobility based measures such as the expansion of their urban limits, creating high-speed and capacity roadways, and programming public facilities and urban areas in an isolated, fragmented territorial occupation, in the 1994 and 2015 masterplans.

Territorial fragmentation was already present in the AML's regional plans developed in 1961 and 1962, a pattern which is visible in the urban expansion since (Campos, 2015, p. 13). These patterns of urban growth have persisted through to the current municipal masterplans, with road infrastructure establishing the essential mobility links between the metropolitan localities and being prioritised in urban and regional public policy as planning outputs and public investments, with impacts on the resident population's choices, lifestyle, and mobility habits.

Observations from different interviewees reflect the level of automobility's pervasiveness in the surrounding metropolitan area, almost as if a permanent siege of the city was in place by the politics of an '*automobility driven situationism*':

From Lisbon you have no way to get out. You go to the Marginal (avenue) and it is what it is... you risk your life. If you want to go north you don't have a way out, if you want to go west you also have no way to go. So, we here have nowhere to go. We don't have permeability (for cycling). (Interviewee #4 – Citizen)

I remember that Sá Fernandes had a problem, which was how was he going to connect Lisbon to Cascais? (Interviewee #7 – Policy Broker)

(In recent decades) the city has been opened up (to automobility) in a pornographic way, in the case of the A5 (motorway), for example, what mattered was draining cars from the periphery, it was not important what impact that would have on the city's residents. (The automobile) has a primordial and overwhelming role.” (Interviewee #4 – Citizen)

Not surprisingly, the mobility survey report drafted for Portugal's two largest metropolitan areas elaborated in 2017-2018 concludes that for both cities “*The automobile was decisive in most trips, as the main means*” (INE, 2018, p. 9), underpinning a national problem also. Dave Horton's visit to Lisbon in March 2013 describes the general scenario of the city and its metropolitan area as experienced from a cyclists' perspective:

Car ownership and use have exploded across Portugal over the last generation, and whilst it's on the up, levels of utility cycling remain very low. ... There's some dedicated cycling infrastructure and some of it's pretty good, but it's woefully disjointed and there's too little actual cycling for that dedicated space to be consistently recognised and respected by pedestrians. On the roads, cars dominate, and whilst I was impressed by the patience of drivers, it felt a harsh and unforgiving cycling environment. Like so many other places, to ride here you'd have to be either committed or desperate. (Horton, 2013)

Reverting the system of automobility and replacing urban policies with compact city planning outputs, integrated mobility modal share projections integrating cycling and walking—a practice which is non-existent in current Portuguese masterplans—, introducing municipal SUMP commitments aligned with land use, walking, cycling, and public transport-oriented development are key measures which are missing in AML municipal masterplans. Reducing automobility by promoting modal shift—to walking, cycling, and public transport— employing integrated planning policies and outputs in land use planning are a missing element in the AML. There are no regional and municipal SUMP's activated as policy cycles with political commitment and policy outputs produced, and integration of these instruments into the municipal PDMs is therefore non-existent. Systematised actions coordinated within an institutional framework at a regional level are necessary if effective modal shift from automobility to active mobility and public transport is to occur. These should be aimed at seamless, encompassing modal integration being possible in all FUA localities, delivering a convenient and appealing travel option to local populations instead of having to resort to automobility as the only option.

4.4.1 Modal integration in AML

Cycling has only been partially implemented in Lisbon's mobility system, in some cases due to national government measures such as free on-board bike-train travel on all urban, regional and intercity trains operated by the national rail company CP, the urban trains on the Lisbon-Setubal railway by private operator Fertagus, the Portuguese Government owned Lisbon subway, and the public-private *Metro Transportes do Sul* (MTS) light rail operating in Almada and Seixal municipalities. Transtejo Soflusa ferry boats connecting Lisbon municipality with Almada, Barreiro, Montijo, and Seixal also carry bicycles on board free of charge and are planning on increasing bicycle transport capacity (Lisboa Para Pessoas, 2022c). Bicycle parking exists at most train stations which are operated by IP, but ferry station bicycle parking are implemented by different organisms and differ substantially in quality of service and availability. Much of the bicycle parking at public transport hubs are municipally implemented but the level of implementation also varies between hubs, depending on the locality and the municipality.



Figure 57
One of the four bicycle parking locations at Paço de Arcos train station (2019)

Significant progress in public transport was produced in the Lisbon and Porto metropolitan areas when its management was decentralised from the national government to the metropolitan level in March 2015 (ATML, 2015). With the new Lisbon Metropolitan Transport Authority (ATML) the ‘*regionalisation*’ of the AML’s public transport operations involved a complete overhaul of the public transport tariff, operations —with reinforced funding from the national budget and comprehensive route programming and integration achieved. This policy output revolutionised the AML’s —and AMP’s— public transport subsystem, introducing a transformative public transport pass with unlimited access to all services in the FUA: bus, tram, funicular, subway, train, and ferry boats. Since April 2019 the public transport pass assured integrated public transport access throughout the entire metropolitan area, including free access to resident children under the age of 13 and a municipal pass under the same framework was replicated in each of the AML’s 18 municipalities and complemented with innovative family monthly tariffs available at the municipal level or at the metropolitan level with ‘*Navegante Metropolitana*’ and ‘*Navegante Metropolitana Família*’ public transport passes (AML, 2019; Presidência do Conselho de Ministros, 2019a). Lisbon and Cascais municipalities already had municipal reduced monthly pass arrangements in place at the since 2016, and both introduced free ridership to all citizens in Cascais in 2020, and ages under 24 years old and over 65 for all modes in Lisbon in 2020, under the new mayor Carlos Moedas.

Despite complete integration within the AML’s public transport subsystem, full integrating of the entire mobility system with cycling hasn’t been achieved at a similar integrated level in the AML yet. In February 2022 the only municipality that had —conceptually— integrated its public bikeshare system in the municipal pass was the municipality of Cascais (MobiCascais, 2021), but bikeshare service was suspended between mid-March 2020 and July 2021, and shared bicycles have been unavailable —again— since October, 2021. On a positive note for integration of cycling with public transport, in September 2022 Lisbon municipality announced it would be integrating it’s municipal ‘*Gira*’ public bikeshare system for free in the public transport pass (Lisboa Para Pessoas, 2022b) and had already been providing access to privately MaaS dockless electric bicycles and e-scooters for an extra fee since July 2021 (TML, 2021).

Since its launch in 2016 Cascais Municipality’s ‘*Mobicascais*’ had functioned as a possible pilot for sustainable mobility integration in the AML —by including all mobility modes in the municipal public transport pass— but the bikeshare system’s discontinuity since 2020 —closing down 90 docking stations—raises questions regarding the system’s

robustness. Currently 'Mobicascais' micromobility offer is limited to a bicycle and e-scooter rental operation working from five different kiosks situated close to leisure and tourism areas, three coinciding with train stations also (Câmara Municipal de Cascais, 2022). In contrast, Lisbon's 'Gira' bikeshare system was launched in 2017 by EMEL —the municipal carparking company— using an innovative hybrid scheme of conventional and electric bicycles and has continued to expand since its launch, even with the new municipal cabinet since September 2021. The recent introduction of Lisbon's 'Gira' bikeshare system in the monthly pass may represent an important first step for a metropolitan area public transport pass integration with public bikeshare systems —paving the way for a possible future expansion of Lisbon's 'Gira' bikeshare system to the outlying municipalities— including public bicycles as part of the overall public transport system.

Cycling's low cultural acceptance outside of Lisbon municipality are reflected in low modal integration of the subsystem, with very low rates in the outlying FUA, even in the better performing outlying municipality of Cascais, as argued by a interviewee #10, a former Policy Broker:

There is some attempt to invest in the bikeshare system... It is a system to maintain and expand. However, the new Masterplan was published, which includes a cycling network, and in the meantime, that cycleway on the seaside walkway was created (between Cascais and Estoril), and it's a point of conflict; the solution was not the best one, but it is promoting cycling. Nonetheless it goes against the principle that would be to take space from cars to give bicycles, and take space from bicycles for pedestrians, and here you took space from pedestrians to give to bicycles... ...On the Marginal Avenue it would be perfectly possible to do that. From São João do Estoril, from Forte Salazar to Cascais, Marginal Avenue has belonged to the Municipality for over twenty years. It is no longer a National Highway (N6). ...Between Cascais and São João the City Council could do it, but the most interesting area is between Parede and Carcavelos, where you go by the sea, between São Pedro and Carcavelos.

...(The Masterplan) preparatory work has been going on for years without end. That had all the departments involved, and there's this positive part of having cycling planned there, now what's needed is to implement it. In fact, the Master Plan, the new version, is already three years old and everything remains to be done in terms of sustainable mobility. (Interviewee #10 – Former Policy Broker)

Portugal's administrative arrangement lacks several important regional-level functions, and despite recent progress with the public transport subsystem, walking and cycling are excluded from the NRRP 2021-2030 funding programme, and far from being implemented with encompassing outputs in existing national strategies. Two recent regional-level policy examples were the AML's and AMP's intermunicipal efforts at integrating cycling in their PAMUS objectives (AML, 2016; AMP, 2016) —with cycleway outputs produced being piecemeal and implementation incremental network expansions— still far from being linked or concluded in both the Lisbon and Porto city regions. By integrating cycling with public transport, the recent transfer of public transport subsystem powers to the metropolitan area public organisms provides opportunities to coordinate regional level cycling infrastructure and bikeshare systems articulated with public transport to promote modal integration. The AML and AMP can function as possible distributors of political commitment from more advanced cycling policy municipalities to those that are still lagging, and as pilots for other cities and their intermunicipal regions in the country.

When asked about the current status of automobility in the AML's mobility equation and the prospect of its reduction or elimination, different Interviewees #6 and #9 responded with aligned insights and possible solutions pointing to modal integration:

(Currently, the automobile) is very central, as if it were an inevitability of life, nothing is done without a car, having a car serves as a tool, and it's the social signalling of your hierarchy, it serves as a proxy. It has an absolutely integral role, there is no escaping it. ...Even (in the centre of Lisbon) the biggest obstacle to riding a bike is having a car. ... Effectively the best way to not depend (on the car) is to not have it or have it far away.

(Proportionally) I can imagine Lisbon with 20% or even 10% of the automobiles it has. Oeiras is more dispersed, it still has countryside, but if you invested in other ways, as much as it is investing for the car, I think I could imagine Oeiras with 20% of (the cars) it has. The bicycle (in the Netherlands) works well because it has the rail - rail on the surface-, in conjunction with cycling it is the most reliable. Cycling allows for capillarity. (Interviewee #6 – Activist)

At the moment, the situations are very different depending on the area (of the city), obviously after what was done in Praça do Comércio, Cais do Sodré, Baixa, Ribeira das Naus and now what will be done, then we have greatly reduced the role of the car. ... When we completed the downtown system... the first system was in 2009. Between 2009 and 2011. Then the automobile no longer played (a central role).

In the Metropolitan Area (automobility) still plays a central role... the cost of public transport was much higher than the cost of individual transport, I did several calculations. ... It was an amazing thing. Everyone fought a lot for that (the PART¹⁰) in the Council. ... On the one hand it was the cost —now it is no longer— but it is still the articulation between the systems.” (In the AML) the automobile is still central, without a doubt. ...

In Lisbon, it is conceivable —within certain conditions— to cut automobility’s weight to half, in the city, from the Segunda Circular (Second Bypass highway) inwards. ... In Oeiras, reducing car use by a third is quite good. In Cascais, as it has a very well identified centre, that is quite predominant in relation to what happens in the rest of the municipality... Cascais is an extremely dual municipality. In the area with the highest level of income, capturing the car, I would say, is almost impossible. The interior of Cascais, which is proletarian, we would say, is all a question of providing public transport.

(The most decisive modes of transport) Rail. If you have a well-structured network and great connectivity... (But on the South Bank of the (Tagus River), it is crazy trying to have a transport system that covers all of that area... (Interviewee #9 – Former Policy Broker)

Rail is acknowledged as an important link to conveniently expand cycling’s reach —but in the absence of integrated policy between these two key modes— for transition from automobility, the metropolitan area falls short of transport integration, and therefore of its potential for relatively quick measures in face of an extremely complex, fragmented occupation of the metropolitan territory.

4.5 Policymakers' relation with cycling in Lisbon

The best way to never miss a goal is to not set that goal.” (Ferreira, 2021)

Policy actor engagement confirms coalition interactions in political forums, events, and incentives on how policy is formulated and implemented (Knutsson, 2017, p. 180; also section 3.5 Policy process - Policymakers' relation with cycling, above). Lisbon’s cyclist coalition has interacted on a wide range of issues —starting before the 2009-to-2021-time frame— as confirmed by observations provided by several interviewees and the contextual relationship between municipalities and their policy outputs. Cascais, Almada, and Lisbon have manifested some level of coalition action from different sources: in Cascais and Almada mostly within the governance organisms and some cycling citizens, in Lisbon through ‘outside the institutional policy’ influence from citizens and activists and responsive policy brokerage, policy entrepreneurship, and epistemic actions, and in Oeiras exclusively through ‘outside’ influence in from citizens and

¹⁰ PART – The Public Transport Tariff Reduction Support Program developed by the Portuguese national government for metropolitan areas and intermunicipal communities to assure simpler, cheaper, integrated public transport planning, including tariffs and system-wide monthly passes to citizens.

activists. Over time this relation intensified as the policy process began to address the cycling subsystem's specific issues, both at the local level with municipal governments, their agencies—for instance the local energy and environment agencies in Almada (AGENEAL) and Lisbon (Lisboa Enova)—generating increasing local involvement in cycling awareness and promotional programmes sponsored by these organisms, European Mobility Week (EMW) events, and other initiatives, but also at the national level with national parliament and political parties involved in the policy process and observed in Portugal's traffic code (FPCUB, 2013a; MUBi, 2013b, 2013c), attempts at placing cycling in the 'green' fiscal policy (MUBi, 2014c), and numerous other reports and meetings with different governance structures.

With persistent coalition action and increasing intensity over time, policymakers began revealing greater openness to cycling citizens and associations, parallelly cycling was increasing, but policy formulation and implementation was still producing much slower, timid outputs. The policy outputs were in many ways part of the policy debate feedback as the discussion opened-up and became more participated—by society on one hand, and through comparisons with other Western European cities, exposing local lags on the other. This new awareness was also reinforced by local officials in the municipalities which participated in policy transfer networks with other cities. Contrarily, when there was no apparent response from policy brokers and the coalition was mobilised—when cyclists were excluded from the debate—feedback took form as conflict, as conceptualised by Weible & Heikkilä's (2017) policy conflict framework flow diagram (Figure 9, in section 2.5.11 – Policy conflict). Lack of policy feedback with adequate outputs sparked intensive cyclists' activities, *i.e.*, CM rides or similar protests, street level contestation such as DIY cycle lanes, and coverage in the social networks and media.

Lisbon's cyclists' coalition facing political indecision

Since there is no institutional national Portuguese government and regional AML-oriented mobility strategy including cycling as a mandatory layer in the infrastructural policy process, the existence of contrasting positions on the policy issue are possible between neighbouring municipalities, a predicament aggravated by the fragmented urban and mobility systems of Lisbon's metropolitan area. Unlike pedestrian mobility, which in Portugal is conceptually safeguarded by legal mechanisms, namely the accessibility legislation and national normative guidelines on how these should be applied (Ministério do Trabalho e da Solidariedade Social, 2006; SNRIPD, 2007), regarding cycling there are several guidelines and recommendations, but there is no legal strategic framework for the mandatory integration of this subsystem in Portuguese localities, roads or traffic arteries. Despite the existence of the ENMAC 2030 '*national cycling strategy*' promoting cycling and integrating '*Portugal Ciclável 2030*' promoting intermunicipal cycling links during a ten-year time frame, after the first year of programmed policy outputs only limited piecemeal policy results had been observed. ENMAC 2030 and '*Portugal Ciclável 2030*' have no mandatory measures for the national road management agency (IP) nor for local authorities (Municipalities), and by August 2021 only 16 of Portugal's 308 municipalities had received approval for funding new intermunicipal cycleway links: seven AML municipalities (Lisbon, Amadora, Loures, Odivelas, Oeiras, Palmela, and Setúbal), seven AMP municipalities (Porto, Espinho, Gondomar, Maia, Matosinhos, Valongo, and Vila Nova de Gaia) and two municipalities in the central interior of mainland Portugal: Covilhã and Fundão (República Portuguesa | Ministério do Ambiente e Ação Climática, 2021, pp. 8-9). Notably, most of these municipalities had participated in the ECO XXI Green Flag municipal audit at some time and 14/16 had participated in the BooST - Boosting 'starter' cycling cities programme: Only Espinho (AMP) and Covilhã hadn't been BooST participants, but since links were intermunicipal, their partner municipalities had.

In most cases, the incremental progress has produced piecemeal cycling outputs where they on-site application was not corresponding to municipal plans—as for Lisbon Municipality—ENMAC worked as a catalyst to get more peripheral municipalities on-board speeding up implementation. Lisbon's cycleway network was already foreseen and publicly announced by Deputy Mayor José Sá Fernandes during the 2016 EMW (Francisco, 2016), thus helping to speed up the pace. In practical terms, however, an encompassing metropolitan area-wide relation between policymakers and cycling

hasn't been included in the policy process; one municipality may implement sustainable mobility measures while neighbouring municipalities can be producing unsustainable policy outputs, or contradictory policies can occur even within the same municipality.

Oeiras, is a paradigmatic example of policymakers' incongruent relation with cycling in Portugal and of how ENMAC funding is functioning as an incremental catalyst, but how expensive publicly funded counterproductive policies promoting automobility also persist. Oeiras is one of Lisbon's key neighbouring municipalities included in 'conversations' for Lisbon's cycleway expansion at least since 2016 (Francisco, 2016), with participation in LA21 CoM networks, ECOXXI Green Flag audit, BooST cycling programme participation, and ICLEI membership since 2021, but despite participation and currently being involved in an approved ENMAC cycleway project with Lisbon, Oeiras Municipality is also planning intensive new roadway construction and more car-parking facilities favouring automobility throughout the municipality. In fact, Oeiras Municipality has dedicated over €45 million to road building and car-parking construction between 2017 and 2025 in comparison to €8 million for walking and cycling infrastructure, and this comparison does not include the costs of automobility infrastructure built into municipally funded urban renewal and public facilities projects (Município de Oeiras, 2021a).

The national scenario does not seem to fare much better: Portugal's NRPP formulated in April 2021, earmarks over €700 million in road-building and automobile-associated infrastructure —such as electric car charging stations— from EU and Portuguese government funds, but €0 to walking- and cycling-specific measures (República Portuguesa | Ministério do Planeamento, 2021, pp. 122-125). In the AML there are numerous recent examples of automobility demand inducing road building planned —accommodating to an increasing number of car trips in the AML— such as the previously mentioned carparks, VLS and VLN roadways in Oeiras and Cascais municipalities, Oeiras' plan for a highway tunnel at Santo Amaro, or Oeiras and Almada's plan for another car-only bridge or tunnel crossing the Tagus River (Lusa, 2020b; Município de Oeiras, 2021a, 2021b).

Contrastingly citizens' proposals for cycleways on major arteries which do provide new intermunicipal cycling links have been refused by local and/or national policymakers: The *Alma-Lisboa* petition launched in 2013 and signed by over 2,300 citizens for a cycleway on the 25 de Abril bridge between Lisbon and Almada —similar to San Francisco's Golden Gate bridge cycleway— was also refused by IP's predecessor *Estradas de Portugal* (Naves, 2018; dos Santos, 2013). Similarly, the '*Ciclovía na Marginal*' Oeiras PPB winning proposal in 2014 provides a direct, low-cost implementation arterial cycleway connection between Oeiras and Cascais —and a possible link to Lisbon— but has been systematically dismissed by both the Mayor of Oeiras and *Estradas de Portugal*/IP since 2014, despite citizens' and political pressure.

Interviewee #3 underpins an imbalance among key governing entities supervising public throughfares, favouring automobility:

there is a lack of a government policy being introduced in the ANSR, and from the ANSR downwards, stating clearly that we must unbalance the system. If the government had the ideas, and the capacity for it, it should say that we must control automobile danger and therefore we have to be much, much stricter (with motor traffic), and we must encourage cycling and pedestrians for road safety reasons. The government never says this clearly, and ANSR still has that status of "we take no stand" and passes this on to the police, and the police don't have guidelines so they supervise pedestrians and cyclists (instead of automobility)... the hashtag #enquantomultamasvítimas (#whiletheyfindvictims). There's a lack of government strategy, which is not emanating, we still have a 20th century idea... The government does not put capable people in charge to change the paradigm (ANSR, IP), and it ends up stalling. Municipal Governments, ANSR, IP are influential. In Portugal, local power is powerful. In Oeiras and Cascais, Carreiras and Isaltino are strong figures, the other deputy mayors are insignificant." (Interviewee #3 – Activist)

Meanwhile Interviewee #8, an activist, points to the overrating of legislative change, when it is the cyclist citizens that are the bottom line of the effective confrontation for a transition:

When there is progress at the legislative level, in some policy connected with this, there is a narrative tendency to link the two things... There is a correlation, but that does not mean that there has to be a cause-and-effect phenomenon. ... in my opinion, the bulk of public policies for cycling in Portugal were fostered by the bogeyman of climate change and issues related to the environment. Of course, this has a capillary effect at the micro level, in which the legislator, the politicians, are sensitive not only to those associations that I named (MUBi and FPCUB), but also to the quantity (of cyclists) and activism, which is to say that each bicycle user is a political actor in himself. The growing number of bicycle users... at the limit is the fact that there are more cyclists here.”
(Interviewee #8 – Activist)

Cyclists’ coalition and dualities in public participatory budgets

Oeiras, for instance, signed the CoM pact in 2009, created an energy and environment agency (functioning until 2015), published guidelines for citizens, and launched a PPB, but—as mentioned previously— when the winning proposal in 2014 was for an arterial cycleway on the Marginal Avenue it was dismissed and never implemented, with the excuse that the avenue is run by *Estradas de Portugal*, now IP. In 2019 and 2021 proposals for cycleways on municipal roads were won by the same group of citizens once again, but these were also dismissed. In fact, Oeiras was one of Portugal’s first municipalities to sign the Aalborg Charter of 1994, under the same mayor —Isaltino Morais— who refused to implement the 2019 and 2021 public budget proposals for the cycleways and ignored the results from the preceding mandate’s 2014 public budget. Citizens’ proposals for building simple connected cycleways have won recurrently but are systematically dismissed; the 2014 cycleway victory was rejected, while the 2019 and 2021 proposals were conceptually admitted but never produced (Coligação Evoluir Oeiras, 2021). Meanwhile, the lack of a national urban strategy or legally binding framework also implies that the road investments—many foreseen in Portuguese municipality’s first- and second-generation masterplans developed in the 1990s and 2010’s respectively— are socially and politically approved with greater ease than the urgent compact city measures aiming at increasing cycling infrastructure.

The relation between policymakers and cycling relies on the mayor’s discretionary powers, with the possibility of erratic outputs existing in face of sustainability commitments—while the perpetuation of automobility-inducing measures remain uncontested by national policy mechanisms and supervising government agencies IP and ANSR, focused on automobility-centred policy aims; *i.e.*, road infrastructure and road safety, respectively. Not surprisingly, numerous recent national and municipal policy outputs continue to focus and fund increasing road infrastructure, carparking, and sprawled urban development against a backdrop of non-existing or unconnected cycling infrastructure, substandard pedestrian accessibilities, and incipient public transport integration.

4.5.1 Meta issue integration in Lisbon

Policy conflicts observed during the 2009–2021-time frame in Lisbon reveal increasing collective action involving cycling in the city and in the metropolitan municipalities of Oeiras, Cascais, and Almada, but with local variations in policy brokerage and response. Lisbon saw numerous cycleway proposals in its PPB during the first years of the study time frame (Banha, 2014; Inês Boaventura, 2014; Capucho, 2016; Moreira, 2017). Most of these winning proposals weren’t realised directly as such, or immediately, but were later integrated into several municipal projects—first with the Environment Directory under José Sá Fernandes and an extremely effective policy entrepreneurship team since 2008, and from 2015/2016 with significant enhancement from the Mobility Studies and Planning Division (DEPM) of Lisbon’s Municipal Directorate for Mobility (DMM)— coordinating the cycleway network transversally with all municipal areas involved, including with the Public Space Department (DEP) projects of Lisbon’s Municipal Directorate for Urbanism (DMU) which began integrating cycleways into several *Uma Praça em Cada Bairro* and other urban projects with DEPM’s

coordination. Cycleway implementation from PPB inputs was substantial but not all implementations were completed, namely in Lisbon’s central traffic artery —with an important section inaugurated in 2017 linking four major *Praça em Cada Bairro* projects and redefining a key part of the city’s central artery— but leaving out a significant link between the city’s principal roundabout, a major avenue, and the downtown and riverfront (Banha, 2014). Similarly, the *Martim Moniz* (2021)-*Almirante Reis* (2020)-*Guerra Junqueiro* (2018)-*Praça de Londres* (2019) cycleway left out the downtown section between *Praça da Figueira-Baixa* and the riverfront, and an important uptown *Avenida de Roma* cycleway. Besides being part of winning PPB proposals, these arterial links have received numerous citizens requests for implementation since, including frequent CM rides. Notably, *Almirante Reis* avenue witnessed Lisbon’s largest CM cycle protest ride in October 2021 —shortly after the local elections (Lusa, 2021a)— and the city’s first DIY bicycle markings had already been painted twice on the same arterial axes: once on *Av. Guerra Junqueiro* when former Mayor Fernando Medina appeared to stall realisation of the cycleway (Alemão, 2018; Mário Rui André, 2018) and the second DIY bicycle markings also appeared at *Av. de Roma* two years later (Raposo, 2020).

Participatory mechanisms

In Oeiras municipality none of the winning PPB proposals for cycleways were realised, and despite or because of the resounding victory for a coastal cycleway in 2014, PPBs were cancelled in Oeiras for five years. When the PPB was reactivated in 2019 another cycleway proposal won and once again the programme was cancelled for another two years, being reactivated again in 2021, and once again a major arterial cycleway was one of the winning proposals. Many citizens have revealed interest and awareness of the need for change, as resumed by one of the citizens interviewed: *“I think people have realised that something has to change in the World to avoid all the harmful effects of climate change, and one of the first and easiest options is to leave the car and ride a bicycle, for example.”* (Interviewee #1 – Citizen). Contrastingly, policy brokers have in many cases vetoed institutional participatory mechanisms, undermining citizens’ expectations of the policy process and policy brokers’ credibility for honouring the mechanisms they have implemented to supposedly boost citizen participation.

Despite cycling PPB proposals being stalled or dismissed regularly —perseverant citizen insistence for innovation and integration of meta-issues has also organised into collective action and coalition building— in face of no real policy brokerage from municipal decisionmakers. Oeiras’ and Cascais’ 2021 PPB proposals for a cycleway linking densely populated localities in the two municipalities (Figure 60) —coupled as an intermunicipal connection (Pincha, 2021b)— and in Oeiras it was also involved in the creation of a political movement on the other: *‘Evoluir Oeiras’*.



Figures 58, 59, and 60

Proposals for cycleways in Oeiras municipality which have consecutively won public participatory budgets (PPBs) in 2014, 2019, and 2021 (Ciclovias na Marginal, 2014, 2019, 2021)

The two neighbouring municipal cabinets apparently revealed different approaches to the PPB proposals, but the variance may be politically programmatic. While Oeiras refused to integrate the proposal route, Cascais is assessing the

possibility of implementing a route that it had already planned as part of its mobility strategy (Câmara Municipal de Cascais, 2016).

When interviewees were questioned about what kind of policy actors would they consider being the most effective for participating in policy development towards a more robust cycling culture, Interviewee #5, a policy broker in office, answered that “(in Oeiras) *Ciclovia na Marginal*”, the movement created by the citizens who had proposed the cycleway on the Marginal Avenue in Oeiras’ PPB. Interviewee #1, a citizen, answered ““*Right now, I don't remember any (a subject that triggered some involvement with the bicycle), maybe my first participation on a bicycle in Marginal Sem Carros.*” Both interviewees, a citizen and a policy broker, point to local agenda-related mechanisms: The citizen mentions the mechanism involving direct citizen participation on an open-streets initiative promoted by Oeiras municipality, the policy broker a PPB proposal which had been rejected by Oeiras’ municipal policy brokers and ended up becoming an informal social network movement submitting two more winning proposals in the next PPB editions, CM cycle rides, and the creation of the *Evoluir Oeiras* association and political movement. Both mechanisms mentioned in these two cases also relate to *Marginal* avenue, the most important cycling artery linking numerous localities west of Lisbon—and Oeiras and Cascais municipalities—, and part of the moving count routes analysed in section 4.9 Outcomes.

Various types of Local participatory processes have been integrated into local sustainability agendas in several Portuguese municipalities. In Lisbon, Oeiras, and Cascais PPB point to different degrees of introducing—or reinforcing—cycling on policymakers’ agendas through citizen mobilisation. Introducing cycling on the political agenda in a setting with low rates of cycling used meta issue networks as vehicles of involvement and coalition-building through participatory processes involving the subsystem and aiming at the policy issue of increasing cycling. Policy issues that are considered disruptive and threatening to the dominant ‘*system of automobility’s*’ *status quo* have been introduced and reinforced in the municipal agendas—of the three municipalities mentioned— through these participatory mechanisms. Despite lack of real policy brokerage in some cases, the meta issue participatory processes—in the AML, namely the PPB— have placed and reinforced the subsystem of cycling on the agenda, and have been effective in coalition building mechanism, mobilising political response from citizens (*Evoluir Oeiras*, 2021b).

Institutional limits of local agenda

The local agenda and participatory mechanisms present several limitations, where the role of an organised cyclists’ coalition could provide an important ally to overcome difficulties, such as those faced by Cascais municipality when attempting to hold a weekly open streets initiative on the Marginal coastal avenue. In fact, Interviewee #10, a former Policy Broker observes that “(In 2007 Cascais Municipality (CMC) tried to close the Marginal Avenue to motor traffic on Sundays)...

It was an attempt... It was the services of the Municipality with the Mayor, they did not succeed. An attempt was made to close Marginal to car-traffic every Sunday because the Marginal is intensively used by cyclists on Sunday mornings, still in this leisure perspective. They (EP, now IP) said it couldn't be, because there are no alternatives. It's one thing to have an event once or twice a year, now every Sunday couldn't be. For a while, a solution was used which was to close only one of the lanes, the right lane. The problem with this solution was that it involved very expensive logistics, because between 6 and 8 in the morning it involved several teams placing pins along the entire Marginal Avenue to Carcavelos and then collecting them. And the logistics at times were absurdly expensive so the (Municipality) gave up.” (Interviewee #10 – Former Policy Broker)

Alliances between Municipal policy brokers and local citizens and activists appear to be a relatively unexplored field in the AML, but they could enhance municipal measures which are favourable to the subsystem, and also be boosted by a greater degree of meta-issue network participation by inviting other cities which have produced best practices outputs—with activities such as seminars, conferences, field trips, and other initiatives— discussing the subsystem and policy

issue, proposing measures, and assuring formalised commitment to introduce the topic within an institutional framework and formalise these through municipal SUMP commitments.

With a SUMP all policy actors involved could sit at the table and discuss relevant aspects of the policy process, also inviting national government agencies with supervision in relevant issues —IP and ANSR— to relate with local stakeholders, citizens, activists, cycling policy entrepreneurs and epistemic groups, to boost political will among local policy brokers and implement tactical urbanism measures, pilot projects, and an overall framework to push the local agenda limits beyond the PPB. Implementing a local SUMP, involving diverse actors —and the occasional participation from meta-issue network partner cities when consulting best practices— provides a mechanism for policy actor exposure to municipalities which have managed to introduce successful outputs and change. Interviewee #7 —a policy broker in office— points to other aspects beyond the institutional framework for steering through governance mechanisms such as the SUMP, underpinning the pivotal role of competition between municipalities striving for leadership and involvement in policy transfer networks with peer cities:

It's not just steering. ...We are steering society, but we are in an intercity competition. This culture of competition that we want to lead, there is this culture, and our direct competitor is Lisbon, not Oeiras. Oeiras is pressed in the middle of a sandwich... it is no longer a leading council... We are in direct competition with Lisbon. And constantly. There is healthy direct competition with Lisbon and with other municipalities, we always place Lisbon, but then we place Barcelona, we place others. It is good ...to have the ambition to compete with others. ...We are partners with Pontevedra, we are part of the same European CIVITAS network. ... We are part of this network and we share many things... CIVITAS, Pontevedra, we are working a lot with them. We have other European cities, we have had a strong relationship with Rotterdam, with the Mayor of Rotterdam. It was the worst county in the Netherlands ... I have experienced the transformation of Rotterdam in the last three years. And this Lisbon – Cascais competition is being very good for everything.” (Interviewee #7 – Policy Broker)

Thus, an interest in policy learning from meta issue networks is acknowledged by the policy broker interviewed (Interviewee #7), with interactions and competition with other cities being recognised as a positive factor. Contrastingly, local PPB instruments involving citizen participation are not always addressed as a central factor in the policy brokerage mechanisms of all municipalities, and without SUMPs implemented in any of the AML municipalities the institutional framework falls short of accompanying the entire policy process.

4.5.2 Policy brokerage and cycling in Lisbon’s difficult setting

Placing cycling on the agenda where it was non-existent, and from there into the policy process has revealed itself as an extremely difficult political task in AML municipalities. Policy brokers in early adopter municipalities with some work already accomplished faced several constraints and political resistance not to build cycling infrastructure and covered away. Initial bursts —such as Cascais’ cycleway to Guincho (1996) and the attempt for weekly open-streets initiatives on the Marginal Avenue (2007)— were followed by years with no new outputs. Likewise, Lisbon’s initial cycling output of Campo Grande cycleway (2001) was followed by a dearth lasting almost seven years, with nothing relevant produced between. In fact, even when municipal governments changed and promises of new visions for mobility were announced, shortfalls became evident, as observed by Interviewee #2: *“Critical Mass in 2007. ...And they promised us something, Nunes da Silva, Sá Fernandes, etc. to create a monitoring group to accompany projects, which was never done.”* (Interviewee #2 – Epistemic actor).

In cases where the institutional setting has some knowledge and will to implement cycling measures, technical staff are sometimes viewed as a possible path for implementation, according to Interviewee #10, a former policy broker:

(The) municipal technical staff are very important, since politicians change, and the technical staff stay there for many years. A municipal technical employee who is defends the cause often ends up succeeding.... They keep insisting on that, since the politicians are changing frequently, so often, especially at the local level, with some more speed at the level of the deputy mayors' offices, sometimes they find (a politician) that is aligned and what they're pushing for is implemented.” (Interviewee #10 – Former Policy Broker).

But in a local policy scenario which seemed to be rigged from the inside individual policy actors face apparently unsurpassable barriers for sparking change from within. This policy setting appears to be pervasive in the AML municipalities surveyed—with pro-cycling policy brokers facing a general level of resistance from fellow politicians—and when they did try to face the challenge in both Lisbon and Cascais, policy outputs simply didn't happen exactly as planned or didn't happen at all, as explained by Interviewee #10:

The first sign of trying to include cycling as a mobility (mode), (and it was) still for leisure, was the construction of the Guincho cycle path in 1997, still by the previous cabinet, run by the Socialist Party...The 'Bicas' (Cascais' first generation bikeshare system) appeared shortly thereafter, still with the previous cabinet. There was an increment of the 'Bicas' program, and then, as part of the Master Plan preparation, a cycling network was inserted, but much later, in 2012.2013. ...I've always been a big advocate of the cycling issue, but initially without much success. In 2002 a colleague at Town Hall even told me that cycleways were not necessary for anything because people could ride bicycles on normal streets and there was no need for cycleways at all. And this was precisely the Councillor for public space and municipal works. ...It was the Mayor and those (working in the) area of tourism, and we are in Cascais, and we are in a tourist area. It was with (mayor) Capucho. ...But no new cycleways were built. (Interviewee #10 – Former Policy Broker)

Furthermore, the electoral cycle is ingrained into mayors' mindset when deciding on policy process issues: On one hand policy brokers face the constant threat of not corresponding to the majority electorate they respond to while in office, and on the other, they also need that electorate to assure support and power to win the next mandate. Within this line of thought, mayors and their political groups may consider experimentation, innovative or disruptive policies as a possible threat to staying in office and a reason for losing elections. Thus, while mayors hold the key position for decision-making and linking various political sectors of society—they can also be the most averse to the risk of advancing with change—and in fact this is exactly what a policy broker in office stated, but it's also an opportunity, as underpinned by Interviewee #7:

Mayors, paradoxically (are more averse to taking risks). ...A lot of power, the mayor has a lot of power, and he's afraid because terms are short and, therefore, he's always afraid to implement, and cut road traffic.” ... (Better able to take these risks, in particular) Mayors too... (For what benefit to take these risks) It has an enormous impact on the lives of our fellow citizens. It's taking a risk but to have an enormous award, the award is quality of life. (Interviewee #7 – Policy Broker)

The key question is how do policy brokers take this risk? The role of epistemic action and aligned policy entrepreneurship in the decision-making process is crucial, so that political discussion can look and work beyond the closed vicious circle of the *status quo*. Instead of policy brokers responding reactively to immediate problems—such as more car-parking and road widening—a broader perspective opens the policy process to addressing existing problems with innovative responses such as reclaiming city streets, redistributing road space, compact urban development, and modal transfer to more sustainable mobility modes such as walking, cycling and integrated public transport.

Policy entrepreneurship in Lisbon

To overcome a skewed reading of citizens' preferences by policy makers, policy entrepreneurs have been crucial at informing and influencing brokerage decisions and activating coalition action. As addressed in section 2.3.3. policy

entrepreneurs have played a central role in policy transfer and learning, introducing new ideas and best practices in city governance structures (Marsden et al., 2010). In Lisbon, policy entrepreneurs were key in joining coalition members from different areas of the political debate —citizens, activists, associative members, municipal officials— and getting them on the table with policy brokers to exchange ideas for solutions and inform around important measures to produce effective outputs. In Lisbon these meetings occurred in a focused but unsystematised way discussing cycleway network advancements through several meetings with different actors over the years. These meetings were not always evident as participatory sessions to citizens and activists involved, but they produced results in municipal mechanisms with insights gathered from meetings, participatory mechanisms such as PPB meetings, decentralised neighbourhood sessions, and public consultations. Interviewee #4, a citizen, identified policy entrepreneurship in Lisbon Municipality when DEPM had been expanding the cycleway network with several visible outputs since 2016 in various dimensions (Uptown cycleways pilot project, central traffic artery coordination, several new cycleways being in central city areas and some peripheries, cycling programmes, etc.): “...*The deputy-mayor for mobility had people there who were willing, very willing. I don't see anyone at the political level, everyone is afraid of the political consequences this can bring, and in the upcoming elections, they are afraid to face the automobile lobby.*” (Interviewee #4 - Citizen)

Policy entrepreneurship introduced and enhanced Lisbon Municipality's unprecedented cycleway network expansion and was involved in several key infrastructural and programmatic measures announced, much being planned but not yet realised at the time of Interviewee #4's insights (January 24, 2020). In fact, policy entrepreneurship had been preparing the VCC21 conference bid since October 2017 (Pereira, 2017b), producing a comprehensive submission which showcased Lisbon Municipality's commitment to realising numerous cycling outputs including significant infrastructural advancements and programmes (Câmara Municipal de Lisboa, 2018c). Lisbon won the bid and commitments that had been planned were sped-up, including implementation of the pop-up cycleway solutions discussed and eventually introduced by policy entrepreneurs in Lisbon since March 2020 —amidst the emergence of the COVID-19 pandemic— a '*window of opportunity*' seconded by the local cyclists' association (Cicloda, 2020), with implementation taking form since May 2020 and presented publicly by Lisbon Mayor Fernando Medina on 3 June 2020 (Reid, 2020).

The speed of entering, formulating, implementing, and concluding of such a high number of pop-up cycleways in Lisbon during the year prior to the VCC21 conference points to the effective policy entrepreneurship working within Lisbon Municipality's governance structures on one hand, but several of the suboptimal solutions adopted also suggest sidelining key inputs related to cycleway design and implementation. New ideas and opportunities for policy change were taken advantage of with the '*window of opportunity*' provided by the COVID-19 pandemic's impact on city's mobility systems, and internally policy entrepreneurs were able to '*market*' these new ideas. How they were processed through governance structures and implemented raises questions associated both to implementation structures adopted by the municipality and the ensuing political debate which emerged in the 2021 municipal election campaign.

Brouwer & Huitema (2018) conceptualise policy brokers as working within government functions and networked with specialist consultants and together taking critical risks to advance for policy change within the organisations they work with (pp. 1259, 1271). Despite much criticism from local activism, regarding cycleway implementation and modal uptake Lisbon Municipality lead city street space reclamation from automobility in numerous projects realised —DEPM's pilot projects and major cycleway expansions, DEP's '*Uma praça em cada bairro*' urban space overhauls, and several green infrastructure interventions. What may not be perceived so clearly —also by citizens and activism— is that while policy brokers receive the public's attention, policy entrepreneur work has clear policy goals defined and progress towards these goals is achieved by policy broker's actions, *i.e.*, approvals. Ingold & Varone (2012) conceptually warn of these different goals being sought by policy brokers in ACF application research in comparison to policy entrepreneurs.

Veto points with social biases hindering cycling in Lisbon

Lisbon's dominant automobility coalition functioned for several decades without having to confront organised opposition reclaiming the city's streets —with walking being relegated to minimal sidewalk requirements and cycling excluded from the political and epistemic agenda. For both walking and cycling the crucial turning point in governance mechanisms occurred between 2009 and 2021. An unprecedented intensity of ad-hoc meetings between Lisbon Municipality and local associations was observed during the 2016-2021 period —with an increasing number of regular meetings being conducted since mid-2020 —as the VC 2021 conference date and the end of the 2017-2021 mandate approached. Nonetheless, an institutional framework incorporating cycling in regular meetings and commitments instituted within a formal SUMP policy cycle didn't happen yet —and with the new municipal cabinet either— despite being announced for 2024 by the new social democrat deputy mayor for mobility Ângelo Pereira (Meireles, 2022).

The scenario in the outlying Municipalities is closer to that of Lisbon before the 2009-2021 period, with less coalition intensity, less activism, and few meetings between policy brokers and cyclists' associations. Until recently Lisbon's urban mobility policy was much closer to motorists' and highway engineers' perspectives than currently, and in the outlying municipalities policy events and outputs point to a similar scenario. Bôle-Richard (2010) cites an interview conducted in July 2007 with one of Portugal's leading Lisbon-based epistemic actors identifying in that

it is interesting to look at the designs of one of the leading lights on mobility and transport in Portugal, José Manuel Viegas. He is a lecturer at CESUR (Centro de Sistemas Urbanos e Regionais) and IST (Instituto Superior Técnico), and president of the consultancy bureau TIS (Transportes, Inovação e Sistemas). He is also the coordinator of important municipal projects, including 'Plano de Mobilidade', revisions of the 1994 'Plano Director Municipal' (PDM, municipal masterplan) and the design of the pedestrian network, not to mention his important study entitled 'Lisboa: o desafio da mobilidade' (2005). He claims, «a city without cars is a city that loses competitiveness, though I also say, 'use the city but do not abuse it'». Regarding Largo do Rato, one of the city's most complicated locations, he does not consider the conflict between walkers and drivers to be a priority, as he and his team are studying a solution as part of the plan to rehabilitate Baixa, which involves having a main road, Circular das Colinas, pass through the square!... So official imaginaries do not regard Largo do Rato as a problematic place, at least from the point of view of a highway engineer or a motorist. (pp. 128-129)

Largo do Rato has been described as an 'open traffic sewer' in the middle of the city (Oliveira, 2022). When José Manuel Viegas was interviewed as Secretary-General of the OECD's International Transport Forum (ITF) by the digital European-level media platform Euractiv, as part of a report series named *Transport: Moving ahead* —sponsored by automobile-maker Volvo— regarding an article published on 1 October 2015, on "Vulnerable road users key to reaching safety targets", the following section heading and sentence is included: "Cycling benefits outweighed. In regards to cycling, Viegas lamented that the positive impact derived from being a physical activity is by far outweighed by their negative health impact, due to crashes and exposure to air pollution." (Valero, 2015). The text was reported by a Lisbon cyclists' coalition actor —communicated to ECF Secretary-General Bernhard Ensink and OECD ITF advisor Phillip Crist— but Euractiv ended-up correcting the text and dismissing it as a misquote (Pereira, 2015). Why would such an apparent misquote be published? What would have occurred if this statement hadn't been reported to high-level ECF and OECD staff? Interestingly, the original text published is in line with observations of the motorised city as a predominant image shared by the epistemic outputs produced in Lisbon until the first decade of the 2000's, by the general view held by epistemic actors interviewed in Lisbon by Bôle-Richard (2010) eight years before (p. 123), and the strategy advanced for Lisbon's mobility system 'Lisboa: o desafio da mobilidade' (Câmara Municipal de Lisboa, 2005).

Either inadvertently or intentionally, cycling has generally been vetoed from epistemic and policy practices in the AML and in several practices, it continues to be excluded. The predominant view of ignoring cycling and pushing walking to the edges of street space has persisted in many segments of official governance mechanisms in the Portuguese

government and municipalities, well beyond Bôle-Richard's interviews of 2007 or Viegas' alleged misquote of 2015. Data collection involving cycling illustrates how unimportant the subsystem is to several municipal and national organisms supervising infrastructure and safety. By not counting cycling, by cycling and rail not appearing as alternatives in radio and television traffic reports also, tacit —probably unintentional— veto-points are used by several public and private organisms to disfavour the subsystem. The exceptions in the AML are Lisbon Municipality with its fixed cycle traffic digital counter placed in Lisbon's Duque d'Avila cycleway in on 26 January 2016, the 34 cycle traffic sensors since July 2021, and Cascais Municipality's two fixed counters since 28 and 29 April 2019. No other official data collection sources are known in the AML, and IP continues to exclude cycling from traffic counts on its national roads, since 2005. Even Lisbon took several years to publicly reveal data from the cycle traffic counter data, and mainstream media only took note of this in 2020 (Albuquerque & Rosa, 2020).

Likewise, supervising national agencies ANSR and IP haven't revealed preoccupation with cyclists' or pedestrians' safety issues. Despite numerous appeals, including a letter to the Portuguese Prime Minister from the national bicycle industry association (ABIMOTA) —demanding an integrated cycleway network and cycleways on national highways (ABIMOTA, 2020, p. 4)— the national supervising agency —IP— continues to tacitly veto cycling and walking by excluding cyclists' and pedestrians from their counts, policies, plans, and outputs on many national roads and highways, even in urban and settings. Similarly, ANSR's PENSE 2020 strategic road safety plan, launched in 2017 (Presidência do Concelho de Ministros, 2017) has no considerations on the need for adequate cycling and walking infrastructure on national highways or urban avenues, and national audits on highways generally ignore the need to implement safe, direct, functional cycleways and legally accessible sidewalks and active-mobility crossings on national highways. The use of veto points here is explicit in these two crucial government agencies: IP refusal to introduce walking and cycling infrastructure on some of roads that it manages —including several urban arteries such as N6—, and ANSR's refusal to introduce some of the demands made by pedestrian's and cyclists' associations, including hundreds of contributions from citizens, activists, and associations, and a large cycle-ride protest held in Lisbon during the consultation phase of the PENSE 2020 strategic plan (Pereira, 2017). Interviewee #11, a journalist, explains how these veto points are perceived and their consequences:

I think there is active opposition (to the Traffic Code). Clearly (they -IP and ANSR- create barriers to cycling). There are several ways to create barriers, not only from the regulatory point of view, I think also from the (PSP) policing point of view, the fact there's a lack of enforcement on automobiles and over-enforcement of cycling, which is counterproductive to both cyclists and pedestrians. For example, they conform themselves. It is a dismissal of their responsibility, in the case of Marginal Avenue, which is a road that will always be used by cyclists. And then I think there is this resignation of responsibility, and I think that this resignation of responsibility is putting an obstacle, and more than putting an obstacle, it is putting people and their lives at risk. Therefore, the way Infrastructures of Portugal (IP) conducts the matter is a danger to the public life of the Portuguese people and their mobility. (Perceived as being more influential) ... Clearly... These people know that they are institutions with decision-making power and very strong influence. And it's not just a perception, it's something that really shines through in decisions, and in real life. (Interviewee #11 – Journalist)

Considering Ingold & Varone's (2012) conceptualisation of conflict between very cohesive advocacy coalitions and the use of veto-points, as discussed in section 2.3.2 Policy brokers, above, Oeiras' 63.9% automobility modal share vs 0.4% cycling, 14.1% walking, and 18.9% public transport (INE, 2022b) illustrate the imbalance in mobility practices. Given this scenario, from Ingold & Varone's (2012) conceptualisation the difficulty for policy change in Oeiras is expected: “if very cohesive advocacy coalitions oppose each other, then policy change is very improbable as the dominant advocacy coalition will use institutionalised veto points to hinder any policy change” (p. 324).

Considering the mayor-centred role of Portugal's municipal governments (Jalali, 2014; Teles, 2014), when the leading decision-maker acts in line with the dominant coalition, policy change is hindered. Without municipal pressure upon the national agencies, the dominant coalition holds an almost absolute control of influence and agenda-setting at the local

level, even when there's 'outside' pressure from the cyclists' coalition. In an automobility dominated scenario, change for reclaiming space from motor traffic to people-oriented activities poses difficulties at various levels, and risk-taking dilemmas are posed to policy brokers. In face of political challenges that policy brokers may fear facing, applying veto-points serves as a possible excuse to conceal programmatic weakness or lack of strategic vision. Not all policy brokers —i.e., not all mayors— have sufficient courage, commitment, and vision to advance and take risks:

It depends more on personalities than on your position. Sometimes the technical staff are more advanced and it's the politicians who don't want it, sometimes the politicians are more advanced, and they don't want to. Lisbon has both cases. In the first terms, Isaltino (Morais, Oeiras' mayor intermittently 1985-2025) was one of the first politicians who —for better or worse— he was not for cycling, etc., but he placed trees, little squares, and larger squares —He realised that you win votes in the public space, he was one of the first politicians who did much of that. Now it's normal, and I think he lost gas. There has to be a transparent, regular and structured public participation. Every 2 months, 3 in 3 months, with different actors. It shouldn't just be cycling, but mobility in general. (Interviewee #3 – Activist)

Interestingly, the 2021 policy complexification emerged with the two simultaneous proposed cycleway victories in Oeiras' and Cascais' PPB's along the same traffic route in two neighbouring municipalities: if one of the municipalities does not implement and the other does the use of veto points by local policy brokers will be even further exposed (Pincha, 2021b). Policy developments entered the 2021 municipal election debate, with a local citizens' association placing the issue on the agenda (Evoluir Oeiras, 2021a), and the association receiving support from a three party coalition with the green-left leaning Livre, the Left Bloc (BE), and Volt (TSF, 2021). Considering the introduction of change in the local political debate in Oeiras in 2021, and the approval of the public proposal victory in Cascais at the same time, will the veto points continue to be employed by Oeiras? Will the debate overflow into Cascais? What consequences are expected?

The Cascais PPB proposal roughly corresponds to a section of a municipally planned cycleway developed in 2016 but never implemented (Câmara Municipal de Cascais, 2016). Cascais has several similarities with Oeiras, with a recent past expansion of its urban perimeters, sprawled land-use patterns, and few alternatives to automobility in much of its territory. Cascais' municipal mobility are also similar, with 60.3% automobility vs. 0.6% cycling, 12.4% walking, and 17.1% public transport (INE, 2022b). Will Cascais also continue activating veto points on the fulfilment of its own plans? If so, what justification will be used? Will the new municipal executives voted in the 2021 local elections change their approach in these two municipalities? If so, will this have any influence in neighbouring AML municipalities? To what degree will change happen? Cascais' cycling modal share is higher than Oeiras, but its recent decrease requires further explanations, as does Oeiras' uptake. There are questions and relevant determinants to be kept in mind and which this thesis does not aim at answering, but by providing possible paths for change which can be applied from lessons learnt, and from the confirmation of the hypothesis that policy matters, and that coalitions can contribute to change this line of research can bring new insights. Time will answer these questions, but a series of hypothesis emerge from this investigation into public policy, the subject which can anticipate how time answers these questions. Knowledge advanced on cyclists' coalition's interactions, outputs produced, and outcomes achieved unravels commonalities in the policy process for change, and these can be used to anticipate and work on the points that are most effective for future plausible developments for modal shift to cycling.

Policy brokerage involving the cyclists' coalition exemplifies their relationship with cycling in the policy process. Keeping in mind Ingold & Varone's (2012) suggestion of no policy brokerage when there have been no deals between the supposed policy brokers —i.e., mayors— and the cyclists' coalition. When the policy process doesn't produce anything from negotiation, and when policy brokers maintain an exclusively automobility-aligned position, lacking openness for change which can be measured by different means, such as budget priorities and outputs produced. Where cyclists' coalitions don't exist and don't interact, the expected result is that veto points don't even have to be activated, and there is no 'devil shift' because opposition wanting to change urban mobility issues simply does not exist, or simply hasn't achieved enough capacity to organise collectively and communicate such positions. This is a common predicament of

settings with very low-rates of bicycle use —when the initial attempts of placing cycling on the policy agenda are made once the subsystem enters the agenda— exclusion and veto-points are activated. Thus the importance of coalition persistence —at all levels— to garner support and build effective collective action over time, establish networks, and enter the institutional and policy agendas to place on the issue on the table (Burk, 2017; Greg Marsden & Reardon, 2017)

Institutional Veto Points

Regarding policy brokerage between opposing coalitions and the use of institutionalised veto points favouring one coalition in detriment of another, Portugal's dominant automobility coalition has been consulted around road safety policy decisions involving the government agency ANSR, the management, strategy, and projects for traffic arteries nationwide run by the government organism IP, and city streets, governed by municipalities. In fact, ANSR's and IP's reputation as being car-centric policy actors —hindering cycling policy— is notorious among almost all interviewees, including citizens and policy brokers. One citizen pointed out that

(ANSR, IP, PSP, ACP and PRP) all of them create barriers to cycling... The ANSR could have a conciliatory role in all of this and it does not. All are influential. More progress is not made because the institutions don't want to, they don't want to advance, they're afraid, they're scared, otherwise it's because they have interests, or they sell interests; the automobile industry has enormous power, a very great deal of economic importance." (Interviewee #4 – Citizen).

A former policy broker stated that

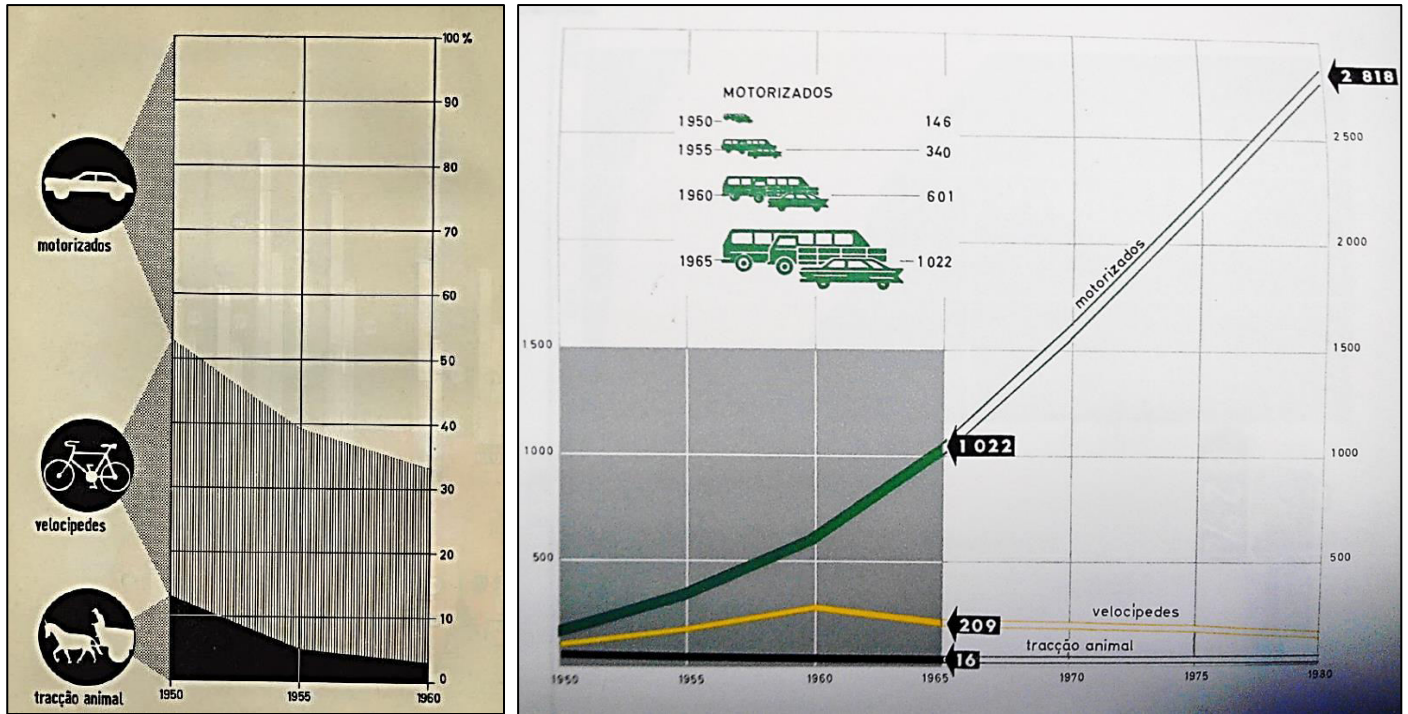
...IP is clearly an entity that has not yet internalised the importance of the present and future of cycling, nor of pedestrians. PSP would say that it is already more aware... Infraestruturas de Portugal (IP) clearly creates barriers (to bicycle-use). (Interviewee #10 – Former Policy Broker).

Another policy broker —in office— seconds the problem with IP and ANSR:

Yes (they create barriers), I'm aware of IP, I haven't felt it from the others (here in the municipality). Yes (most influential). Legislation is produced with opinions with their influence (automobile interests), and not of the users." (Interviewee #5 – Policy Broker)

It is acknowledged by several policy actors from different social areas that cycling's status is absent from policy in several governance dimensions where it could be a crucial contributor to solving numerous problems, or when it appears on the policy agenda, being systematically vetoed, sidelined or devalued by the dominant institutional arrangement, as with several municipal structures and government agencies and ministerial decisions.

The institutional arrangement has decades of influence from automobility on national road and mobility governance, a case in point are the graphs depicting modal shares and mobility mode projections for Portuguese national roads and highways in the 1960 and 1965 traffic statistics report. Vehicular modal share projections depicted increasing automobility in a setting which was relatively balanced with cycling. These projections became a self-fulfilling prophecy of Portugal's twentieth century car promoting policies. These calculative devices informed the policy orientations valued at the time —in line with Jensen et al.'s (2017) findings of how epistemic practices influence the institutions they work with— providing the information and perspectives they strive to advance to the policy actors involved in the mobility system.



Figures 61 and 62

Portugal's modal share statistics and projections in 1960 and 1965

Figure 61 - Modal share statistics on Portuguese roads in 1950-1960. Figure 62 - Modal share statistics and projections on Portuguese roads in 1965 (Junta Autónoma de Estradas, 1960, p. 22; Junta Autónoma de Estradas, 1965, p. 27)

Portugal's roadways are a public space where no policy brokerage mechanisms are guaranteed with relation to citizens and active mobility associations' needs; IP and ANSR are both government agencies with appointed chief officials, yet they have discretionary power to supervise and decide numerous aspects of how the public space they manage is dealt with and what users are prioritised on it, approving or excluding how access to this space is made, and what modes of mobility are allowed, which modes are catered to and which are ignored. By excluding walking and cycling, the Portuguese national roadways are public infrastructures only accessible to population segments with motor vehicles or access to these. In fact, both these organisations have automobility at the core of their aim and formation, but they decide for all potential user types on these public arteries, many of which are the only link between localities or pass right through key urban areas. There are numerous examples all over Portugal where the only public link between localities only caters for automobility in practical terms and excludes walking and cycling, including many public arteries in the AML —such as the *Avenida Marginal/N6* between Lisbon, Oeiras, and Cascais, *25 de Abril* bridge between Lisbon and Almada, and the *Marechal Carmona/N10* bridge across the Tagus River at Vila Franca de Xira connecting the two sides of the municipality and the nearby city of Samora Correia.

The local citizens' struggle for the *Ciclovia na Marginal* on the *Avenida Marginal/N6* since 2014 exemplifies exclusion of walking and cycling at policy level, and points to the possibility of collusion to keep the *status quo* of automobility: Oeiras Municipality excuses its own incapacity to realise the PPB winning cycleway proposal on IP, and IP does not respond to the possibility of implementing the cycleway, despite a clear victory for the proposal from citizens' votes (Auchapt, 2014; *Ciclovia na Marginal*, 2014). Not surprisingly —but considering the institutionalised veto points from both Oeiras Municipality's cabinet and IP's built-in policy orientations systematically excluding cycling (and to a lesser extent walking)— for Oeiras Municipality to create more infrastructure for automobility IP's jurisdiction has not been a problem at all, and in 2021 the construction of a €10 million highway tunnel on this artery was unilaterally announced by Oeiras'

local government (Município de Oeiras, 2021a, pp. 164-165). The dominant automobility coalition in this case has used veto points to avoid implementing a cycleway, where it holds influence —the national agency IP and Oeiras Municipality, institutions where cycling has practically no voice—, and on the other capacity to assure government agency approval and public funding to reinforce its role in the urban mobility system —with impacts beyond the municipal level— but at the metropolitan and national levels also.

Lisbon Municipality was viewed as a key actor for policy change regarding public throughfares —at least between 2016 and 2021— but national government influence is still necessary, since a democratic deficit is identified regarding automobility privileged treatment by non-elected organisms which exercise policy power over the public street space rules (ANSR) and national public arteries and throughfares, many of which are crucial local and regional links (IP):

The Municipality brought change to legislation. ...To change IP, influence must be on the Prime Minister, or the Minister for Infrastructures; IP is very conservative. (Interviewee #9 – Former Policy Broker).

Furthermore, there's a problem with IP's and ANSR's lack of accountability in face of citizens and democratically elected organisms such as the national parliament, as underpinned by Interviewee #3:

The Traffic Code was produced by the Assembly of the Republic (parliament) after a great joint consultation, and the Deep State “as with Steve Bannon” reacted badly. The ANSR emanates to the police, etc., they reacted badly, not the institution itself, but the people in the institution... jurists and technical staff who did not agree with the amendments made by the Assembly of the Republic. ANSR's performance, etc.... as they are jurists, technical staff, and engineers, they have a perspective of ideological and political neutrality, which I think is a mistake, because if you want to have sustainable mobility, you must rebalance the system. (Interviewee #3 – Activist).

IP and ANSR have consistently ignored cycling as a principal mode for rebalancing system policies, perpetuating the policy orientations and epistemic practices inherited from a past where cycling was marginalised and was not addressed from the cyclists' perspective. The initial draft for the revision of Portugal's traffic code, for instance, received criticism from cyclists' associations (FPCUB, 2013b; MUBi, 2013b), generating an intensely participated policy formulation phase occurring between February 2013 and July 2013, with a parliamentary commission heading a task force led by centre-right coalition members of parliament (MPs) Carina João (PSD) and João Paulo Viegas (CDS) during the 2011-2015 legislative mandate. The members of parliament were open to debate, promoting hearings with stakeholders and receiving numerous inputs involving a variety of different interested citizens, activists, interest groups, and associations (Assembleia da República, 2013). Contrarily to ANSR and IP, the parliament's openness to cyclists', pedestrians' and other associations was possible through effective policy brokerage from MPs, transforming the highly contested draft into a much-lauded final traffic code —approved by all political party representatives in the commission's working group— and favourably by all parties in the parliament's plenary on July 24, 2013, except the communist coalesced PEV which abstained. The final draft was acclaimed for finally entering the 21st century (MUBi, 2013c), and considered an astounding victory for cyclists' rights (ECF, 2013).

Symptomatically, legislative policy brokers' openness was not accompanied by the same posture from ANSR. Two clear cases point to this divergence:

1. The road signage regulation update that was required to accompany the traffic code approved in July 2013 took over six years to be produced, with a final output in October 2019 and a series of corrections less than two months after being approved (ANSR, 2020). The road signage regulation was criticised for being a missed opportunity since it failed to introduce a series of signs used in other European countries to legitimise cycling and walking (MUBi, 2019).

2. The national road safety strategy (PENSE 2020) was launched for public consultation just over two years after the national traffic code was approved in parliament —but PENSE 2020 had campaigns for controlling pedestrian and cyclists' conduct—, revealing aims which were dissonant from the traffic code or cyclists' and pedestrians' groups. The document was also produced with no open hearings with cyclists' or pedestrians' associations,

having received over 500 written contributions from citizens and cyclists' associations and being contested by a protest with over 600 cyclists who took to Lisbon's streets (Pereira, 2017a). Despite the intensity of the contestation ANSR maintained PENSE 2020 with a series of questionable campaigns being conducted and promoted by the national police forces upon cyclists' and pedestrians.

Considering ANSR's inclinations, the question remains as to why the refusal to accept inputs from cyclists and pedestrians and update its policies, and why does not it follow the traffic code's orientations? Why does ANSR maintain greater awareness of automobility's needs and exclusion of cyclists and pedestrians demands? Could this be a case of *"institutionally important and economically powerful organisations also opposed targets... Even though these organisations were fewer in number than those supporting targets, they were perceived as being markedly more influential."* (Wagner & Ylä-Anttila, 2018, p. 886)

Ten out of eleven (91%) of the interviewees shared the perception that ANSR and/or IP are influential but unfavourable to cycling and change. The only interviewee who didn't see this correlation was a policy broker in office (Interviewee #7), yet he mentioned that maybe Carlos Barbosa from the automobile club (ACP) was opposed to cycling. Interviewees overwhelmingly agree that ANSR and IP use veto points to either tacitly or overtly to hinder the legitimacy of cycling by the way the traffic code is applied or not—and by tacitly excluding cycling's right to public road space— suggesting serious cultural biases associated with these two supervising organisms. Systematic issues addressed by interviewees couldn't be any clearer:

ANSR is against (cycling), IP is against cycling, PSP I don't know, ACP is against (cycling), PRP I don't know. ACP creates barriers, ANSR makes it difficult. They defend the automobile. I imagine IP does not want to get involved in new expenses and complications. Yes (they are more influential). These (ACP, ANSR, IP) are organisations that are renowned in Portugal, with many years and a great deal of power, all of them. (Interviewee #1 – Citizen)

Epistemic actor and activists interviewed are explicit as to the role of IP and ANSR, with influential weight in the policy process and creating barriers for cycling:

They tend to create (barriers). They carry much more weight than any association which defends cycling. In the national media. ...They are important institutions, with a name, a history, with their formality and hierarchy. ...FPCUB speaks the same language as they do. These entities have institutional weight, even without research, without studies, they have their word, and everyone repeats that word." (Interviewee #2 – Epistemic actor).

In 2009 we had meetings. We met with ANSR, and in the hearings we had with these entities, and later in other events over the years, we met and talked about the Traffic Code, cyclists' rights, etc., I recall GNR, PSP, throughout the years, you could see their lack of understanding, and even more recently the Municipal Police, the changes to the Traffic Code currently in effect are often not understood. There were civilisational gains, but the police forces themselves do not understand why, and many don't agree with these. In 2009 it was very difficult. In 2013, when we made technical recommendations to parliament, it was already received in a completely different way. But in 2009 it was horrible. ACP clearly (is opposed). (These organisations) Yes, they create barriers. There's no doubt that throughout the years these entities have been a force working against the issue of change: before achieving the changes to the Traffic Code, which were not complete and not perfect, and even after we already had these changes made, they didn't want the change—the helmet issue, for instance, is the most obvious one—... there is an abysmal ignorance with the police, which already existed, but it remains so with the Traffic Code. GNR, PSP, Municipal Police, each thinks it's something different; from meetings and from the reports of people who had interactions with them, 'n' interventions. And of course, don't forget that they are human beings and live in the culture that is known, so they can't be said to be impartial. There is a lack of knowledge of Traffic Code rules, namely the duties of automobile drivers in comparison to those who ride a bicycle, and the

rights of those who ride a bicycle in comparison to those who drive an automobile. It was a minimum, there must be equity in the law. The law must reflect road user behaviour, that reflects the best science that we have. But on a daily basis even if the Traffic Code had not changed, we could have had a safer road environment, much more cordial. The law is one thing, the culture another, and the culture has not changed, because nothing has been done to change the culture. (Interviewee #6 – Activist)

I think that the Public Security Police (PSP), at least at the institutional level, is the only one that's valid. Without (counting on) bad experiences with police officers on the street.... But the others I think are mostly atavistic, provincial in their (approach). ... The imbalance between modes of mobility is a fact, therefore, when something is not adjusted you must be fair with that inadequacy, with that imbalance. Therefore, thinking that cycling is a means of transport that should be treated like any other is not judging it by what it is. That's why I said it's a provincial and atavistic posture...I think these are institutions that don't get one thing right.

Of course, they do (have more influence), they have more channels, they have more capital.” (Interviewee #8 – Activist)

The adverse setting is described to a certain extent by all interviewees from very different backgrounds and perspectives. Some of the observations suggest the fragility of cyclists' coalition accomplishments in Lisbon, and a generally hostile and unproductive setting for change in the AML, namely the following:

There are (lack of) conditions on the public throughfare for bicycle-use, some interest. The lack of response from the public entities as quickly as the people want. (Interviewee #5 – Policy Broker)

From a certain point, with this history of the cycleways, there was a group of people who initially were astray, who were in various groups, with concrete ideas, who somehow come together, perhaps in the Critical Mass. The first was organised by Gaia, and half a dozen people went to Praça do Marquês de Pombal. I can't tell you the year, but that was last century. It was organised by the environmental association Gaia, and there were really half a dozen crazy people.

There is a federation that is starting to gain strength, which is the cycle tourism federation (FPCUB). Gaining strength, Caetano is an important figure in the expansion of cycling and bicycle-use, because of the fact that the federation takes out insurance, he starts to intercede for bicycle-users... Then there are groups, the Matilha designers, and various groups that will shape this scenario. Cycling is the common denominator in all of this. It does not really matter if you're riding in Lycra or not, what matters is that you ride healthy. And then Lisbon City Hall appears, obviously... they begin to build cycleway, albeit poorly, they ended up doing some and this also puts cycling on their political agenda.

Then there was a real stall for a while (regarding the cycleway network's expansion). (Interviewee #4 – Citizen)

Cascais has clearly done more things (than Oeiras), at least politically, in terms of investment and in terms of political discourse. Even on the cycleways I see there, I don't see anyone cycling, because it's very motorised. ... It's like Lisbon. Why are the cycleways on the Central Axis, the attention-grabbers, so successful? Because they are in an area that easily gets congested. It works because it gives you a competitive advantage, instead of putting you in car-traffic, there is a reserved corridor for you there. In other areas of the city there are recent cycleways, but the road beside it, sometimes a highway, does not get congested. ... And like Stevenage, spectacular, spectacular, but that's also spectacular for cars, people go by car.” (Interviewee #6 – Activist)

From these interviews a general sense of cycling not being adequately addressed as a policy subsystem in Lisbon's setting is confirmed by different policy actors, as are the institutional barriers hindering its optimal development.

4.5.3 Policy measures and the AML's adverse setting

From Lisbon's car-centric epistemic practices—which excluded cycling as recently as Lisbon Municipality's report (2005) *Lisboa: O desafio da mobilidade*—to current policies promoting a quick cycleway expansion along important arteries, implementation of the public bikeshare system, the introduction of cycle traffic counting mechanisms, and the bicycle purchase programme, Lisbon has clearly changed its course to include cycling. The change began from outside and slowly seeped into the governance agenda and the local government. Institutional change started during the mandates since the Summer of 2007, with the Deputy Mayor for Environment and Green Structure José Sá Fernandes and his advisors aiming at important transitional measures including cycling and numerous other city changing policies starting the moment he took office in 2007 (Barbosa, 2021). Sá Fernandes' advisors Duarte Mata and João Camolas were crucial to introduce cycling in this transition—working intensively on the policy issue and related agendas throughout the process, directly and indirectly—and involving numerous policy actors from different areas of the complex urban systems associated to the transition. In Lisbon Municipality's mobility planning department, some officials had already been trying to integrate cycling in city plans for some time—with a significant role by Rita Castel' Branco since 2005—a city architect who established contact with local stakeholders, associations, and PPB projects, and was involved in the active mobility networks and a comprehensive strategic traffic calming 30 km/h neighbourhoods project of which only three were actually implemented, most were shelved within the DMM's complex structures.

Despite political will and policy entrepreneurship, drawbacks experienced were significant during the socialist-led coalition mandates from 2007 and 2017. Nonetheless interactions increased and change occurred slowly with incremental gains in the relations between different coalition actors and in outputs being produced. This was the period when the cyclists' coalition was taking shape and gaining robustness. By 2017 the cycleway network expansion and bikeshare system implementation actions were already defined as key parts of a political package aiming at significant urban transition and clearly established as priorities in Medina's socialist-led coalition programme for the 2017-2021 mandate (Partido Socialista (PS)/ Cidadãos por Lisboa/ Associação Lisboa é Muita Gente/ Livre, 2017, pp. 16, 39-40, 42). Once Medina won the 2017 municipal election, the next year (2018) was key for signs of institutional change in Lisbon. Sá Fernandes' environmental, energy and green infrastructural department had prepared and won the bid for Lisbon European Green Capital Award (EGCA) 2020 on 21 June 2018, and the policy entrepreneurs working with the mobility department had prepared and won the VCC21 bid submitted in August 2018 and awarded in December 2018. Change had already started to take form institutionally well before these benchmarks were awarded to Lisbon Municipality, they were awards which recognised the significant change done between 2007 and 2018. As policy goals, these venues were aligned with policy change conducted, but foremost would secure even greater commitment since they had clear goals and commitments set by Lisbon Municipality and published in the bids.

One of the clearest gauges of change is the positioning of Lisbon's Deputy Mayor for Mobility and Public Safety from 2017-2021: Miguel Gaspar. He had been on the epistemic team preparing Lisbon's car-centric mobility document prepared twelve years before (Câmara Municipal de Lisboa, 2005, p. 2) but was deputy mayor in what was Lisbon's most transformative municipal mandate addressing cycling to date: during the 2017-2021 Miguel Gaspar was one of the key policy brokers addressing cycling during that transformative mandate. From the policy outputs produced during the two years prior to and the four during his mandate unprecedented importance was attributed to cycling in Lisbon's municipal policies. While the 2005 291-page municipal report on mobility only mentions cycling four times—vs automobile 62 times and parking 646 times—by 2020 and 2021 Miguel Gaspar was promoting unparalleled cycleway construction and bicycle parking allocation in the city and a significant expansion of the public bikeshare system's fleet and stations. In fact, Lisbon's governance structures were already preparing the cycleway expansion with the highest rate of cycleway implementation in the city since 2015/2016, with 90 km realised between 2016 and 2021, and most significantly these were built by reallocating traffic space on several major city arteries, while the implementation of the city's bikeshare expansion was also launched at this time, since 2017 with greater expansion in 2021 (Ambiente

Magazine, 2022). The intensity of action from Lisbon's municipal services, backed by Lisbon's Mayor Fernando Medina, the Municipality Mobility Deputy Mayor Miguel Gaspar and his office, the DEPM Department of Strategic mobility planning coordinated by Inês Castro Henriques, and the municipal mobility company EMEL with several policy output implementations, reveal consistently high intensity of interactions between municipal departments and services, with associations and local stakeholders, and with policy entrepreneurs and epistemic groups, fostering the rapid change experienced in the city of Lisbon —and in its municipal structures— in a relatively short period of time during the 2016-2021 period.

Programmes: 'soft measures'

In a setting with an initial lack of interest in cycling from much of the electorate and politicians, the first soft programmes introduced in the city resulted from local grassroots activities, generated by activists and citizen involvement. The bike kitchen 'Cicloficina' community street-side bike repair meetings spun-off from citizen activated CM encounters, expanding to a much wider territorial coverage than the monthly cycle protest rides, in some cases beyond the Lisbon city limits and into suburban localities, and with greater regularity (bi-weekly, weekly, or several days per week in some cases).

Interviewee #2 explains the roles of two initiatives which spun-off from CM:

"Two entities whose main objective was to democratise bicycle-use and make it a vehicle accessible to anyone... the 'Cicloficina', in the neighbourhoods and at the university. ...There were 11 in the metropolitan area... they started in 2011... there are 4 or 5 currently active in the metropolitan area: Anjos, Junqueira, Almada, Ciências and Oriente. Another project was BikePop, which was quite ambitious, but ended up not working so well, located in poorer neighbourhoods. It started in 2013, in Bairro da Boavista, on the edge of Lisbon, near Alfragide... and in Intendente. But it hasn't evolved much. At Intendente... the space is working and repairs any type of bicycle (even those from large retail supermarkets) at affordable prices. Other actors, the annual FPCUB bike rides, which also end up making it more of a weekend get-together, I think the objective would be to show that Lisbon is cyclable." (Interviewee #2 – Epistemic actor)

These programmes enhanced collaboration and informed several later-implemented programmes such as the Bike.POP bicycle cultural cooperative shop and the SELIM long term bicycle lending programme which functioned from the Summer of 2020 until 2022, providing bicycles for financially disadvantaged people. In April 2020 Selim was launched with support from Lisbon Municipality but in 2021 funding was not renewed; therefore the programme was discontinued in January 2022 (SELIM - Banco de Bicicletas, 2021). The intermittence of programmes such as SELIM and almost with the bicycle school trains in Lisbon in November 2021, or the threat of removing a cycleway as newly elected Mayor Carlos Moedas had originally announced for Av. Almirante Reis, reveal the lack of a stable institutional framework for cycling in Lisbon's governance structures, denoting the subsystem's frail status within the city's policies and political framework, pointing to the need for greater policy coordination. On a positive note the frailty of pro-cycling measures in Lisbon Municipality has been denounced by a new configuration of opposition in Lisbon's Municipal executive since 26 September 2021, revealing increasing pressure from political parties seeking greater institutional acceptance of cycling, and more outputs favouring the subsystem and policy change (Lusa, 2021b), with some pro-cycling proposals managing to garner unanimous support from all political groups in the executive, including street space reallocation for cycleway implementation (Lisboa Para Pessoas, 2022a). In 2009 this would have been unthinkable.

Governance and policy coordination in Lisbon

Despite significant progress in cycling coalition actions and intensity, several governance issues persist in face of the need for a transition to more sustainable urban mobility systems: metropolitan area fragmentation, governance and policy

coordination in Lisbon, PPB follow-ups, the lack of a SUMP and no transversally operational CS means that Lisbon's governance mechanisms for cycling continue to develop in a more or less *ad hoc* way. Several key insights from the interviewees attest to the scenario of frail governance coordination in existing mechanisms pointing to the virtue of leveraging institutional openness to public participation through a SUMP process —ensuring a focussed policy instrument aiming specifically at the urban mobility system and the subsystems which compose it— including cycling.

Regarding cooperative behaviour between cyclists' organisations and the municipalities, interviewees reveal mixed observations, with inconclusive results, possibly denoting a major difference between Lisbon and the outlying municipalities. Interviewee #10, a former policy broker, states that

...there was none. I noticed some individual will, especially from municipal technicians, there were some in Cascais Town Hall. Municipal technical staff. ... Also, from some physical education teachers; some physical education teachers were apologists of cycling and organised tours and so forth. The only association was that of cycle tourism in Matos Cheirinhos, they organised two events a year, for cycle tourism, they went out and had a cycle ride... It was more of a conviviality thing than bicycle activism....In Cascais nothing. In Lisbon I think there was more action in this area. ...These actions were important.

Interviewee #9, also a former policy broker notes that “*Things go a lot by (fashion) trends, and much of it is to look good in the picture and measuring the risk.*” And continues, underpinning the importance of policy entrepreneurship, but also the lack of a strategic framework:

If I have a favourable environment for advancing, and I have an advisor who says that it is useful and it worked out very well there, then I advance.” But it seems to me that there is no strategic reflection from an integrated point of view. And, therefore, this goes by kicking the ball forward and then let's see what happens. I think that sometimes you get it right and things go well. But the energy, the resources that are expended for the results that are obtained, are clearly inefficient. If we had applied the same type of energy, the same type of resources, in a coordinated, articulated strategy, involving different actors, at least creating committed solutions, it would be much quicker. (Interviewee #9 – Policy Broker (former))

Comprehensive strategy for integrated urban policies and sustainable mobility is missing from Lisbon's overall policy setting, with decisions aiming at effectively increasing cycling falling short of optimal results at the political level, resulting in numerous inefficiencies and wasted efforts. Millet & Murray's (1988) military analysis of conflict observe that “*it is more important to make correct decisions at the political and strategic level than it is at the operational and tactical level. Mistakes in operations and tactics can be corrected, but political and strategic mistakes live forever.*” (p. 85) Applying strategical response to the policy issue in view of policymakers' relation to cycling as one of the responses operationalised for a ‘war’ —on the hegemony of automobility in the urban and social settings of Lisbon's greater city area— then the lack of an existing strategy could be assessed as a major shortfall in the policy process aiming at change.

Public participatory budgets (PPB)

Citizens' interest in participating with municipal governance structures for policy change in Lisbon was in many cases initiated by PPB mechanisms, including in AML municipalities where they exist. The process of citizens providing ideas, drafting proposals, generated enthusiasm and support for what they want to see implemented. Public budgets placed new viewpoints regarding the relation between (citizens') preferences and governance structures. In fact, different policy actors point out different aspects of this involvement as being pivotal for greater involvement and change. Cycling in some ways entered the policy debate through the PPB in municipalities in Lisbon where it exists and cycling proposals appeared —especially in Lisbon and Oeiras— according to interviewees #1 a citizen, #2 an epistemic actor, and #11 a journalist, but uncertainty as to the capacity to implement is also obviated by their commentaries:

[I recall] *the public participatory budget... such as the one in Lisbon linking the universities, which I'm not sure if it was fully realised or not.*" (Interviewee #1 – Citizen)

Since 2009 there was an increase and then a major slowdown. There must have been a transition when it stopped being a culture and became something normal and there was a big slowdown. People who made events, the Bike Film Festival, who organised themselves to make proposals for the Public Participatory Budget, and there were many, after 2014 there were almost none. Until then there were many proposals and there were always winning proposals.

After 2014 I don't know if there was a lack of motivation in the City Council, because the proposals (from the Public Participatory Budgets) were approved, but after that, until they were implemented, that didn't happen.

The first Public Participatory Budget, in 2009 (if I'm not mistaken), was the Farol Route, designed by the people from the Critical Mass group, who designed it and had a meeting with Sá Fernandes, which was to build a cycleway from Campo Grande to Baixa, and what was done was quite misleading... In the end there was nothing, and people who had seriously mobilised to make it happen, then saw that it didn't happen, and they lost motivation. (Interviewee #2 – Epistemic actor)

"[Putting cycling on the agenda: In Lisbon (BP)] Once again, clearly the Central Artery [Avenida Fontes Pereira de Melo – Praça Saldanha – Avenida da República, in 2016-2017 BP].

(In Oeiras) ...Maybe in a more activist environment, maybe a little more closed, and not so prime time evening news, wide public discussion, but I think the proposal for the Participatory Budget of the 'Ciclovia na Marginal' (Cycleway in the Marginal) was something that brought together many people, even remotely, and on social networks, and that made people talk about the need to create safe conditions in an artery that is fundamental and that has a huge potential for bicycle-use. I think that the proposal for the 'Ciclovia on the Marginal' in Oeiras, it seems to me, one of the most significant events that got people talking and discussing. And that actually made people angry, because there was a disregard for a public consultation that should have been almost binding, first it was accepted and then it was not accepted, and that was a very strange process. It showed the commitment and the willingness of people - at least those who showed the intention to participate - and that was later disregarded by the municipal government. But I think this was a very important moment of discussion, and that it opened a more serious and broader discussion about cycling in Oeiras.

(Participatory Budgets in Lisbon) I think they are super-important, and I think they were perhaps one of the first engines for political action (from citizens) ... and perhaps even to raise people's interest. I remember not being that involved yet and maybe starting to think about the bicycle and seeing the proposals in Participatory Budgeting and thinking it was important. And I think that in Lisbon even the forerunner of the most determined political action was the will of the citizens with the proposals of the Participatory Budget.

(In Cascais) ...I don't remember anything about citizens' initiatives, I don't remember anything very big... And I think it's a municipality with enormous potential. (Interviewee #11 – Journalist)

In fact, PPBs were mentioned by 6/11 interviewees (#1, 2, 4, 7, 10, and 11) as a key instrument providing an opportunity to introduce cycling in the policy agenda. Lisbon, Oeiras, and Cascais were mentioned regarding PPB, but this mechanism for citizen participation also seems to have lost considerable credibility since implementation hasn't succeeded in many cases—or has been substantially modified—or only partially implemented. In fact, the lack of municipal commitment to Oeiras' PPB winning proposals is such that a 'green' coalition supported by three opposition parties made a video documenting numerous excluded, non-implemented, or thoroughly modified proposals, including three important cycleways proposed—the most voted proposal in 2014, and among three most voted in 2019 and 2021—(Coligação Evoluir Oeiras, 2021). The lack of municipal commitment to these proposals in Lisbon, Oeiras, and Cascais, including many cycleways which were never implemented, passes a message of defeating the purpose of public participation—and democratic culture that publicity around these mechanisms disseminates. Interviewee #10, a former

Policy Broker, elucidates how discretionary politics contaminate the PPB process, an opinion to a certain extent seconded by Interviewee #6, an activist:

In the Cascais (Participatory) Budget, the thing must also be feasible from a technical point of view...that analysis (technical, before going to votes) often, if it is not convenient from a political point of view, it dies there, and does not even go to voting. Although it is a technical assessment, it is an assessment that is more than technical. (Interviewee #10 – Former Policy Broker)

They use the Public Participatory Budgets to do things they were already planning on doing. (Interviewee #6 – Activist)

Public participation, however, has taken form indirectly from PPB, since some winning proposals have coalesced people fighting for the implementation of their proposals, forcing cycling and policy change on the local policy agenda in cases such as '*Ciclovia na Marginal*', in Oeiras in 2014, where the municipality hasn't revealed concern with cycling and for several years ignored it as a policy issue, but has had to face increasing opposition from citizens coalescing in face of numerous urban issues (Evoluir Oeiras) and political groups (Coligação Evoluir Oeiras). Oeiras' Municipalities vetoing of the '*Ciclovia na Marginal*' PPB victory in 2014, for instance, excluded cycling temporarily—delaying its entry into local institutional legitimacy—but since it sparked greater public debate on the social networks, with CM rides, more proposals in 2019 and 2021, and occasional media coverage, among other unrelated contributing factors, political awareness of cycling in Oeiras grew and was involved in the creation of a political party coalition which elected a councillor and three members of the municipal parliament. The relation between the '*Ciclovia na Marginal*' proposal and increased awareness is reflected in the opinions expressed by 4/11 interviewees, from different policy perspectives: #1 – Citizen, #5 – Policy Broker, #8 – Activist, and #11 – Journalist.

Notwithstanding municipal governments failing to effectively introduce innovative public participation in the local institutional policy process, unable to be accountable with tangible outputs for the cycling subsystem in the PPB's supposed time frame, Lisbon's PPB is mentioned as a catalyst for leading cycling into the policy agenda. Interviewee #11 states that "*Clearly, first in Lisbon, the Public Participatory Budget, and in other cities. In Lisbon, I think it was the citizen's initiative, the precursor, and taking the lead in wanting this for the city, and it continued. ...It still is and will be for other places in the country for cycling.*" (Interviewee #11 – Journalist)

Public participation, mediation, and governance in policy process cycles

From a citizen's perspective, cycling is not based on a '*follow the money*' approach, and in situations of scarcity such as during the 2010-2014 financial crisis it can be a practical '*how to get around without spending money approach*'. The financial crisis destigmatised cycling because bicycle users began to see other mainstream population groups, professionals, and even politicians cycling, and this began to appear on the national media as a normal practice. The weekly MUBi programme, *Sexta de Bicicleta* promoting bicycle-use on Fridays, was included in the daily Público newspaper with interviews to common citizens, activists, but also high-profile figures including radio broadcasters, scientists, but also an MP who cycles to work (MUBi, 2013d).

Interviewee #6 activist describes the evolution of perspectives during the 2010-2014 financial crisis, and how the subsystem began to be looked upon favourably due to socio-economic factors related to people's needs at the time. This in turn affected behaviour change and coalition involvement:

Public transport took a big hit... clearly there is the financial issue (from 2010)... The 2011-2013 crisis (peak) corresponds to two years that coincide with the peaks of Critical Mass and the peaks of media coverage, using 'Cenas a Pedal' as a proxy for media interest in the bicycle. In the city the more peripheral someone is in terms of status, the more one must pay to show status. This is social signalling typical of unequal societies. (It reveals)

the level of inequality. Where you are in social terms matters more (in unequal societies) than in more equal societies.

The problem in 2012, 2013 was the pressure from the population that wants to give cycling a chance, but also the fact that it is something that had affected society on a general level, it reduced the stigma. There are many more people... The stigma of not having money. The lunchbox scene de-stigmatised itself because everyone was in the same situation. ... The economic problem was associated with the fact that this removed the stigma. (There were) more people who started cycling, from different backgrounds, electric bicycles began to have greater demand, because before there was also a stigma regarding that; "it's cheating". At that time we started to have lawyers, etc. (cycling). 2012, 2013 suddenly changed. The moment these people cycle, it reduces the stigma for those who really need (to cycle also). (Interviewee #6 – Activist)

Nonetheless, the socio-economic circumstances of the 2010-2014 financial crisis weren't sufficient, and Interviewee #6 continues with a justification of how public policy also played a key role:

(Over the last ten years) the issue of bikeshare and cycleways on the Central Axis, for reasons of having given visibility (where) ... before you had a stigma ... now suddenly it gets visibility and legitimacy. ... It's very visible there, that with Gira, all of a sudden, it had an effect: cycleways and bike share. This is very important in terms of social perception.

The crisis does what the government does not have the courage to actively do... The crisis has created restrictions, which may be economic or physical. For example, carparking could be a lot more expensive than it is. (Interviewee #6 – Activist)

The socio-economic context can impact, enhance, and accelerate cycling within the urban and mobility systems, but infrastructural measures are necessary if this impact is to be maintained and change is to become effective and endure over time. Data obtained from several sources—and the quantitative analysis of policy outputs and outcomes measured between 2009 and 2021—point in the same direction: *policy does matter*.

But despite the importance of including cycling in urban policies, the way in which they are dealt with—and the level of importance attributed to each subsystem—is paradigmatic of the efficacy of policy outputs. In a context with low rates of cycling and an institutional framework which does not fully address the subsystem in rules and regulations—and urban mobility instruments such as municipal SUMPs aren't developed and working as policy cycles open to participation and institutional involvement—even with aligned, programmatically driven policy brokers trying to implement policy change, outputs can fall short of producing the encompassing outcomes which can boost mobility transitions. Interviewees #6 an activist, and policy brokers, interviewees #9 and #5, put the finger on different aspects of this problem, and the resulting volatility regarding cycling:

I don't know if it's mediation, but there is clearly an attempt to please both Greeks and Trojans. It's not mediating... Lisbon has a serious participation problem.

I remember having meetings with members of City Hall, technicians and more recently (Medina 2017-2021 mandate) with politicians, and obviously this contact is noteworthy. The point is, I must say, it's a very (ad-hoc) thing...

(In 2011-2013) When we were doing the Volunteers of Cycling Academy (VoCA) project we spoke with several activists and the experiences were very varied, from people from Prague, Bucharest, very car-centric and despite that they had contact with their City Halls and we didn't have that at the time.

City Hall's greater opening-up, which took place several years ago, is a positive thing, what is simply missing, is that it's not (structured), there's nothing official... It's more of an organisational thing in Portugal, it's more about skills of how we make participatory and democratic processes without things taking forever to resolve. It's difficult, I understand perfectly. Even more when people are in super-complex organisations that are difficult to navigate,

like the Lisbon Municipality, I realise that the default is that besides navigating this complex process now we must coordinate with the public... (but the problem) must be resolved.” (Interviewee #6 – Activist)

(Barriers) Now they are a bit more moderate from the point of view of their expression. ACP and ANSR still have a position too ... ANSR is too security-oriented

(More influential) Yes. By institutional tradition these entities are conservative. That's how it is. They are conservative. More than defending automobility, at this moment, they are very scared of what is new. They've been worse. When I was in office, they were much stronger from the point of view of defending automobility, they're intransigent with automobility....

Now, there's a fact that I also learned, which was, that if you involve them in discussing things with other partners from the beginning, it's crucial. Because this is very important.

I started to do one thing, which was to go to the Police Headquarters. Before making any changes, I went to the Municipal Police and the Police Headquarters. And I explained, what was the objective... First, I spoke with them, before bringing out, I listened to their criticism, I gave them time, I gave them a period of fifteen days to assess it and then send suggestions... In a second phase, joint involvement (on the project). (Interviewee #9 – Former Policy Broker)

For some it is the vision they believe in for the future, for others perhaps it is an issue that is the order of the day, and they are financed by trends. (Interviewee #5 – Policy broker)

4.6 Cycling's social status in Lisbon

The social status of cycling in Lisbon changed between 2009 and 2021, from a forgotten and unusual mobility practice in society to an eventual possibility, already accepted in the conversations of the political agenda, but not to the point of imposing a modal shift from the predominance of automobility to becoming a key mobility mode. Cycling is socially accepted, but not at equal terms with automobility or public transport. “*Society changed. (Cycling) was placed on the political agenda*” (Interviewee #6 – Activist), but not enough for cycling to become a mainstream mobility solution within society and within the policy agenda.

Nonetheless, the path from complete omission to entering the policy agenda and being at the centre of much of the political debate in Lisbon does reveal a significant change in cycling's social status in this municipality. According to Interviewee #4, a citizen, the social change occurred in part due to the 2010-2014 financial crisis, in part due to local policy: “*The (2010-14 financial) crisis led people to somehow reconsider some things, and they began to reconsider their mobility. The crisis, somehow, together with other situations such as the City Hall putting cycling in its political programme, movements that appeared, even with other ways of cycling that appeared ..., all of this together had a positive effect on the development of cycling in Lisbon.*” (Interviewee #4 – Citizen)

Interviewee #11 mentions a series of very diversified factors as influencing change in cycling's social status in Lisbon:

I can't pinpoint one exact thing. But I remember being a student, at the faculty, and for me cycling travel in the city was something that was not on my mind. It didn't make sense. I had never thought about it. So deep down I think it was having access to information, I think it was being on the internet and facing this reality that was previously unknown to me. There are people who use bicycles as a means of transport, OK, a distant reality for me, and then I started to realise that even in my city, in Lisbon, there were also people who did the same. And I started to see that as a real and sustainable alternative, and it even made sense, and then I started experimenting. ... It must have been around 2014 or 15. ...I picked up my mountain bike. But I think it's a complicated process,

and I only felt sufficiently free to do it after reading a lot and researching a lot. I think it's not a possibility that comes easily to people's minds when they're living in a context where bicycle use is not a natural thing, especially as it was 5 years ago, today maybe it's different already. ...From my last year of university, cycling became my principal means of transport, often combined with public transport.

I think something indirectly led me to becoming interested in sustainable mobility, in particular cycling mobility... it must have been from my interest in cities. (Interviewee #11 – Journalist)

Some perceptions attribute insignificance to the history of cycling in Lisbon, including claims that it only emerged in the city in the 1980s (Bové, 2019, p. 140). Visiting Lisbon on a rainy and foggy day in March 2013, Dave Horton found it is a “a hilly, low-cycling city” (Horton, 2013), and the Foundation for the History of Technology (2019) clarifies the common assumption that “Portugal’s capital city, Lisbon may not be the most obvious case study for a cycling city.” Contrastingly, data collected from official traffic counts conducted between 1938 and 2005 reveal that cycling modal share in Portugal was high in the mid-twentieth century, peaking at 40% on national roads and highways in 1950, with tendencies being very similar to the European cities analysed by de la Bruhèze & Veraart (1999), and Veraart (2016), revealing a drastic drop in cycling during the second half of the twentieth century (Junta Autónoma de Estradas, 1938, 1950, 1955, 1960, 1965, 1970), declining to extremely low cycling modal share in the last cycle traffic counts conducted in 2005. Regarding cycling modal share, the greatest divergence between Portugal and the rest of Europe is relatively recent —since cycling’s revival didn’t happen on a significant level at the national (or AML scale)— maintaining a very low modal share in surveys conducted in 2011, 2018, and 2021, while other European cities were recovering with higher rates of cycling (Figure 63).

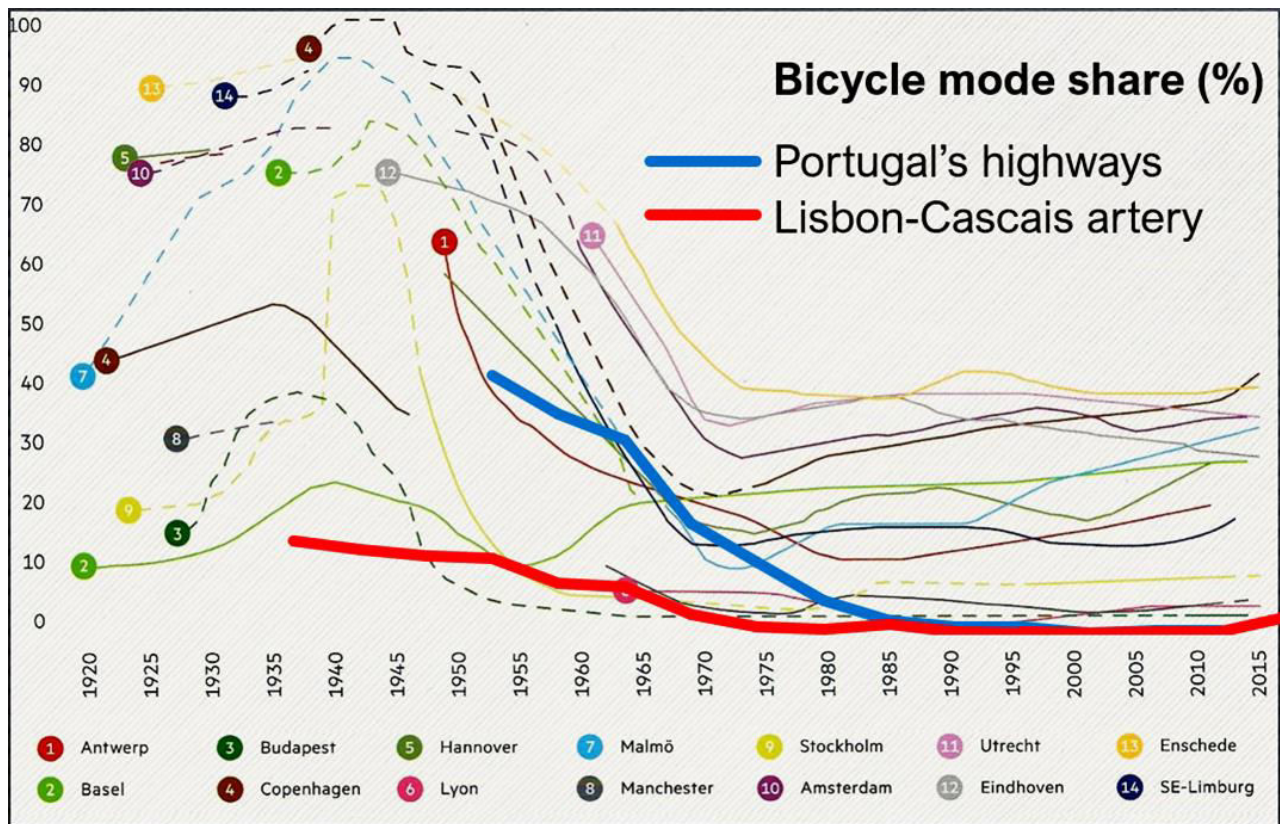


Figure 63

Cycling modal share in Portugal and the Lisbon-Cascais artery overlaid on Oldenziel et al. (2016); Veraart's (2016) 14 European Cities cycling data graph

(Pereira, 2019; From IMT, 2014; INE, 2012; Junta Autónoma de Estradas, 1938, 1950, 1955, 1960, 1965, 1970, etc. overlaid on Oldenziel & Albert de la Bruhèze, 2016b, p. 13; Veraart, 2016, p. 200)

Despite these common views of a city with low rates of cycling, data and historical photographs prove that cycling was not as low as some perceptions believe it was, and the recent revival may change those perceptions where cycling is — in fact— increasing. In spite of this recent localised ‘cycling revival’, issues of transport poverty remain in several Lisbon neighbourhoods —especially in peripheral areas and most of the AML—and these are self-reinforced by the lack of attention paid to cycling and implementing effective measures to promote it, as observed by Interviewee #11:

I think there is an enormous disparity between what is discussed for the city and in the city of Lisbon, in the Municipality of Lisbon, and what is discussed outside of Lisbon, and even in the Lisbon Metropolitan Area. I think there is a very big difference between the Lisbon Metropolitan Area, the surrounding municipalities, and the city of Lisbon. I think Lisbon is at a much more advanced stage than the other municipalities around it. As an example, I think that in Oeiras, and I have some knowledge of the reality of Oeiras because I lived there for many years. ...I think that maybe there is a correlation here, between the political will and the implementation of infrastructure on the ground, and the mobilisation of people, for example. I think that sometimes it's enough to create a little bit of infrastructure for people to show up, and for a real critical mass of people to appear, exerting pressure and political lobbying, even as citizens. So, I think there is an essential difference between Lisbon and, for example, Oeiras, but I think the example can be extended to other municipalities neighbouring Lisbon. That Lisbon has, in recent years, had a vision -good or bad- it has had a vision, and there has been a cycling network expansion, and I think this is something that is not seen in Oeiras, and I think that's why for this reason, there is still a very limited (number of bicycle-users) in Oeiras. Very little is said about it, and I think that part of the way in which Oeiras and other neighbouring municipalities are built is also much more focused on the automobile than in Lisbon. Therefore, I think that there is still a lack of interest from the general population in these municipalities, which may derive from the municipality's lack of strategic thinking for bicycle mobility. (Interviewee #11 – Journalist)

Interviewee #1, a citizen, points to the hegemony of automobility in the social mentality of the local populations, and links this mind-set to the social status of cycling, and especially as an obliteration of cycling as a possibility for mobility purposes:

I think (automobility) has a very important role in Portugal, and in Portugal's cities. I think that the car is given too much importance, to the detriment of people. I think it's very difficult because I see it's something that is inherent to the Portuguese people. It is very difficult for them to stop using the car, but maybe in a few years it will be possible. ...Considering that each family has 2, 3, or more cars, if we could get each family to have only one car, so reducing the car's presence by 50% or a little more would be good. And I think better public transport, etc., could be achieved.” (Interviewee #1 – Citizen)

The social status of cycling is also associated to the change brought upon it as a social practice. Will cycling be programmed as a localised phenomenon restricted to the central ‘ideological’ centre of what Lisbon and Portugal want to be? Or will there be an encompassing revival engaging with society for a systemic transition where this mobility mode plays an important role? Some of the insights addressed by the interviewees pose challenging questions regarding the current discussion around cycling and the policy process in Lisbon —and in many cities— experiencing a cycling revival only in privileged parts of the city. The characteristic of incomplete or inadequate public urban policies brings with it the dangers of a misguided urban transition project —with many local citizens, social groups, and coalition involvement excluded from the policy process— which produces outputs with a negative impact on residents’ daily life and mobility patterns.

In opposition to the misguided approach, the ‘15 minute city’, for instance, aims at diverse neighbourhoods, the right to the city with easy short distance accessibility (Moreno, 2020) —making walking and cycling appealing— and viable for all population groups. This ‘15-minute city’ concept’ is closely related to regulated housing policies and compact city form planning, as discussed previously, but also lifestyle concepts of time, scale, and the built environment, which are related to cycling as a possible means of mobility. The local responses that are possible in face of the practical needs of everyday

life and the collective challenge of facing global climate and environmental menaces have to be taken seriously if the '15-minute city' is to become a viable reality (Whittle, 2021).

Regarding Lisbon, Cascais, Sintra, or Oeiras in the AML, but also Porto, Aveiro, and the central areas of many cities all over the World, where a similar appeal for tourism poses the threat of gentrification, touristification, and 'Disneyfication' of their city core, social issues concerning housing and the local scale are under immense pressure from lack of supply and increased demand for accommodation using existing dwellings, and the local scaled city threatened. The resulting outward populational push has impacts on resident's lifestyle choices and mobility patterns. Lisbon's current scenario brings with it impacting cultural and social problems of exclusion and the need for a much broader discussion than what has happened so far regarding housing policy (Ramalho da Silva, 2021), with much more encompassing governance mechanisms and policy outputs than those applied in the city (Krähmer & Santangelo, 2018). As discussed previously—in section 4.3.2 Lisbon's land use, morphology, and housing—several interviewees brought up issues related not only to housing, but to the role of automobility in the city and its relation to social travel patterns.

As a cultural issue, Interviewees #6 and #3 focus on the limitations of cyclists' coalition action, with this problem which overlaps between the interrelated urban policy areas:

The peaks of the Critical Mass (protest rides) and the news were very important, and on social networks that was culturally normalised, with more people being able to participate (in the groups, in the Critical Mass), to be able to... cycle.

This socialisation part, I think, is fundamental, these networks, the exposure that these works or that these investments had in society as a whole. Obviously, it's not enough, if it were, we wouldn't have the number of cars we still have. (Interviewee #6 – Activist)

Lisbon, give or take a decade, will restrict car use. Lisbon is like an onion, the heart, downtown, more or less years will restrict cars, and outwards it will be car-lite (the Baixa (downtown) zone maybe 10 times less cars, the 2nd half crown, ...) ... Oeiras and Cascais will be much more difficult, automobile reduction will be very slight. ... Cascais has the tourism factor, which can help. The issue of tourism, gentrification and Disneyfication, which is already happening. It already exists in the centre of Lisbon. (The Municipality) has to fight (Disneyfication) by bringing families with children to live in the centres. (Interviewee #3 – Activist)

These limitations are related to the phenomenon of cycling's revival as a possibility within a highly complex and dynamic setting—influenced by both exogenous and endogenous forces—and some of which work beyond the cyclists' coalition most obvious areas of influence. Yet these struggles also point to the cyclists' coalition's allies in the reclaim the streets struggle, much aligned with the right to the city movement. Change is noticed by the varied policy actors interviewed, but will effective change persist? Are optimum policy outcomes possible? Cycling's collapse since the 1950s and revival in certain areas of Lisbon—albeit timid at the metropolitan level—suggest some commonalities to be kept in mind for researching outputs and the discussion that the city's urban and mobility performance can generate.

4.6.1 Lessons from bicycle use-collapse, survival, and revival in Lisbon

Related to the social status of cycling, several interviewees underpin the (re)emergence of this mobility practice with the revival sustained from different social areas, albeit with an initially slow and unexpectedly larger impact for overall change over time. Besides sports and leisure cycling—which never disappeared completely—the preliminary signs of cycling's recovery was witnessed in mainstream society with mountain bikers—which appeared and kept the practice alive in the 1980s—and 1990s in Portuguese society—as mentioned by Bové (2019) regarding the appearance of Lisbon's bike culture in an apparently hilly city (p. 140), and Barroso (2017), associating mountain bikes to people's rediscovery of

cycling for leisure (p. 25). Interviewee #4 seconds this perspective: “There were also people who reached cycling through mountain biking... in the late 1990s.” (Interviewee #4 – Citizen)

Other interviewees have mixed feelings regarding social change —and when it happened exactly— with fuzzier perceptions overall, but coinciding in the occurrence of some sort of transformation between 2008 and 2021:

(Social views of cycling) clearly changed. ... What is ACP's (Automobile Club of Portugal's) last position when the changes were made in Baixa and now the one it has taken in relation to ZER (LEZ)?

I think the change is from 2008 to 2013. It starts a little earlier, you start talking. I think the big factor, the landmark, is the intervention in Praça do Comércio in 2009. Cycling I think it comes later. I think it starts to gain another kind of visibility in 2012, 2013. On one hand, because City Hall's policy clearly assumed the construction of a cycleway network, it involved the stakeholders who came forward at the time —more institutional, less institutional— and working with them in this sense, while those bicycle rides in the city are also beginning, we started to organise Mobility Week with the Municipality of Almada, the crossing of the Tagus by bicycle... and on the Municipal side some works, and some implementations also began in that direction. The fundamental question ... this had been the error of some of the previous strategies, is that they accentuated a kind of us versus the others, the old tribal question of we are the good guys, and the others are the bad guys.... What is introduced with Terreiro do Paço and with those two sections of its two side-streets in front of the river, passes the message that this city is not just for the car, but by removing the car it becomes for everyone. Where the car also has space. When we cease to have a tribal, populist vision of a transport mode, whatever it may be, and start to reason much more in terms of the city, in terms of the environment, in terms of people, etc. it's easier to earn this membership.” (Interviewee #9 – Former Policy Broker)

No doubt there was (a change). I think there is a gradual change taking place, which was noticed from 2002 to 2009. And from 2009 to now, there is no doubt that there is. For the sake of healthier lifestyle habits, for people wanting to live closer to the environment, and for environmental reasons. For physical and environmental reasons...I think it was gradual, it was not with big leaps, I think it was a mentality that was created little by little. (Interviewee #10 – Former Policy Broker):

(From 2009 to 2020) it is difficult to answer that. I would like to say yes (that the culture has changed), but I'm not sure that's true, because even the hostility issue... it keeps happening. When the Traffic Code changed, there was even a kind of backlash because it changed that, 'cyclists have new rights compared to the car', the aggressiveness was noted. ...I keep seeing aggressive people... using the car to threaten. (Interviewee #6 – Activist)

“I feel like there's less honking, there are fewer close calls, there's much more understanding, and this has to do with the strength of numbers. The number of (bicycle-)users is increasing, and people are getting used to it. ...I think people are more accepting of cycling not as something exotic, but as something that is normal. The crisis in this regard also helped significantly... when the wallet speaks, cycling becomes much more obvious. There were two moments: There was in 2012, 2013, 2014 very effervescent years of bicycle activism, because it seems that it was while the Critical Mass lost relevance and there were associations and groups running races, cycle trips, and things multiplied. The other (significant) year was the introduction of the bikeshare system (end of 2017). (Interviewee #8 – Activist)

By the early 2000's the defiant CM rides began suggesting the legitimacy of bicycle use in Lisbon and defying cycling's status as a purely leisure-oriented practice. When the municipality began to timidly place cycling on the political agenda, the social scenario on city streets witnessed the emergence of ‘*bikelash*’ —when policy started addressing cycling with greater consistence— suggesting a setting with serious ongoing challenges. Cyclists' struggles appear relatively attenuated where cyclists numbers have grown and imposed legitimacy in the urban space —as in Lisbon's central traffic artery cycleway and the riverfront— and in neighbourhoods where infrastructure has been complemented by the

coverage of public bikeshare systems and had considerable uptake (Félix et al., 2020), but this is not the common scenario of most of the AML.

The perception of initial disinterest and resistance followed by greater acceptance is reflected by municipal policy broker Interviewee #5, pointing to citizen pressure and social networks and leading examples in the AML as the path for policy development:

First there was some resistance, over time, people evolved, agents evolved, and at this moment it is a strategic objective of the municipality, of this organisation, of the services, and politically. In the first conversations, people devalued (cycling), in the last term (2013-2017), some resistance at first, and then little by little they began to realise that this is an inevitability and that it is the path. Citizen pressure and social networks influence, and the examples, the example of Cascais, the example of Lisbon. (Interviewee #5 – Policy Broker)

Likewise, change is perceived in social terms also, with Interviewee #2, an epistemic actor, acknowledging that social perspectives regarding cycling have changed in Lisbon, starting with CM but socially—in Lisbon municipality—with an important contribution from the use of public bike share among the younger generations:

Society changed its opinion and position regarding cycling. Before, it was seen as one of those crazy things... The President of the Republic (Marcelo Rebelo de Sousa) had commented that Lisbon is not cyclable, it's all uphill... after a lot of pressure from people from Critical Mass, after many letters and many e-mails from Massa Crítica, the following week he came to apologise and acknowledged that cycling is the transport mode of the future. But society, yes, has changed, you have young people cycling on the Gira (bikeshare bicycles), parents are already aware of this possibility, grandparents who comment: 'my granddaughter rides her bike to school.' (Interviewee #2 – Epistemic actor)

But how encompassing has this change really been? Does change remain focused on the central city areas only or is there a broader change, encompassing the entire greater city area? Without such change in the FUA cycling's uptake can still be meagre in overall terms.

4.6.2 Cycling's cultural uptake in Lisbon: how about AML?

Cycling's cultural uptake occurred in Lisbon municipality between 2009 and 2021, with the most significant increase observed between 2016 to 2021 with the subsystem's infrastructural expansion in the city. Interviewees' observations portray a usual predicament that citizens must live with when they try to cycle normally—and a struggle commonly brought into the discussion by activists criticising the lack of safe, connected, and pervasive cycling infrastructure—in some of Lisbon's neighbourhoods and most of the peripheries. But while Lisbon's policy has produced several areas with very significant change—especially since 2016—most localities in the FUA lack connected cycling infrastructure—see section 4.8 Outputs, and Table 10, below. A great deal of change is still required in most of the FUA, and encompassing policy outputs need an institutional framework for robust policy process change and results to be achieved. Insufficient cycling measures are a common complaint and in the greater city area cycling is not a central issue in the policy agenda. The lack of outputs—and corresponding outcomes—is socially and culturally related to a vicious circle of self-reinforcing automobility, with local policy actors at all levels not realising that they're not only stuck in a rut, but they can aggravate its dimension also:

The role (of automobility) I think is unavoidable while there are no alternatives. At my daughter's age I used to cycle to school in Cascais, today I wouldn't let it happen, today I wouldn't even think of sending my daughter (by bicycle to school) because she would have to pass through ten intersections along the way with guys driving like crazy, at 120.

(Can you imagine Cascais with fewer cars?) *Without a doubt. And Oeiras too, and Lisbon too. Although I already have some doubts about this latest Lisbon project, especially its limitations. Cycling cannot be used against people's personal freedom (to drive). ...It's already starting to harm me a little.* (Interviewee #10 – Former Policy Broker)



Figure 64
Beach snack vendor at Tamariz Beach, Estoril, Cascais (July 2017)

4.7 Policy process and cycling in Lisbon: quantitative analysis

Feedback from policy interactions related with the transformations undertaken during the thirteen-year ACF analysis period qualitatively describe cyclist coalition involvement. The consequences of policy development are identified by quantifiable results, bridging the research gap identified by Weible & Carter (2017) whereupon the scholarship in many cases falls short of revealing the policy development as it is reflected in the outcomes (pp. 22, 32-33). Outcomes advance greater knowledge as to the level of coalition interaction. For a complete picture of the intensity of cycling in Lisbon the quantitative data collected during the 2009-2021 time period provides information where it was lacking. Between 2009 and 2016 there was no official data on cycling traffic, therefore the moving counts complement official information collected by Lisbon Municipality from 2016 to 2021. Patterns of data collected provide an important picture of changes as they happened over time and can be associated to outputs identified; cycleway network and bikeshare system implemented. London's first Walking and Cycling Commissioner —Will Norman— commented at a VCC21 plenary session: *"we count what we value."* (Norman, 2021) Cycling wasn't valued before the existence of data on its performance, as if it didn't exist and was therefore unimportant in policy decisions. Without data cycling was absent from any information, including from the political mindset and the resulting policy process.

4.8 Outputs

The key element for cycling in urban areas is infrastructure, and at the basis of this production is the cycleway network which assures adequate, safe, coherent, comfortable, and direct connections throughout the urban territory and between localities in general. In Lisbon, as with other cities, the production of such outputs was generally ignored initially (until 2007/2008), and beyond Lisbon, continues to be so in most of the AML. Even in cases where outputs are produced, they are in many cases realised aiming at the lowest amount of possible conflict with automobility and keeping a low profile of these outputs. There are no official tourist board, or municipal paper maps available with cycling networks, not only for the AML, but also for Lisbon municipality. Lisbon has a cycleway network plan with existing and planned cycleways in the municipalities available on its online platform since 2019 (Focus BC, 2019), and the only relatively comprehensive paper map is the Lisbon Bike Map produced by Bike Iberia, a bicycle rental company in 2014 (Bikelberia, 2014), and not updated in print since. Even the most comprehensive output map available for cycling infrastructure in the AML (and Portugal) is the open-source Ciclovía.pt launched and maintained by one person — Francisco Seixas — voluntarily (Seixas, 2020).

Outputs have been sought as objectives —but just as Giambattista Nolli's landmark map exposed Rome as a city of public streets and squares in 1748— any city's cycleway map illustrates a city's cycle network dimension. Without a picture of the cycleway network the objectives for implementation, expansion, and missing links are difficult to visualise. Without such clear information, the meagre production is not visible for comparison with the metropolitan area's road network, or even the city's scale. Lisbon has achieved some results by producing municipal network maps online, but no other AML municipality has published these on a wide scale online, and none in paper. Additionally —without a clear picture for the public— more ambitious outputs regarding cycling haven't been announced on a massive public level with city documents, besides Lisbon Municipality's 'How Lisbon Cycles' publication with 750 copies in Portuguese and 500 in English, published in June 2021 just before VCC21 (Câmara Municipal de Lisboa, 2021b).

Despite a lack of official communication aiming at the public some significant improvements regarding dissemination of cycling outputs have been noticed during the 2009-2021-time frame, as noted by interviewees from different policy backgrounds, even if mostly as promises, and from indirect policy products aiming at Low Emissions Zones (LEZ) and public transport:

There was a strategic objective of ours to make cycling and kilometres of cycleway network grow exponentially. And, therefore, this investment, once again, was carried out in parallel: it was buying bicycles, massifying the docks, building cycleways. ...Now we will make an LEZ zone, this entire area will be an LEZ zone. (Interviewee #7 – Policy Broker)

(The role of the automobile) should be a secondary role. When organising the city, the priority must be on the people, conditions must be created so that there is more public transport, less car traffic. The greatest example I know is Pontevedra in Spain. I wish that (my municipality) were like Pontevedra...And therefore, the role of the automobile should be as little as possible, for services, to guarantee services, and little else. ...I can imagine it, and I think it's an ambition. A quarter (of the cars). More and better public transport... investment must be in public transport. From there, obviously to increase cycleways, create conditions for more cycling. (Interviewee #5 – Policy Broker)

Yes. I think there was an evolution... It's completely different, it's completely different. In 2015 almost no one talked about (cycling), and where it was talked about, maybe it was talked about in some municipal office, but far from public opinion. I think that where cycling mobility was talked about, it was in those groups that were very restricted on the internet. Nowadays, it's something that is talked about in the evening news, and it's talked about everywhere, and we end up having the national public opinion —sometimes good, and other times bad—

discussing it, and I think that it was a very important process. Nowadays everyone talks about cycling in the city. In 2014/2015, no one talked about cycling in the city, and I think that the growth of users contributed to that, the implementation of some important cycle routes, today, for instance there is infrastructure, there are many people cycling, there were projects that changed the spatial distribution in the city. I'm talking about Lisbon. (Interviewee #11 – Journalist)

The culture, if at the beginning was a kind of counterculture, it is now something that is widely accepted and recognised by anyone, who easily picks up a bicycle and rides. It no longer has to belong to that niche, to that (cycling) culture. Ten years ago (2010) a person using a bicycle on daily basis was almost doing an activist act... Nowadays, everyone uses a bicycle, not as a political, personal act, but as something that is already normal, widespread. So, the (cycling) culture became massive and maybe it stopped being a culture. ...I realise that there really are areas that are very accessible for cycling, and people joined, and others that didn't. ... There is an enormous heterogeneity even within the municipality of Lisbon, even though policies have been launched and are being consolidated (there's still a lot to do). (Interviewee #2 – Epistemic actor)

So, there's a shared perspective that Lisbon changed between 2009 and 2021, cycling has become relatively mainstream among some of the city areas and population segments, but there's still a long way to go for a full-fledged transition in the city and the metropolitan area.

Lisbon's forgotten 'Low Emission Zones' (LEZ) and opportunities for real change

Despite being common initial actions in cities all over Europe—which can bring indirect political weight to the relevance of cycling—in all of Portugal there is only one LEZ—Lisbon's 'Zona de Emissões Reduzidas' (ZER)—covering part of the historical city centre. Besides Lisbon's weakly controlled LEZ, in Portugal there are no other localities with LEZ implemented; no congestion charges, no pollution emergency measures, and no low, ultra-low or zero emissions zones (Sadler Consultants Europe GmbH, 2021). Lisbon's LEZ measures were originally implemented in July 2011 (Visão Verde, 2012b), with slight updates realised since (Câmara Municipal de Lisboa, 2021h). Despite a reduction in overall air pollution registered following initial implementation and updates, air quality improvement has not been significant for some of the pollutants, namely Nitrous oxide (NO_x) and fine particulate matter (PM_{2.5}), with stricter restrictions to road traffic being recommended for greater efficacy (Santos, Gómez-Losada, & Pires, 2019, p. 639). Lisbon's LEZ is both geographically and programmatically reduced in ambit and application. The operating schedule, for instance, has an eleven-hour exemption period at night, being applicable from 07:00 and 21:00. Lisbon's LEZ only covers part of the city's historical centre, being divided into two zones: Zone 1 requires a minimum standard of Euro 3 class vehicles (2000 and later) and vehicles weighing under 7.5 tonnes and is flanked by Zone 2 which require a minimum Euro 2 class vehicles (1996 and later) (Sadler Consultants Europe GmbH, 2021). Furthermore, there are also numerous exemptions to Lisbon's LEZ which make it difficult to effectively enforce, namely permission is granted to:

- Electric vehicles (EVa)
- Historical vehicles
- Several exemptions for LEZ area residents and Lisbon municipality residents
- Vehicles powered by natural gas, LPG, and motorcycles
- Police, military, prisoner transport vehicles, and armoured cash transport vehicles (Câmara Municipal de Lisboa, 2021h)



Figure 66

Lisbon Mayor Fernando Medina presenting the ZER ABC low emissions zone (31 January 2020)

Despite the suboptimal results from Lisbon’s ZER ABC LEZ not being implemented as such, several incremental policy outputs favouring walking and cycling were achieved as direct outputs of this unfinished policy process. On one hand the incremental measures achieved provide a policy process lesson for the rest of Lisbon Municipality and the entire AML as a possible transition process for its numerous city and town centres. Well-designed and fully implemented LEZs provide an unexplored opportunity for most large urban areas in Portugal. The 18 AML municipalities can formulate and implement joint policy in conjunction with other sustainable urban mobility and regional development outputs aiming at more effective motor-traffic restricting policies throughout the FUA’s different urban areas, especially including overall LEZs in all mid- to higher density urban areas, Zero Emissions Zones (ZEX) in town and city centres, and possibly a congestion charge scheme around core city areas, such as the entire municipality of Lisbon. Similar measures can be effective in the AMP and some of the country’s district capitals and other small and mid-sized cities.

AML green infrastructure and greenways

Greenways are effective environmental restoration measures, integrated in green infrastructure by introducing walking and cycling paths connecting green areas and linking these to other city areas and the countryside. The AML has a wealth of diverse natural ecosystems, a Metropolitan Ecological Network - *Rede Ecológica Metropolitana* (REM)—established by the Lisbon Metropolitan Area Regional Land Use Plan of 2002 (PROTAML2), and updated in 2010 (PROTAML 10), which are integrated into the municipal masterplans (Franco, 2011, pp. 1, 10-11, 37-41). Yet articulation between regional land use planning has lagged, and the implementation of connected green infrastructure is still lacking in most of the AML. Similarly, integration of cycleways and walking paths in the AML’s green infrastructure is still very incipient, with a comprehensive network only being achieved in Lisbon municipality so far, and Cascais, Sintra, and Oeiras municipalities having achieved partial greenway implementation along some of the local streams. Loures also has an informal greenway —not municipally implemented— developed as part of the *Caminho do Tejo* Fatima pilgrims’ trail, consisting of signage along pre-existing rural routes parallel to part of the course of the Trancão River. In total the AML only has 22.2 km of municipally implemented greenways, and another 7.5 km of informal greenways.

Lisbon municipality conducted environmental restoration and regeneration as the initial strategical method to initiate a municipal leisure-based cycleway network (Barone, 2013), with work being initiated in 2008 until 2021, with an ongoing environmental restoration project being conducted at Vale de Alcântara since 2018 while simultaneously implementing an important arterial greenway connecting various urban areas previously cut-off from each other by the A5 and A2-Eixo Norte-Sul expressways, Avenida de Ceuta - Avenida Calouste Gulbenkian high volume traffic artery, and the principal North-South national rail corridor and two regional railway lines also (Câmara Municipal de Lisboa, 2020d). Other examples exist throughout Lisbon municipality, including water retention basins in several city parks, including right beside Lisbon's first cycleway at Campo Grande, and several landscape improvements.

Potential environmental regeneration works could provide means for significant car reduction in strategic areas if adequate links to surrounding urban areas are implemented, and public facilities and public transport nodes are assured nearby. In the AML the Jamor River *Eixo Verde e Azul 'Green and Blue Axis'* (EVA) greenway is a promising program launched in 2017, with several sections already implemented by 2022, aiming at connecting three municipalities (Sintra, Amadora and Oeiras) and regenerating the natural and built heritage of parts of the Jamor valley and linking several suburban localities and two train stations on different railways with a paved walking and cycling route. The fact that this greenway is designed to recover natural spaces and promote physical activity points to its principal goal as a leisure-based infrastructure, but the fact that it also connects several urban areas, and in several cases providing the shortest connection to important public facilities such as the Amadora-Sintra Hospital, the national sports complex (CDNJ), Lisbon University's Faculty of Human Kinetics (FMH), two train stations and the riverside/coastal cycleway are all elements for increasing cycling for utilitarian purposes also (Parques de Sintra, 2017).

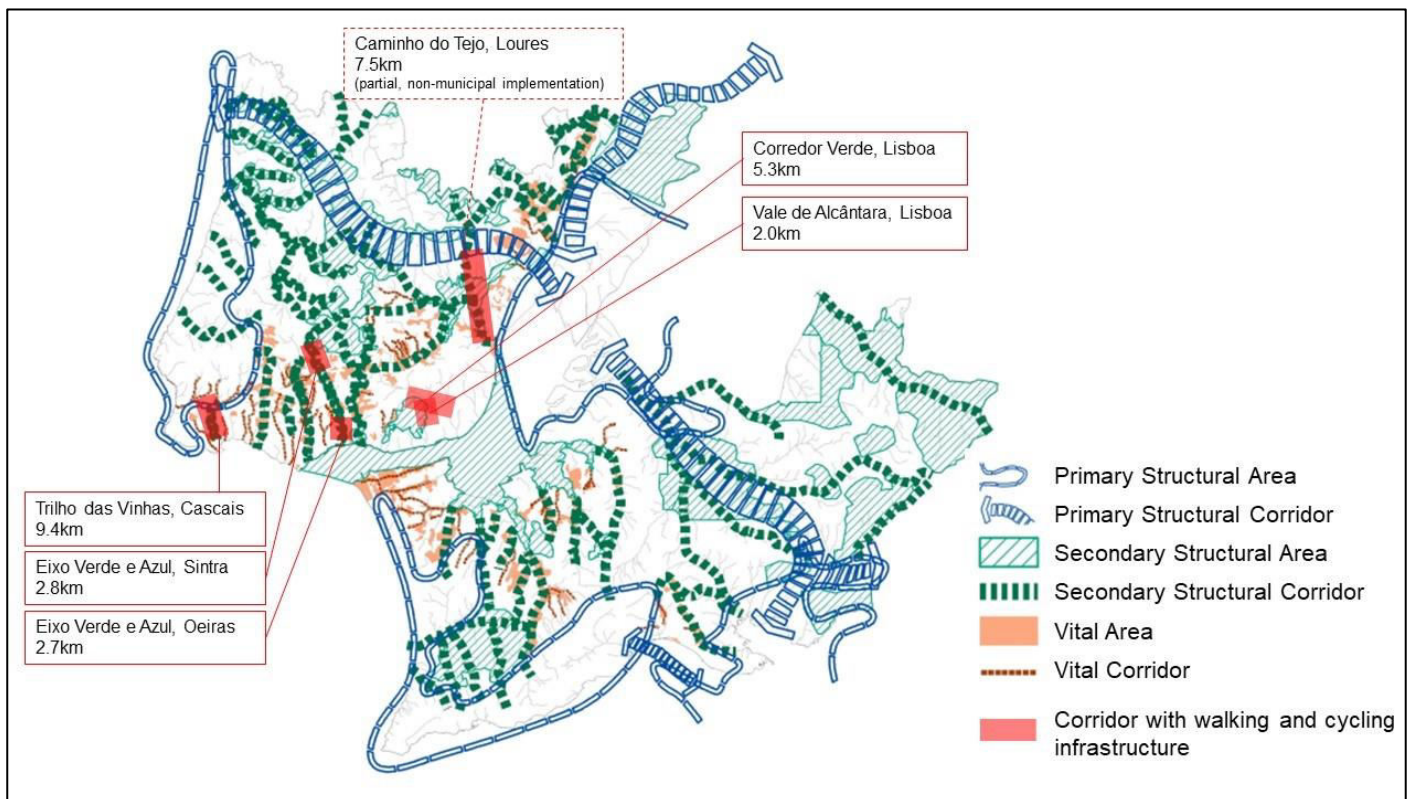


Figure 67
Greenway implementation in the AML in 2021
 overlaid on the CCDRLVT (2010) PROTAML10 Metropolitan Ecological Network (p. 121)

The recent inauguration of the suburban and rural section of the Vinhas Creek walking and cycling trail —implemented as part of a flood-control and environmental regeneration project connecting the centre of Cascais to the foothills of the Sintra mountain range— points to a possible solution for several AML river courses currently requiring specific ecological measures in face of extreme hot climates in the Summer and flash floods during the Fall, Winter, and Spring. Notwithstanding the need to redistribute road space and implement a quick and effective cycling network, complementarily a network of environmental corridors should be strategised with cycling and walking policy. Walking and cycling infrastructure expansion realised throughout the municipalities —in the AML and nationally— can assure an appealing, politically less contested implementation, which also serves as a possibly effective retreat position for the cyclists' coalition when unsupportive politicians hold power in any of these jurisdictions.

AML 'green streets' and 'woonerf'

There are no officially designated green streets in the AML, and the few urban arrangements that resemble 'woonerf' type streets are either historical urban centres built before the emergence of automobility, or neighbourhoods developed with narrower streets before the 1960s. In Lisbon these traffic calmed streets have been integrated into the municipal cycleway network in the *Bairro do Arco do Cego* neighbourhood and in numerous streets in *Alvalade* and *Campo de Ourique* neighbourhoods, yet they do not have the same traffic calming, carparking reduction measures, or dead-end configurations of the Dutch 'woonerf'. There are also a few isolated pilot projects —such as *Alameda Vieira da Silva*, in Oeiras— but these aren't systematised with 'green streets' measures or full-scale 'woonerf' implementations, instead they are usually unconnected to other traffic calmed streets, and none are directly articulated with municipal cycleway networks.

Several neighbourhoods in Lisbon and denser areas of other AML municipalities present street configurations capable of being adapted into traffic calmed low-speed —20km/h speed limit— 'green streets' with low-cost, high-impact implementations. Furthermore, this configuration is foreseen in Portugal's national traffic code since 2013, under the designation of 'Zona de Coexistência' (coexistence zone) and several have been implemented in Lisbon and various localities throughout Portugal. In fact, two years before the 'woonerf' based concept was legislated in Portugal, the national Institute of Mobility and Terrestrial Transport (IMTT) published guidelines for traffic calming measure design and implementation (IMTT, 2011b), and more recently ANSR published specific guidelines (Silva, Seco, Santos, & Graça, 2020). The technical and legislative outputs point to epistemic action occurring in the national mobility and road safety government agencies, with the mobility institute —IMTT, now IMT— preceding legislation and the national road safety authority following legislative action. The first signed 'Zona de Coexistência' streets were implemented in the AML by Almada Municipality in 2010 designated as '*Rua Mista*' —mixed street— as a typology in their cycleway network plan, introduced one year before national guidelines and over three years before national legislation was approved. Other precedents are the numerous traffic calmed residential streets which exist in Portugal as part of the compact urban morphology common to most Portuguese urban areas built until the mid-twentieth century, when automobility wasn't an important part of the urban system

4.8.1 Cycling-specific infrastructure policy developments

Cascais was the early starter of cycling-specific infrastructure developments in the AML—since 1996— and Almada realised the AML's first integrated cycleway network plan presented in 2005, but by 2022 it was still only partially implemented. Cascais municipality inaugurated the AML's first cycleway, with 8.8km, in 1996 (Amaral, 2021) and a 150 bicycle leisure oriented bikeshare system on 22 September 2001 (Augusto, 2017, p. 30-31; Jornal de Notícias, 2005). On 16 September 2001, Lisbon mayor João Soares inaugurated the city's first cycleway, with 3.4 km (Fontes, 2010).

The first municipality in the AML to formulate, approve, and start to implement an integrated cycleway network plan connecting various localities with several linked cycleways was the municipality of Almada, in 2005. For the AML's three leading cycling policy municipalities, these first outputs were in all cases associated to the World Car-Free Day — integrated after 2002 in the EMW— suggesting the impact and potential for change that these specific policy network initiatives can provide to municipal governance structures.



Figure 68 – The Cascais-Guincho cycleway (2019)
The AML's first cycleway, inaugurated in September 1996.

Almada's advance at the time suggests coordinated epistemic and governance actions within the municipal Department of Sustainable Environmental Strategy and Management (DEGAS), the municipal energy and environment agency (AGENEAL), and the University of Lisbon's Agronomical Institute's Centre for Landscape Architecture Studies (CEAP) since 2003 (Câmara Municipal de Almada, 2021). This epistemic network led by the key municipal official Catarina Freitas advanced the municipality's formulation and proposal plans for an extensive municipal cycleway network (Câmara Municipal de Almada, 2005b) —approved unanimously by all political representatives in the town hall during EMW— on 21 September 2005 (Câmara Municipal de Almada, 2005a). The complete plan, specifications and implementation norms were drafted and had already been partially implemented by May 2010, reviewed, and updated in December 2014. The intensity of policy formulation, innovative measures implemented —integrated cycleway network, low-speed residential streets, a contraflow cycling lane, innovative bicycle parking, and integration with public transport—, complementary actions —bicycle book for children, car-free day initiatives, etc.— and the unprecedented levels of monitorisation in the AML suggest epistemic interaction with policy brokers in Almada, and the involvement of policy entrepreneurs.

Cycling policy outputs in Almada were mostly implemented between 2005 and 2017 and stand-out when compared to other AML municipalities on the South bank of the Tagus River, surpassing 15 of the AML's 18 municipalities: a cycleway network with 25km implemented and 94 bicycle parking locations, with estimated parking for 564 bicycles. Nonetheless, these outputs are still far from what is observed in Lisbon municipality —Table 10, below— or other Western cities with

low rates of cycling (Buehler, Heinen, & Nakamura, 2021, pp. 106-110). Cycling policy in Almada slowed down since 2014 and later stalled (Morais, 2020; Notícias da Gandaia, 2014), with several setbacks —prioritising automobility— and no significant infrastructural advancements produced in the municipality in the meantime.

In fact, a difference when comparing the core of Lisbon municipality to the surrounding AML denotes an underlying perception of political '*situationism*' regarding mobility transitions in the outlying FUA with an apparent political '*status quo*' regarding cycling in these surrounding metropolitan areas. This lag in the production of cycling outputs is acknowledged by the perspectives of two of the policy brokers and one of the citizens interviewed:

(In Lisbon) The cycleway plan that was created was criticised by some sectors, but I defend it. It was the issue of banning older cars from the centre... with many people complaining. Bikeshare too. (In Cascais) Bikeshare. (In Oeiras) I don't see anything. (Interviewee #5 – Policy Broker)

Even the Cascais(-Guincho) cycleway was not (thought out as) a mobility solution, it was a leisure solution. ... There was the cycleway in 97, I think this was an important milestone in Cascais. ... In Lisbon there were the cycleways in Avenidas Novas (central uptown city borough), I think it was a big change. ...Cascais has nothing like that. In Oeiras there's much less in this field, Oeiras even less. Lisbon is much more advanced in this area than Cascais or Oeiras. (Interviewee #10 – Former Policy Broker)

Yes, (in my opinion, I've noticed regarding cycling) 10 years ago I wouldn't dare to cycle in Lisbon, and now, with the cycleways, yes. In fact, I've used the public bicycles, cycling quite calmly. In Cascais, also, although some areas that are a little confusing. In Oeiras I practically don't cycle, I don't feel at ease, except maybe in Jamor, but the rest (of the municipality) no. (Interviewee #1 – Citizen)

Cycling outputs in the surrounding AML are generally meagre and their implementation has been slow, isolated, and unconnected, as observed by the interviewees, but also from analysis of cycleway networks in the territory which are mostly dispersed, except for Lisbon (see Figures 70 and 71, below).

Transition through outputs

Actually, Lisbon's initial lag was a very early stall since it implemented its first cycleway in 2001 until a new local government gained office in the Summer of 2007, the PPB in 2008 and several new cycleways began being realised and inaugurated in 2009. The start of a transition was observed between 2009 and 2021, from a lagging city to national leadership. But policy outputs were very slow to appear at first, and only between 2016 and 2021 did the major changes begin to appear in governance structures and outputs produced. Citizen, activist, and epistemic interviewees corroborate this perception of how outputs began to appear in Lisbon, providing insights into the policy process —but also observations of not enough being done even during the most productive output period in the city— and apprehension of the possibility of stagnation in the future:

(Policy outputs in Lisbon evolved) Very slowly at first. There was not really an idea of the importance of cycling, the construction of cycleways, etc. and what was done was negligible.

But now yes. Now you can see, especially in Lisbon, the number of cycleways they have built, bikeshare, and private bicycles around the city. Also, in Cascais, cycling is developing and important. Not so in Oeiras, where it practically does not exist. (Interviewee #1 – Citizen)

If there is greater commitment today, there is. If it's enough, no it's not. ... There is development, but not as much as would be necessary. (Interviewee #4 – Citizen)

Despite everything, it is undeniable that the (2017-2021) cabinet - Medina and Miguel Gaspar - ...when there are issues of mobility, cars, and public space, etc.... they give something with one hand, such as make a cool cycleway there, bikeshare, and at the same time they built a parking lot for automobiles... Before there was Sá

Fernandes... in that sense he had more merit because he put it on the agenda. More merit for sure for him.
(Interviewee #6 – Activist)

I think there's been an arm wrestle. I think the latest changes to the Traffic Code... I think that finally the people who defend sustainable mobility, namely the bicycle people, had a relatively important role in the definition and in some things that changed in the Traffic Code, in the last changes. Plus, I think that there is still an arm wrestle between what these associations want, and for example what the car lobby, and other associations that are much more established, want. ... In Lisbon, I also think that, clearly, in the last 4, 5 years there has been an extraordinary change, and I think that the will expressed by the associations representing pedestrians, and bicycle users, is already clearly expressed in the municipal strategy and in ongoing municipal plans. ...In Lisbon, the (street design) Manual and the regulation of public space, realising cycleways and sidewalks, and so forth, there you can see reflected what has been the will expressed by associations that defend pedestrians and cyclists, I think that there, activism and the role of associations have been important. (Interviewee #11 – Journalist)

They are doing the work for 2021 and then it's over. Then we'll stay a few more years like we are now, stagnated.
(Interviewee #2 – Epistemic actor)

The city's late start also implied a late cycling culture start in the local governance structures. Lisbon began studying the possibility of implementing a 238 km cycleway network developed from a protocol between the Municipal Directorate for Planning and Urban Management (DMPGU) and ISA since 2000, but this proposal had been stalled since July 2000 and finally shelved by the centre-right municipal governments in power between 2002 and 2007.

Despite a 3.4 km cycleway being inaugurated on 16 September 2001, during EMW still under socialist mayor João Soares, the municipal governments that followed, led by social democrat (PSD) Santana Lopes from 2002 to 2004 and Carmona Rodrigues —independent backed by PSD from 2004 to 2007— didn't build any cycleways. Lisbon's cycleway proposal was considered by the governing structures at the time as being “*megalomaniac*”, “*hard to implement*”, and “*on roads saturated with (car) traffic, thus not sustainable in terms of management*.”¹¹ (Inês Boaventura, 2005). In fact, Lisbon's tiny 3.4 km cycleway network inaugurated in 2001 shrank and a crucial connection with *Telheiras* neighbourhood on its north-eastern area was barred between 2002 and 2010 shortly after being inaugurated —due to the construction of the new Sporting Stadium for the Euro 2004 football championship— only reconnecting in 2010 (Fontes, 2010). In fact, Lisbon Municipality commissioned a mobility report in 2005 involving local mobility epistemic groups —automobility and public transport— but cycling was not analysed as a mobility option, and the previous proposal for a cycleway network was not mentioned (Câmara Municipal de Lisboa, 2005).

In Lisbon municipality, regarding cycling, the period between 2001 and around 2008 was a period of no advancement, and while there was political change in City Hall in the summer of 2007, it took time to overcome the installed inertias in the local governance structures —and the *status quo* of the AML remained mostly unchanged regarding cycling— despite isolated, localised outputs produced in Cascais and Almada. The meagre policy outputs produced during the 2001 to 2008 period in Lisbon —and persisting throughout the 2009-2021-time frame in other AML municipalities— are also perceived by different interviewees, from different policy backgrounds:

I remember that Sá Fernandes had a problem, which was how was he going to connect Lisbon to Cascais?
(Interviewee #7 – Policy Broker; quote repeat from 4.4, above)

(In the AML) there were people mobilising for Critical Mass to Oeiras, Ciclovía na Marginal (cycleway on the coastal avenue) was talked about. (Interviewee #8 – Activist)

The introduction of cycleways helped a lot. I think that there was already a longing on behalf of many people for Lisbon to become a cycling city. There was already something dormant, because many people, many young

¹¹ My translation.

people, were going abroad, they were already going on Erasmus programs. They already had some experiences of cycling while abroad. ...Although this was a minority, it was a niche, something here was already dormant. When the first cycleway appears, which is something new, ... despite everything, many people show-up cycling. When the Tagus (riverside) cycleway opens, which is a very archaic cycleway.... This cycleway has already transformed a bit of some of Lisbon's residents' lives, who used this area of the river more and more, first for leisure, and later in a more practical way. (Interviewee #4 – Citizen)



Figure 69
Lisbon Municipality's first cycleway, inaugurated in 2001¹²
(Fontes, 2010)

With the snap elections held on 15 July 2007, José Sá Fernandes—who had been an independent municipal councillor backed by the Left Bloc (BE) since 2005— was voted in again and invited into the new municipal cabinet by election winner, socialist António Costa (Mayor of Lisbon between August 2007 and April 2015, later Prime Minister of Portugal, since November 2015). Sá Fernandes introduced an environmentalist agenda in the local policy structures, including a comprehensive pro-cycling election program (FPCUB, 2007a). In August 2007 Sá Fernandes accepted newly elected António Costa's invitation to being Deputy Mayor for Environment, Green Spaces and the Office for the Green Plan (Lusa, 2007), introducing the cycling subsystem into Lisbon's municipal government policy brokerage and the city's institutional agenda. Furthermore, the same policy actors involved in ISA's original work with Lisbon municipality in 2000 (Inês Boaventura, 2005) and later with Almada's 2005 cycling plan (Câmara Municipal de Almada, 2005a, 2005b)

¹² The Campo Grande - Telheiras cycleway was inaugurated on 16 September 2001 as Lisbon's first cycleway, covering 3.4 km and with 6 bicycle parking areas. In 2009 the cycleway was extended 6km westward linking with Benfica neighbourhood. In 2017 the Campo Grande section was integrated as part of the city's central traffic artery with a new cycleway connecting almost 3km South to Marquês de Pombal roundabout in the city centre, and in 2021 the cycleway was extended 2km North along Alameda das Linhas de Torres to the city's northern perimeter neighbourhoods. The central traffic artery and Alameda das Linhas de Torres sections have been tracked in the moving counts conducted since July 2009 and explained in Section 4.9.1 and 4.9.3, below.

suggest policy entrepreneurship and epistemic involvement working with Sá Fernandes on Lisbon's cycling network activation since 2007, informing policy formulation and implementation.

In October, 2007 deputy mayor Sá Fernandes had already announced the goal of implementing 45 km of new cycleways in Lisbon municipality by the end of 2009, mostly integrated within the city's green infrastructure portfolio under his supervision (TVI24, 2008). This first burst of cycleway network implementation in Lisbon grew rapidly mostly along green infrastructure, the riverfront and harbour areas, and some less central traffic arteries, expanding from the 3.4 km built in September 2001 and no expansion until 2008, to a network with 24.5km in October 2009 (Galvão & Rosa, 2009), 31.5km in May 2010 (Galvão & Rosa, 2010), and 56.4 km in January 2014 (Galvão & Rosa, 2014). Closer cooperation with cyclists' advocacy groups also increased, coinciding with a protocol between Lisbon Municipality and FPCUB since 2007 (Interviewee #9 – Former Policy Broker), and the founding of MUBi in 2009:

The implementation strategy we developed is written. That was the idea, first to create the leisure habit: residential areas, 30 km/h zones, so that I could have the children and such walk freely in the street and such... And then start connecting the big poles. And to do this I called on two more cycling associations. (Later) the (UVP-FPC)... created a section for mobility, a very interesting thing... We made a compromise solution, the main axes, basically it is to create a grid, wide, in the main axes of the city and connect that to the great trip-generating locations, with employment, leisure, study, (the public transport hubs). The (cycling network) plant...of 2012. ...It's in the article (Silva, Félix, Gonçalves, & Silva, 2013). Then we started drawing this. An agreement was reached on the principles, the way to do it. The priority was the riverside axis because that allowed us to do two things, on one hand, leisure... it had a lot to do with our strategy. As it is an axis with a lot of tourism, and foreigners are used to cycling, they would start to be the first users of that route which later, by imitation and trailing, would lead other people to cycling, first for leisure and then for normal (mobility) purposes. That was the axis. ... (The Eastern riverside cycleway) was the first one... We did the project from Santa Apolónia to Expo (Parque das Nações). And we said, this is the main axis that must be completed. A main link to the (uptown) plateau ...one of the reasons for the traffic direction reversal on the Avenida da Liberdade side streets, Marquês de Pombal. Then there was a discussion between the cyclists' group, some thought that I should go through the central axis, which ended up happening —segregated cycleway, mental map— and others through Duque de Loulé Avenue. (Interviewee #9 – Former Policy Broker)

The most impressive boost in Lisbon, however, occurred between 2016 and 2021 when the city increased its cycleway network 90km in just over five years, with coverage expanding significantly every year, from just under 60km in 2015 to 90.5km in 2017, 97.6km in 2018, 105.6km in 2019, 125.8km in 2020, to 162km in 2021 (Câmara Municipal de Lisboa, 2021b, pp. 8-9; Lisboa E-Nova, 2022). Furthermore, much of this expansion was realised by reallocating street space from motor traffic to dedicated cycleways on important city avenues and arterial traffic routes.

But exactly what happened for this boost to occur? A series of decisive actions began around 2015-2016 as municipal structures began interacting with cyclist consultants and epistemic actors, with the municipality interacting with unprecedented intensity in the city's governance structures on the policy issue. 2016 was the same year when the pilot project for uptown Lisbon was developed and implemented the Municipal Mobility Directorate's —DMM— newly established Mobility Studies and Planning Division —DEPM —working with cyclist consultants —architects and road engineers—, and also when the city's first digital cycle traffic counter was placed and began operating on the *Duque d'Avila* cycleway. From 2016 to March 2020, the *Duque d'Avila* cycleway counter registered an 820% increase in cycling (Câmara Municipal de Lisboa, 2021a, p. 13).

A crucial modification to boost cycling policy in Lisbon was operationalised by Lisbon Municipality's new DEPM working transversally on the subsystem —working directly with the mobility deputy mayor's office and coordinating implementation with several other different municipal directorates and departments (including the Municipal Directorate with Green Infrastructure (DEMVAE) which had initiated the cycleway network policy from 2007 to 2015), also with local

borough governments and answering citizens' queries— breaking several institutional silos. Cycling began within the municipal green infrastructure and environmental agenda since 2007, the cycleway network was also integrated into the municipal masterplan of 2012, with several lower-key outputs from the DMM realised between 2007 and 2013, namely 30 km/h zones, *Marquês de Pombal* roundabout cycleway, and *Avenida da Liberdade* side lane sharrows and short-cuts. After 2016, however, cycling entered the DMM and was placed on the mobility agenda with work intensity and coordination increasing significantly. Also, by integrating cycling into the municipal masterplan, cycling also entered the urban space department, developing even greater interaction between this department and municipality's mobility structures (Câmara Municipal de Lisboa, 2012, art. 32, 71, 81, annex VI, VIII). Furthermore, these structural changes coincided roughly with the Urban Space Department (DEP) —under the Municipal Directorate for Urbanism (DMU)— being responsible for rehabilitating public spaces under the '*Uma Praça em Cada Bairro*' programme launched in 2013 (Dinis, 2014), which initially didn't address cycling at all, but cyclists' coalition pressure and DEPM's institutional coordination managed to change through internal governance structures and coalition actions in participatory mechanisms.

Furthermore, in 2018 DEP developed and published street design guidelines with a comprehensive section on the cycling network and fully integrating the cycling subsystem, (Câmara Municipal de Lisboa, 2018b), including detailing developed by DEPM in collaboration with its cycleway network consultants. In fact, one of the citizens interviewed observes that the pivotal role of a broader coalition impact and entrepreneurship as being pivotal actors for change within Lisbon's governance structures: "*I feel there are groups of people and not associations that are causing impact. The Velo-city conference coming here is because someone is doing something.*" (Interviewee #4 - Citizen)

Integrating Lisbon's cycleway network in mobility policy —with intense project coordination from DEPM— assured an institutional level of cycleway implementation articulated within the mobility department, with other municipal departments and the infra-local borough governments also. Articulation with the deputy mayor for mobility intensified over time, with more outputs for cycling being produced, including the cycleway network formulation and implementation and bicycle parking, but also articulation with the implementation of the city's '*Gira*' bikeshare system by EMEL, and developing a winning proposal for the VCC series in Lisbon —delivered in 2018— for the conference held on September 6 to 9, 2021 (Câmara Municipal de Lisboa, 2018c).

Policy output detailing

Lisbon municipality formulated innovative details while implementing its cycleway network expansion under DEPM's intensified actions and articulation with other city departments and national entities —such as the national road-safety agency, ANSR: a bidirectional roundabout cycleway at *Praça do Duque de Saldanha* in 2016 with an unconnected precedent at *Praça do Marquês de Pombal* in 2012, and other uncommon measures for Portugal at the time, back-in automobile parking on on-street cycleways, specific traffic-calmed '*sharrow*' streets with 30km/h and bicycle road markings which were emulated by several other Portuguese municipalities afterwards, and advanced bike boxes (ASL) on some of its low-traffic avenues in the central business district area, all as part of a pilot project formulated and implemented in 2016 and 2017. Several ASL bike boxes were implemented in two central city neighbourhoods since the ANSR's technical opinion only allowed for two test locations. Details to improve cycling conditions have also evolved in some cycleway projects developed since 2016. Many public square projects coordinated by DEP —developed between 2014 and 2021 under the '*Praça em Cada Bairro*' public space programme—could have provided much better integration of cycling, some ignored desire lines and adequate route detailing, such as the projects developed at *Cais do Sodré* and *Praça do Comércio*, despite the 2012 masterplan addressing the need to integrate cycling (Câmara Municipal de Lisboa, 2012, art. 81), and internal discussions with experts involved in the cycleway network implementation.

Other innovative projects included cycling —but these weren't always fully implemented— either due to political pressure from the opposition, such as *Avenida da República* cycleway —built in 2016— reduced from two one-way cycleways to

a bidirectional cycleway to avoid removing some automobile parking spaces. Other public square projects did in fact improve their approach towards cycling, in part due to integration of a cycleway pilot project, with outputs involving the redesign of *Praça Duque de Saldanha* in 2016 and *Praça de Londres* in 2020, and well-designed cycleway connections developed by expert involvement.

The political weight of cycling caught on with the detailing outputs produced also —with tendency for policy change as the cycling network expanded throughout the municipality— making connected cycleways and lowered curbs more commonplace in Lisbon’s city centre and even expanding to some peripheral areas. In several central and uptown city areas these policy outputs were accompanied by another crucial output: the implementation of a large bikeshare program since November 2017, further boosting cycling and reinforcing its presence in the city’s mobility system (Félix et al., 2020, 2019, pp. 8-11). These self-reinforcing outcomes engrossed cyclists’ presence in these city areas, increasing the diversity of population groups adopting cycling: more children, more teenagers, more women, more elderly, etc. (see 4.8 Outcomes section, below).

Lisbon’s innovation and leadership continued through the COVID-19 pandemic. In 2020 and 2021 Lisbon municipality implemented 24.2 km quickly installed pop-up and traditionally built cycleways on major city arteries, squares, and shortcuts where it had been difficult to implement the proposed cycleway network previously planned (Câmara Municipal de Lisboa, 2021a, pp. 8-9), plus seven permanently car-free streets, and seven temporary car-free streets from a pre-COVID programme named ‘*A Rua é Sua*’ (*The Street is Yours*) with measures becoming permanent between June 2020 and September 2021, following the COVID-19 lockdown period (Câmara Municipal de Lisboa, 2020a, 2021a). Combined, these measures also increased the intensity of cycling policy formulation and implementation suggesting continued interaction and dialogue within the cyclists’ coalition which was already working with the city’s governance structures, while activists were demanding change openly (Cicloda, 2020).

4.8.2 Lisbon and AML’s cycling network policy

Beyond Lisbon’s municipal limits however, besides Cascais’ initial leadership since 1996 and slow continuity —and an exceptional period of progress in Almada between 2003 and 2014— cycling policy has advanced at a much slower rate, with cycleways far and few, where they exist, mostly disconnected, with no integrated traffic calming in most residential areas and much of the streetscape and intersections, which continue to prioritise motor traffic. Where cycleways do exist, in many cases incorrect national road signage is used for several situations regarding cycleway crossings, prohibitions, and other details such as discontinuity, removing priority for cyclists, and subjugating cycling to motor traffic. Some of these solutions were common in Lisbon even during its first network burst between 2008 and 2014, but with coalition perspectives involving activism, epistemic action and policy entrepreneurship in Lisbon changed —and since 2016 with the pilot projects developed under the DEPM— new cycleways, new traffic solutions, and new detailing were produced.

One of Lisbon’s cycleway network policy weaknesses is that cycling policy in the surrounding FUA is generally lacking, related to other complex factors associated to numerous interrelated issues: automobility-based and -reinforcing land use patterns —urban sprawl—, and lack of political commitment to deal —or confront— a highly automobile dependent electoral base. In fact the PROTAML 10 report recommends that AML and Municipalities invest in municipal and intermunicipal cycleway networks serving urban areas, connecting different historical centres, serving public transport hubs and implementing ‘*cycle superhighways*’ at the metropolitan scale, to promote greater competitiveness for cycling longer distances (CCDRLVT, 2010, pp. 216, LIX). Despite these assertive recommendations, over a decade since they were published —outside of Lisbon municipality— neither the AML nor any of its other municipalities have produced such outputs. Furthermore, PROTAML 10 recommends mobility management should aimed at the modal transfer from the private car to public transport and active mobility, including public space dimensioning and access restriction to automobility (CCDRLVT, 2010, p. 252).

In the AML, however, there is a significant disparity in cycling measures implemented throughout the different localities. Even simple low-cost policy implementations reveal enormous contrasts. Bicycle parking availability, for instance, varies greatly between municipalities and even between different neighbourhoods in the same municipality. Considering costlier policy outputs, an AML-wide bike share system does not exist yet. In 2022 the AML has three functioning municipally operated bikeshare systems; Alcochete has a tiny bikeshare system, Cascais has a leisure-oriented bicycle rental system with five kiosks, and Lisbon has a large-scale bikeshare system with significant territorial coverage. All of these systems have different operating models. Two other systems existed during but stopped functioning with the emergence of the COVID-19 pandemic in mid-March 2020: Cascais large-scale system and Barreiro's tiny system.

In fact, the specific PROTAML transport sector diagnosis report which depicts the overall AML scenario observed in 2010 remains valid for most of Lisbon's outlying municipalities in 2022. Despite some isolated noteworthy developments produced since, the following observations for walking and cycling infrastructure are generally applicable in most of the greater city territory: *"there is a lack of planned action at the metropolitan level, and many times, municipal initiatives are more a result of opportunities for action (because they are linked to other construction works) than an integrated planning approach. ...there is an awareness to the importance of the soft modes (walking and cycling) and the transition to action in all the AML's municipalities, but there is also the need to transform this ad-hoc effort into an integrated and network-integrating effort."* (CCDRLVT, 2010a, p. 55)

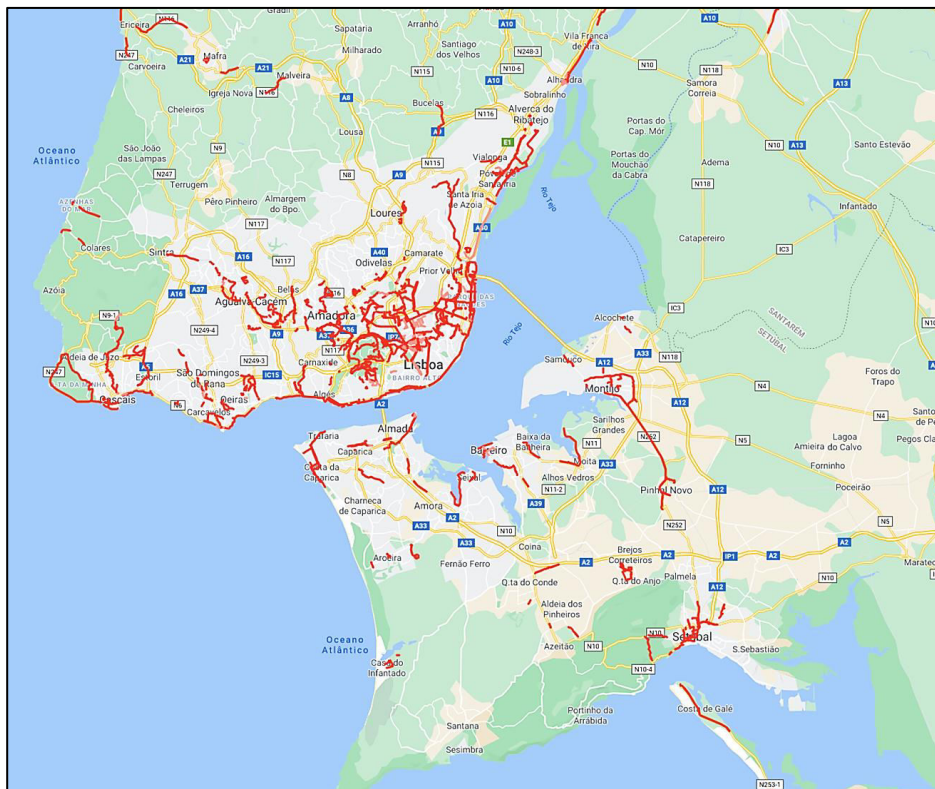


Figure 70
AML cycleway network
 (Ciclovias.pt, 2022a)

Cascais' cycling network

Outside of Lisbon, the most noteworthy recent examples are observed in Cascais municipality, especially since PAMUS-AML 2016 was operationalised with funding. Prior to that, Cascais and Seixal were the only two AML municipalities with BYPAD audits realised, in 2004 (Witzmann & Uranitsch, 2012, p. 34). Even before having a BYPAD audit conducted in

2004, Cascais had already built an 8.8km cycleway replacing a national highway shoulder between Cascais and Guincho beach in 1996 (Amaral, 2021) under the socialist municipal cabinet ruled by José Luís Judas (PS) from 1993 to 2001. Under that mandate Cascais municipality also launched 'Bicas' one of Portugal's earliest bikeshare systems with 150 bicycles in 2001 (Augusto, 2017, pp. 30-31), operating as a first-generation manual pick-up and drop off system available at one kiosk. The 'Bicas' bicycles were renewed and increased to 250 bicycles by the centre-right PSD/CDS coalition cabinet, under free of charge. Mayor António Capucho, in June, 2005 (Jornal de Notícias, 2005), and the kiosk near the train station was increased to three kiosks, all located in touristic areas (station/town centre, Marechal Carmona park, and Costa da Guia, on the Cascais-Guincho cycleway). Just as the first cycleway was a leisure-oriented infrastructure, so was the initial municipal 'Bicas' bikeshare system and its first renewal.

In July 2016, Cascais municipality launched a large-scale mobility-oriented municipal-wide bikeshare system integrated into its 'Mobicascais' integrated mobility platform (Peralta, 2020, p. 3), while also maintaining the leisure and tourism oriented 'Bicas' at three locations. Despite closing the entire bikeshare system between March 2020 and June 2021 due to the COVID-19 pandemic and bicycles disappearing since October 2021, and even when it was operational 'Mobicascais' had issues of poor redistribution and prolonged periods with few or no bicycles, with lack of reliability aggravated by a limited operating schedule, between 07:00 and 20:00, despite the system's noteworthy scale when operational, with 1,200 bicycles (Augusto, 2017, p. 54) and 90 stations throughout most of the municipal territory (MobiCascais, 2021). Interviewee #7 – Policy Broker, explains how policy formulation and implementation for the 'Mobicascais' bikeshare and bicycle parking system developed for municipal wide coverage:

There had been bikeshare here in Cascais since 2001, the 'Bicas', for a long time. I inherited this as deputy mayor in this area of mobility. Then we started the transformation, it was an evolution of the 'Bicas' process to a more contemporary model, more adapted to reality, in a working group that I have, "design thinking", complete brainstorming, in which we designed a universal dock, and we told CEiiA to implement. It was our idea, that we thought that one of the limitations of bikesharing systems is that the bicycle in the system is the only one that works on that dock, and we wanted to create a universal dock, which would fit any type of bicycle, even for our personal bicycles. We didn't gain with the cause with that, people don't use the system with their private bicycles. We thought that by massifying, people could use their private bicycles using the system, in a transparent way, or other operators could come to the system using our docks, because they were universal. This did not happen. But they were still implemented, and we have universal docks. Just as we wanted to design bicycles with their own specifics in terms of sensing, that were also unique in the World. This was the specification that the working group that works with me made here. (Interviewee #7 – Policy Broker).

Cascais' cycleway network hasn't achieved sufficient coverage to serve all of the urban areas by 2022, but it has expanded from 8.8 km in 1996 (Amaral, 2021), to 19.1km in 2017 (Loureiro, 2017, p. 23), to 83 km in April 2021 (Câmara Municipal de Cascais, 2021b), to 89 km in September 2021 (Silva, 2021), and 90 km in October 2021, which outside of Lisbon Municipality is unprecedented in the AML. As is the placement of two cycling-traffic counters on two of its cycleways in 2019, only preceded by Lisbon in 2019. Furthermore, an important intermunicipal link to Oeiras municipality was concluded in 2021, and a structural proposal for a cycleway connecting two important localities -Parede and Carcavelos- is contemplated in Cascais' plans and as Municipal Public Budget winning proposal in 2021 (Câmara Municipal de Cascais, 2021a), but still not implemented in 2022.

Detail-wise, a significant boost in the cycleway network was achieved between 2017 and 2021, including 0.3 km of a key connection between Carcavelos' train station and the NOVA SBE campus (2018), road-space reallocation on a 1.5 km-stretch of the N6-8 highway between Estoril and Alcoitão (2021), and a 0.6 km link to Oeiras municipality (2021). The most significant cycling policy outputs were implemented in 2021, with 10 km realised and the 'Mobicascais' bikeshare system reactivated between July and October, and other innovative measures for the AML, such as the widespread introduction of traffic calming speed cushions on local roads. Despite significant progress, several of Cascais' new

cycleways realised between 2017 and 2021 were also conversions of pre-existing sidewalk space into cycleways, and by December 2022 few of the new cycleways built were in the central denser parts of the municipality.

Still, within an innovative approach and considering the AML's overall highly automobility-centric context, Cascais municipality realised some road-space reallocation from motor traffic to cycling and has started connecting several cycleways, despite lacking complete intermunicipal coverage, which Lisbon has started to achieve. No other AML municipality has managed a scale of cycling infrastructure comparable to Lisbon's. Cascais municipality's two cycle traffic digital counters are high-accuracy inductive loop cycle traffic counters —operational since 27 and 28 May 2019 on the Carcavelos-NOVA SBE campus cycleway beside the N 6-7 urban highway and the Cascais-Guincho cycleway on the N 247 road— providing real-time displays and information available online in a World cycling counter dashboard where comparison to other cities is possible (Eco-Counter, 2021). Cascais two inductive loop cycle traffic counters and Lisbon's —since 2016— are the only three of the kind in the AML. All three are from Eco-Counter but Lisbon's has no real-time display and data available online is on a specific site (Câmara Municipal de Lisboa, 2021d), not on the World dashboard. Lisbon also has 34 radar-based cycle traffic counters installed in Lisbon in July 2021 with data available online.

Cascais was one of Portugal's first municipalities to implement car-free streets —occupying street space with restaurant tables since 2016— with a programme called '*Todos Para a Rua!*' ('*Everyone to the Street!*', Portuguese pun for '*Everyone Out!*'). During the post-COVID-19 lockdown period these streets were painted yellow and transformed into the permanent '*Rua Amarela!*' ('*Yellow Street!*') restaurant district. These three streets are in the centre of Cascais and through motor traffic was barred on a fourth street, creating a low-traffic neighbourhood (LTN) in part of the town centre, followed by two streets in the centre of Rebelva (Bairro Amarelo, 2021; Câmara Municipal de Cascais, 2021b; Oliveira, 2021).

In all cases, the open-streets measures helped increasing walking, cycling, and restaurant-owners' expand their floor space amidst the COVID-19 pandemic restrictions, suggesting an effective alliance where there are diverse activities benefitting from these quick implementation measures. Besides Lisbon and Cascais, during the post-COVID-19 lockdown several other Portuguese localities implemented street space reallocation measures permanently, temporarily, and/or with a schedule, including Porto, Matosinhos, Guarda, and Vendas Novas (ECF, 2020b; L3P - Laboratório de Planeamento e Políticas Públicas, 2020; PBIC, 2020), followed later by Oeiras which eliminated through traffic in a small section of two town centre streets in July 2022 (Município de Oeiras, 2022).

Table 10 – Cycling policy outputs and outcomes in AML municipalities¹³

Context				Formulation		Implementation	Change
				Actors / Associations	Events / Learning	Outputs (one of many possible gauges of commitment, others)	Outcomes (outcomes related to series of variables, <u>not necessarily related to outputs analysed or lack thereof</u>)
	Explanatory variable	Explanatory variable	Descriptive annotation	Explanatory variable	Explanatory variable	Explanatory variable	Dependent variable
Municipality	Population ¹	Cycling modal share ^{2, 2a} (municipality)	PRESTO Category ³	First evidence of cyclists' coalition association (Critical Mass (CM) cycle ride or other event) ⁴	Policy transfer mechanism involvement. Membership year, involvement, or formulation bid ^{5, 6, 7, 8}	1.- International, European, or National sustainability or cycling network related awards ^{7, 9} 2.- Indicative outputs (cycling infrastructure) 2.1- cycleway network in km (implemented) ^{10, 11} 2.2- bicycle parking (est. 6 bicycles by location) in municipal territory ^{10, 12} 2.3- bikeshare system – bicycles, stations ¹⁰	Change in cycling modal share Evidence of increase cycling modal share since joining; comparison 2011 census ¹³ with 2017 metropolitan area mobility survey ² , and 2021 census ^{2a} .
Alcochete	19,148	1.3%, 1.1%	Starter	n.a.	CoM 2013	1.- n.a. 2.1- 1 km 2.2- 6 bicycle parking locations (36 bicycles) 2.3- None	0.5% (2011), 1.3% (2017), 1.1% (2021) Change: +260%, +220%
Almada	177,400	0.3%, 0.4%	Starter	2003, CM since 2011 ¹⁴	CoM 2009 ECOXXI 2006 ICLEI 03.1999>	1.- ECOXXI Green Flag ≥75% 2006 2.1- 25 km 2.2- 94 bicycle parking locations (564 bicycles) 2.3- None	0.2% (2011), 0.3% (2017), 0.4% (2021) Change: +150%, 200%
Amadora	171,719	0.4%, 0.2%	Starter	2021 ¹⁵	BooST 2018-2021 CoM 2010 ECOXXI 2008-2021 PC 2030 2021	1.- n.a. 2.1- 1 km 2.2- 16 bicycle parking locations (96 bicycles) 2.3- None	0.1% (2011), 0.4% (2017), 0.2% (2021) Change: +400%, +200%
Barreiro	78 362	0.5%, 0.4%	Starter	2011 ¹⁶	CoM 2011	1.- FPCUB award 2015 2.1- 5 km 2.2- 21 bicycle parking locations (126 bicycles) 2.3- None	0.3% (2011), 0.5% (2018), 0.4% (2021) Change: +167%, +133%
Cascais	214,134	1.4%, 0.6%	Starter	2012, 2015 ¹⁷	CoM 2008 ECOXXI 2006-2021 ICLEI 03.2009>	1.- ECOXXI Green Flag ≥80% 2015, 2016, 2017 FPCUB award 2016 2.1- 90 km 2.3- 115 bicycle parking locations (690 bicycles) 2.2- (700 bicycles, 80 stations - bicycles out of service 03.2020-06.2021, 10.2021>)	0.2% (2011), 1.4% (2017), 0.6% (2021) Change: +700%, 300%
Lisbon	544,851	0.6%, 1.7% ^{2b} , 1.3%	Starter	2003 ¹⁸	BooST 2018-2021 CoM 2008 ECOXXI 2009-2011, 2019 ICLEI 01.2015> PC 2030 2021	1.- VCC21, EGCA 2020, ECOXXI Green Flag ≥80% 2019 FPCUB award 2009, 2017 2.1- 162 km ^{2a} 2.2- 1.280 bicycle parking locations (8.717 bicycles ¹⁹) 2.2- 900 bicycles, 140 stations	0.2% (2011), 0.6% (2017), 1.3% (2021) Change: +300%, 650%
Loures	201,646	0.3%, 0.2%	Starter	2011 ²⁰	BooST 2018-2021 CoM 2010 ECOXXI 2009, 2013, 2016-2020 PC 2030 2021	1.- ECOXXI Green Flag ≥80% 2017, 2018, 2019, 2020 2.1- 8 km 2.2- 22 bicycle parking locations (132 bicycles) 2.3- None	0.1% (2011), 0.3% (2017), 0.2% (2021) Change: +300%, +200%
Mafra	86,523	0.2%, 0.3%	Starter	n.a.	ECOXXI 2015-2021	1.- n.a. 2.1- 14 km 2.2- 21 bicycle parking locations (126 bicycles) 2.3- None	0.3% (2011), 0.2% (2017), 0.3% (2021) Change: -33%, 0%
Moita	66,326	0.3%, 0.6%	Starter	n.a.	CoM 2014	1.- FPCUB award 2011 ¹⁴ 2.1- 9 km 2.2- 20 bicycle parking locations (120 bicycles) 2.3- None	0.6% (2011), 0.3% (2017), 0.6% (2021) Change: -50%, 0%
Montijo	55,732	1.0%, 1.1%	Starter	n.a.	CoM 2014	1.- n.a. 2.1- 19 km 2.2- 9 bicycle parking locations (54 bicycles) 2.3- None	0.9% (2011), 1.0% (2017), 1.1% (2021) Change: +111%, 122%
Odivelas	148,156	0.1%, 0.2%	Starter	n.a.	BooST 2018-2020 PC 2030 2021	1.- n.a. 2.1- 6 km 2.2- 15 bicycle parking locations (90 bicycles) 2.3- None	0.1% (2011), 0.1% (2017), 0.2% (2021) Change: 0%, 100%
Oeiras	171,802	0.2%, 0.4%	Starter	2014 ²¹	BooST 2018-2021 CoM 2009 ECOXXI 2006-2008, 2014, 2017, 2020-2021 ICLEI 05.2021> PC2030 2021	1.- ECOXXI Green Flag ≥80% 2021 2.1- 18 km 2.3- 63 bicycle parking locations (380 bicycles) 2.2- None	0.1% (2011), 0.2% (2017), 0.4% (2021) Change: +200%, 400%

¹³ See section 6.2 for Table 10 sources.

Palmela	68,879	1.1%, 0.4%	Starter	n.a.	CoM 2009 PC 2030 2021	1.- n.a. 2.1- 14 km 2.2- 19 bicycle parking locations (114 bicycles) 2.3- None	0.5% (2011), 1.1% (2017) 0.4% (2021) Change: +220%, -80%
Seixal	166,693	0.8%, 0.4%	Starter	2010 ²²	CoM 2011 ICLEI 12.2012>	1.- n.a. 2.1- 12 km 2.3- 89 bicycle parking locations (534 bicycles) 2.2- None	0.3% (2011), 0.8% (2017) 0.4% (2021) Change: +267%, +133%
Sesimbra	52,465	0.4%, 0.4%	Starter	n.a.	CoM 2019 ECOXXI 2011-2021	1.- n.a. 2.1- 2 km 2.2- 7 bicycle parking locations (42 bicycles) 2.3- None	0.5% (2011), 0.4% (2017) 0.4% (2021) Change: -20%, -80%
Setúbal	123,684	0.2%, 0.5%	Starter	2008 ²³	CoM 2014 ECOXXI 2006-2007, 2009, 2010, 2017-2021 PC2030 2021	1.- FPCUB award 2018 2.1- 14 km 2.2- 17 bicycle parking locations (102 bicycles) 2.3- None	0.3% (2011), 0.2% (2017) 0.5% (2021) Change: -33%, +167%
Sintra	385,954	0.2%, 0.2%	Starter	n.a.	CoM 2015 ECOXXI 2006, 2020-2021 PC2030 2021	1.- ECOXXI Green Flag \geq 80% 2021 2.1- 36 km 2.2- 35 bicycle parking locations (210 bicycles) 2.3- None	0.1% (2011), 0.2% (2017) 0.2% (2021) Change: +100%, +100%
Vila Franca de Xira	137,659	0.3%, 0.2%	Starter	n.a.	CoM 2019 ECO XXI 2007-2008, 2010-2021	1.- n.a. 2.1- 27 km 2.2- 32 bicycle parking locations (186 bicycles) 2.3- None	0.2% (2011), 0.3% (2017) 0.2% (2021) Change: +150%, 0%
Lisbon Metropolitan Area (AML)	2,871,133	0.5%, 0.5%	Starter	2 monthly CM rides (Almada, Lisbon); 2 intermittent CM rides (Oeiras, Santa Iria de Azóia); 5 discontinued CM rides 19 Bike-to-school trains (18 in Lisbon, 1 in Amadora)	5 municipalities participated in the BooST programme held between 2018 and 2021 16 municipalities signed the CoM 11 municipalities have participated in the ECO XXI Green Flag audit 5 municipalities are ICLEI network members	1.- n.a. 2.1- 451 km 2.2- 1881 bicycle parking locations (12,319 bicycles) 2.3- Fully operational in 12.2021, Lisbon Municipality with 760 bicycles, 102 stations	0.1% (2011), 0.5% (2017), 0.5% (2021) Change: +500%, +500%

The overall cycling subsystem scenario is still incipient in most of the AML, with several parts of Lisbon municipality contrasting with the general FUA setting. In 2022, the AML was still lacking a connected intermunicipal cycleway network in all of its traffic arteries and other basic amenities favouring cycling are missing in most localities: *i.e.*, bicycle parking, a public bike share system, and cycling connections to public transport hubs, housing areas, and public facilities.

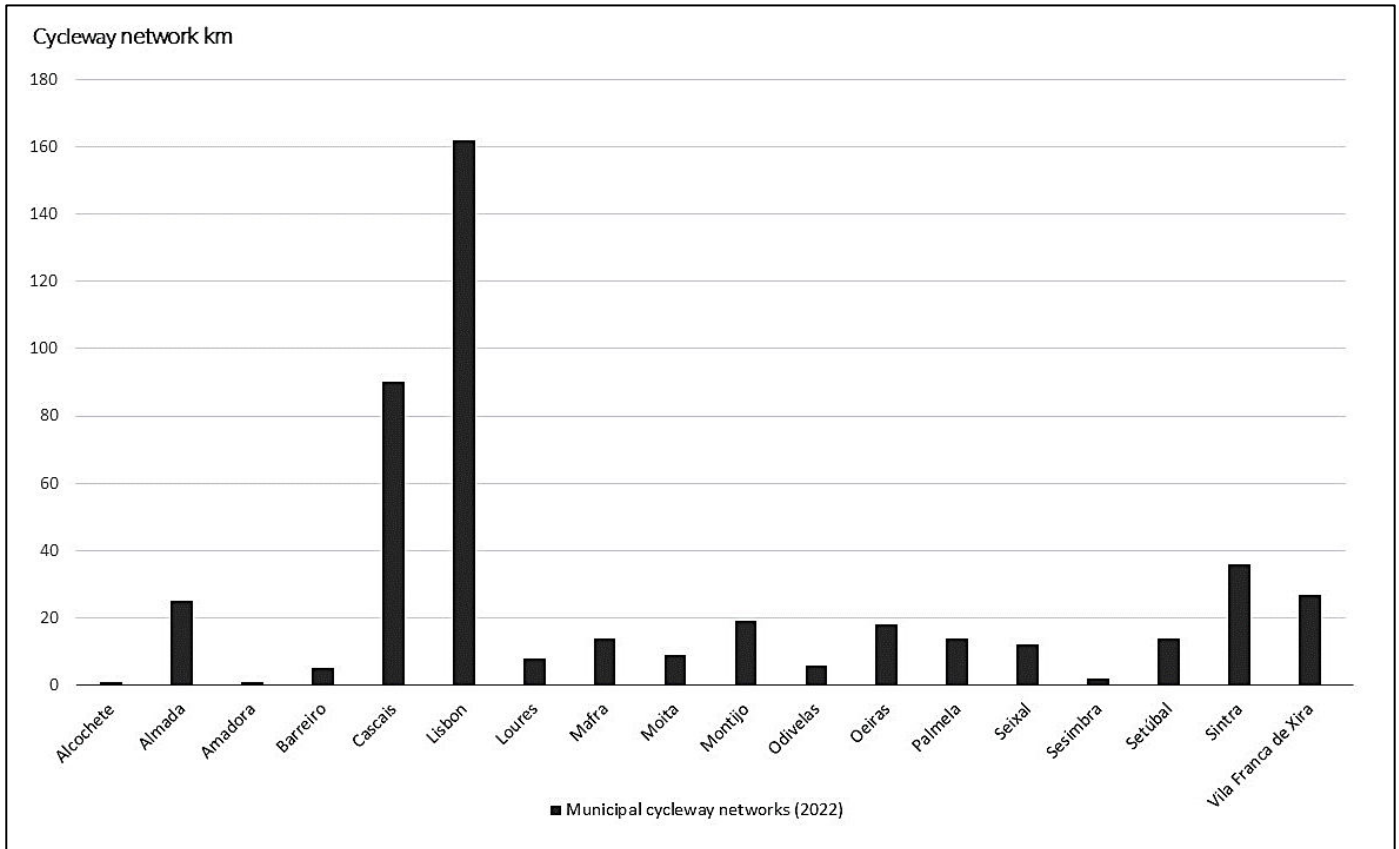


Figure 71
Municipal cycleway networks in the AML in 2022 (km)

As part of policy process analysis, Interviewee #10, a former policy broker, briefly compares policy brokerage involving cycling infrastructure in Lisbon, Oeiras, and Cascais. The observations presented underpin significant differences between Lisbon and the rest of the AML during the 2009 to 2021 study period:

Councillors and mayors, no doubt (are the key actors taking risks for change). Obviously in Lisbon that risk is taken, Medina undoubtedly (takes the) risk. In Cascais, in addition to some municipal technical staff, the final decision-making power is not theirs, they can't, there's no risk. (Benefit) These are policy profiles that are broader: the mayor of Lisbon had some need for affirmation there and to provide a more personal stamp to his development model for the city, which, perhaps in Oeiras, is not necessary since it already has a personal imprint of development, for better or for worse, and that the people of Oeiras like, for better or for worse, and it does not go away. And it is what it is.

In Cascais there is a different concept, imposing a stamp of modernity. They all try to imprint a stamp of modernity. (In Cascais) They are extremely committed to communication... But it turns out to be with very occasional things that have no impact on most of the population, contrary to what is being done in Lisbon, where changes actually have an impact on the city and on the day-to-day life. If tomorrow Medina leaves, ten years from now you will see these cycleways, this was done by the Medina. In Cascais, if these guys leave, you won't have anything in ten years' time that will survive ten years from now. That's the truth. Everything will fade away. Every president has his idea of modernity... In terms of cycling for mobility purposes, I see very little (in Cascais). (Interviewee #10 – Former Policy Broker)

Cycling policy measure outputs can be observed descriptively to compare the scale of local subsystem infrastructure among AML municipalities (Table 10 and Figure 71, above). The indicators provide a significant portrayal of the urban landscape as a policy factor for 'comparable cycling cities' within the FUA, and the methodology provides a framework which could be replicated for numerous other comparisons. These descriptive indicators also provide a framework for investigating how these policy outputs have influenced policy outcomes where the role of cycling can be important for policy regarding transitions, in face of broader global challenges: Is cycling infrastructure produced related to cycling's uptake? Has it removed people from cars? Is the infrastructure used for mobility purposes, for leisure, or for both? If for both, how can we transform these policy outputs into self-reinforcing mechanisms for modal shift towards more sustainable mobility modes such as walking, cycling and intermodality with public transport? On a global level has this infrastructure contributed to GHG emission reductions? Has it contributed to increased health and quality of life?



Figures 72 and 73

Cyclists in Lisbon during rush hour

Marquês de Pombal (March 2018) and Entrecampos (December 2019)

These questions have been addressed by the scholarship on other cities and some aspects of Lisbon's scenario but could also provide matter for more specific research, which should also be shared with policy brokers, entrepreneurs and epistemic groups working on the matter. The focus is on the effectiveness of these policy transfer mechanisms in the AML and a portrayal of their differences between different municipalities better characterises policymakers' relation with cycling in Lisbon. Considering the AML municipalities which have had some sort of contact with policy transfer mechanisms —which include cycling as a legitimate policy indicator— and those that were awarded prizes directly associated to cycling —e.g., FPCUB's 'National Mobility and Cycling Award' held annually since 2006— a total of 15 of the AML's 18 municipalities have had some sort of contact with the cycling subsystem and the policy issue regarding their mobility system (Table 10, above).

Cycling modal share tendencies in some of the flatter, rural municipalities may be associated to historical persistencies related to the natural landscape and rural mobility habits. South of the Tagus River the national district of Setúbal had a traditionally high cycling modal share in the past; 32% in 1955 and 33% in 1960 (Junta Autónoma de Estradas, 1960, p. 17). Even though all municipalities present very low rates of cycling when compared to their past rates, or to current European averages, South of the Tagus several still present higher averages than the AML which may be associated to persistencies of past mobility systems. Likewise cycling's decrease between 2011 and 2021 in these and several rural municipalities in Portugal could be related, requiring careful examination in future studies on rural cycling. Non-coalition related cycling rates are an area of interest beyond the scope of this thesis but related to it, in that modal share in these non-urban and rural

settings persists due to mechanisms which differ from collective action and association. In these peri-urban, rural and peripheral settings factors associated to higher levels of cycling are related to topography and rural characteristics (Vale, 2016, p. 51), and sociologically they may be related to Shove's (2012) considerations on the relational co-existence of cycling and driving in localities where cycling didn't fall apart as completely as it did in others (pp. 367-368). The subsystem's status in the peri-urban and rural context of some of the localities in these municipalities may be closer to historical and social moments when and where cycling didn't affirm itself as a social movement—requiring a different analysis of cycling revival (outside an ACF framework)—but also subject to the possibility of coalition action for uptake if adapted to the particularities of these settings.

4.8.3 Policy recommendations

Institutions

Considering the general limitations of AML's local and regional institutional framework and the issues related to participatory mechanisms—*i.e.*, the capacity to integrate social and citizens' inputs in the policy process—for more robust participatory mechanisms to integrate PPB inputs a path for effective citizen participation, implementation, and change requires some sort of institutional format, especially at the municipal level. The SUMP mechanism previously addressed is one such policy mechanism, another is that of participating in city networks working on meta-issues addressing cycling—what Kern (2019) designates as '*embedded upscaling*' between leader and follower cities points to a potentially important form of change at the territorial level—to increase functional networking between local policy actors and their peers regionally, nationally and internationally (p. 141). A third significant mechanism is the need for a transversal regional or metropolitan-level agency—or cycling secretariate (CS)—dealing with the subsystem as identified by Jensen et al. (2017). The CS is an important policy-epistemic interface entity producing and disseminating research to inform citizens and policy brokers about the tangible benefits of cycling, and thus by reframing the issue positively—with data collection and analysis, producing information—knowledge-based decisions can be made with greater ease and social acceptance. The combined approach of city networks and a city-region-scale approach can be especially useful in large metropolitan areas such as the AML (or AMP), establishing governance networks between leader and follower municipalities on one hand, and sitting on the international table of leading cities for enhanced learning and transfer on the other. Applied at the metropolitan or regional level this approach can help (regionally) leading municipalities such as Lisbon and Cascais work and exchange ideas with other more innovative cities from other countries sharing the same national and/or city networks with other institutional organisms—*e.g.*, EU, CPLP, UCCLA, UN, etc.—to implement best-practices and speed-up change. Furthermore, these same municipalities can work as regional or national leaders, in the AML and in Portugal.

A metropolitan area CS can also be involved in the interaction which takes place in local forums with citizens, local stakeholders, associations, local officials—municipal staff and experts—and policy brokers: Mayors or deputy mayors supervising the subsystem should also be present at these regularly held meetings. In these institutional governance arrangements participation assures mutual commitment, trust, and mechanisms for envisioning what kind of city is being aimed at (Beatley, 2000, p. 347). With commitment from all parts on paper, efforts are more efficiently conducted since the process is streamlined.

A critical problem regarding scale applies to AML—or any other intermunicipal network in mainland Portugal, or other countries with similar administrative arrangements—related to the country's mainland having no regional-level elected government, just intermunicipal arrangements and regional coordination commissions (CCDR) with limited political capacity. Yet for encompassing change, Policy Broker #5 identified a structural problem:

It would have to be a person with political power at the national level, the Secretary of State for the Environment, for instance... He/she could be an important figure, but (at a historical level) it does not exist, I don't see it. (Interviewee #5 – Policy Broker)

In this respect, a CS can play a fundamental role as a multi-scale epistemic-governance informing or consultative agency, informing binding national policies. Jensen et al. (2017) suggest that one of the important effects of the CS' policy-epistemic interface regarding cycling and making it visible as a healthy mobility practice was the rescaling of governance that the CS caused nationally and regionally. National authorities began to look at cycling as something larger than just local trips, integrating the subsystem into national ministerial strategies and in 2014 producing Denmark's first transport-integrated National Cycle Strategy. Regionally what was a city-focused and -scaled mobility subsystem expanded to outlying municipalities in a cohesive effort, with several impacting outputs produced, most visibly the city region intermunicipal cycle superhighway network involving 29 municipalities (Hjuler & Bondam, 2020), among a series of other related policy and infrastructural measures: *"This occurred because the new rationality enabled cycling to be framed as an element of 'regional development' that could be instrumental in increasing regional productivity through improved health of the labour force, as well as by decreasing congestion."* (Jensen et al., 2017, p. 473)

Infrastructure

Lisbon's public transport system integrated tariffs and monthly passes since 2019, but while bus routes have been organised and bus operator contracts awarded, the heavy rail backbone of the AML's public transport subsystem could be further enhanced by modal integration with cycling, which hasn't been included as a public transport complement at the metropolitan scale. The city's subway —Metro de Lisboa— and light-rail operators —Carris trams in Lisbon and a small part of Oeiras, and MTS in Almada and Seixal— and cross-river ferry boats are key public transport links in the AML, and despite a comprehensive public transport network, active mobility is the key missing link. The AML's transport policy could become much more effective and appealing to the resident population by integrating cycling in the municipal access to rail and ferry-boat stations, and address these in regional transport planning with integrated last-mile solutions: adequate cycleway networks in the station's catchment areas, last-mile bikeshare solutions, improved bicycle parking at all public transport hubs and stations, etc.

Kager & Harms (2017) define that with a catchment area with a 3-5 km radius from existing train stations, cycling outperforms walking 9-fold, linking 9 times more people and places to a given station or public transport hub than walking, with speed being comparable to car-speed and cycling being much more versatile by increasing choice of travel options and trip customisation and adaptation (pp. 10-12). Cycling's acknowledged competitive advantage to automobility is that of being quicker in built-up urban areas for distances up to 6km (Dekoster & Schollaert, 1999), which is amplified when well connected to frequent rail and ferry boats in a Transit Oriented Development (TOD) approach to urban planning. Considering an average cycling speed of 18km/h for conventional bicycles and that electric bicycles can easily accompany —or exceed— this speed even in hillier areas, a catchment area distance from existing high frequency rail and ferry boat stations that can be covered in 20 minutes covers 100% of the AML's most densely populated territory in 16 of the 18 municipalities, and 42% of the total AML territory (Figure 90). What's missing in the AML are the safe, direct, comfortable, coherent, and interconnected cycleway networks serving most of the catchment areas. Considering that many buses in the suburban areas of the AML have 20-to-25-minute intervals or even longer on weekdays, and even less frequent schedules at night, off-peak hours, and on weekends, with some routes being winding and indirect, with adequate infrastructural implementation in all of the urban areas and train station catchment areas, cycling can be a highly competitive, cheaper, quicker, and more flexible mobility solution —complementing rail on the first and last mile trip legs, and replacing automobility— even in the large dispersed scale of the AML where rail has relatively frequent and reliable service.

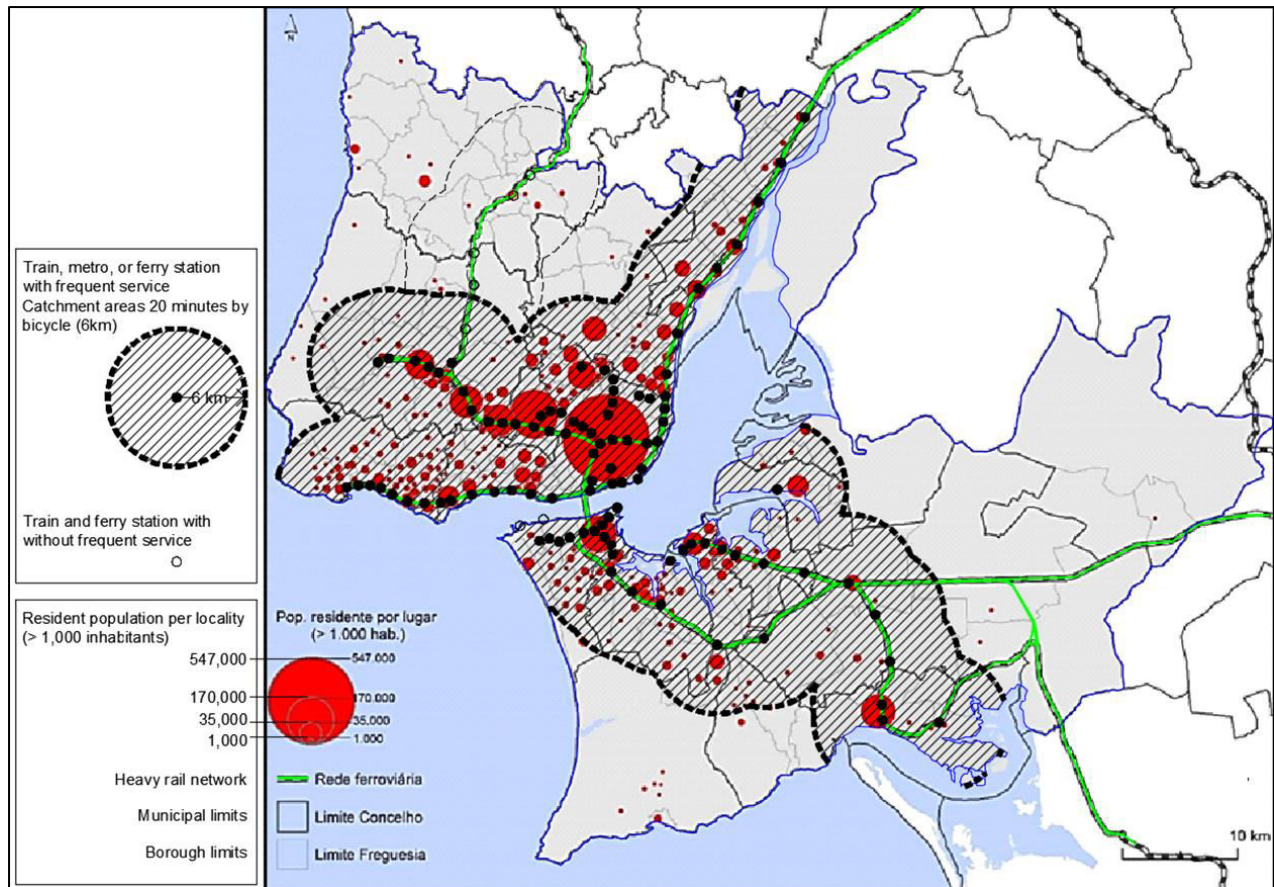


Figure 74
AML with 6km (20 minute) bicycle catchment area coverage
around train, metro, and ferry boat stations
 (superimposed on AML (2016) PAMUS plan)

Considering the existing rail and ferry boat infrastructure and operations, only low-density rural areas —most of the municipalities of Mafra and Sesimbra, rural parts of Montijo and Palmela— are farther than 6km from a train station with frequent trains. With the current recovery underway for the Oeste rail line and more frequent trains foreseen, part of Mafra municipality’s problem could be solved in the near future. With an update and/or duplication of rail and increasing fast bus service on the arterial routes bicycle-train complementarity could encompass an immediate territorial coverage of the catchment areas to 49% of the AML, including many rural areas and 100% population coverage.

Cyclists’ and rail coalition coordination is an area for future policy process involvement —which could work at different scales with a CS, for instance, starting at the regional level and expanding nationally— benefiting the AML’s mobility system and functioning as a national pilot for future replicability and implementation nationwide. Funding could be aligned with NRPP investments and the national rail plan announced in November 2022 — both of which could be steered to better integrate cycling. Besides the CS as an informing and guiding entity, stakeholders in such an endeavour wouldn’t have to wait for an institutional rearrangement of regional policy in Portugal, but could fast-track direct involvement and coordination with citizens, social actors and associations, but also several industries —cycling and rail for starters—rail operators —CP, Metro de Lisboa, Fertagus— and other major public transport operators —Carris, Carris Metropolitana, Transtejo Soflusa, etc.—, municipalities, national road —IP— and road safety authorities —ANSR—, regional entities —CCDR LVT, AML— and the national government ministries with mobility, environment, climate action, and health, infrastructure, and also tourism.

A look at the outcomes of cycling policy is required to assess cyclists’ coalition influence before analysing the outputs produced, since the outcomes measure performance and differentiate the levels of change achieved,

as addressed in the next section: 4.9 Outcomes. Once these outcomes are analysed and their relation to policy is inferred from several data sources and the linear regression analysis of data collected during the 2009–2021-time frame, cyclists’ coalition mechanisms are analysed in greater detail, in the final section of this Lisbon cyclists’ coalition case study, 4.10 Coalescing citizens, associations, and social movements.

4.9 Outcomes

4.9.1 Cycle traffic moving counts

Who does not have a dog, hunts with a cat. (Portuguese proverb)

To assess the performance of the cycling subsystem and confirm the hypothesis of coalition influence on the policy issue of increasing cycling, cycle traffic was counted on two of Lisbon’s most prominent traffic axes during the 2009-2021 study time frame, by using observational methods while cycling at a relatively steady speed along two routes. Some counts were realised by walking on the segments of these routes also. The cross-section of these two arteries pass through different urban landscapes with different urban morphology, topography, and cyclist diversity, which could be considered representative of the urban areas of the AML (Figure 75). When I started the moving counts—in July 2009—cycling was not on Lisbon’s epistemic agenda and it was not an acknowledged subsystem in the policy process. From lack of other sources at the time, the moving count method was an accessible, and relatively easy method for conducting counts and obtaining a picture of the intensity of cycling and its change over time, without requiring any special instruments or human resources besides oneself—a cyclist travelling the same habitual routes—and a way to take note of quantities.

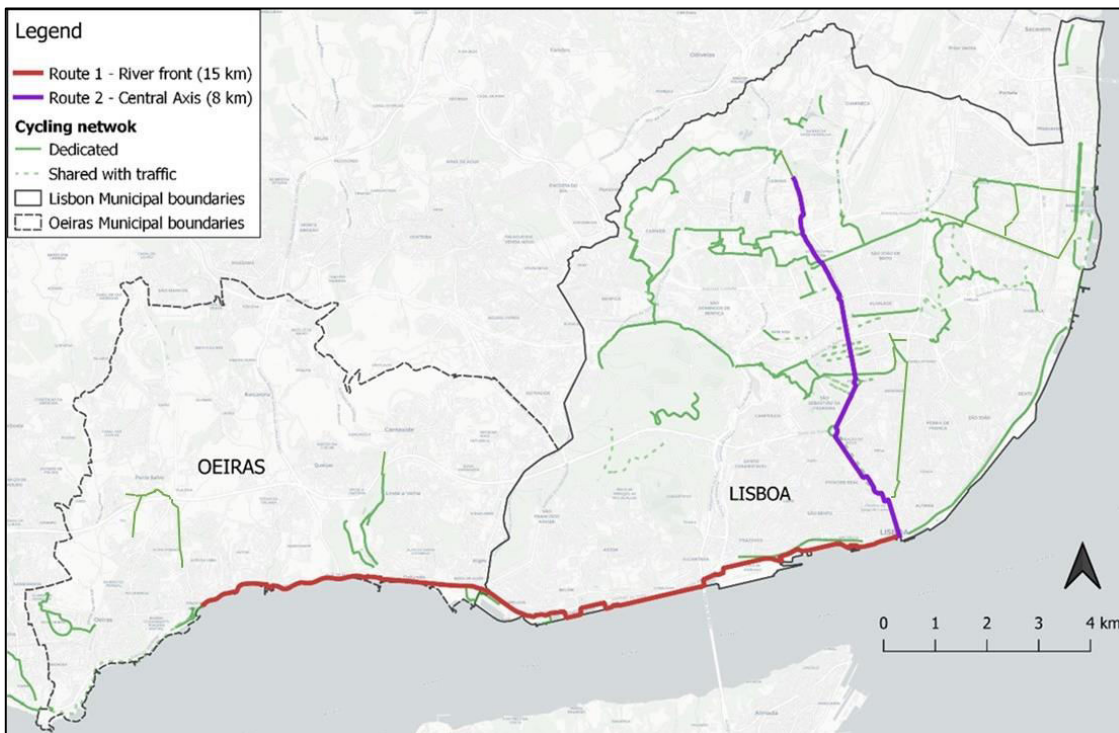


Figure 75
Cycle traffic arteries analysed in Lisbon
Map by Rosa Félix (2020)

Two routes covering a total of 23 km were counted systematically. Route 1 extends 15 km from the western coastal urban municipality of Oeiras passing beside several high, mid- and low-density urban areas, parks, beaches, across the city limits, cultural sites, various train stations, two ferry boat stations, harbour facilities, the historical riverfront, and the central city square, Terreiro do Paço. Route 2 connects Terreiro do Paço central square, bisects downtown Lisbon, passing through historical areas, the central business district, uptown districts, a university campus and onto the city's northernmost borough near Lisbon municipality's northern periphery, covering 8 km. These routes present different profile and slight gradient distributions, with Route 1 being entirely flat, and Route 2 being mostly flat, but presenting some areas with low to moderate hilliness (up to 5% slope).

Cycle traffic observation

Cycle traffic moving counts were conducted between July 2009 and November 30, 2021, corresponding to the research time frame and seeking to portray cycling's uptake in Lisbon during this period, and relate change — policy outcomes— to coalition interaction in the AML. Counts were realised on random days and hours, during different days of the week, covering some or all segments of the arteries analysed, counting all moving bicycles regardless of their direction and speed of travel, and collecting a series of explanatory variables, hypothesized as being potentially significant, or not, in explaining the intensity of cycle traffic.

Instruments used to realise the moving counts were a bicycle to travel the artery segments being measured, a mobile telephone with a notebook application to register observed cyclists, their general characteristics, and the potential explanatory variables, and at the end of the day these were manually registered on a spreadsheet, organising the different variables. A linear regression analysis was performed using PSPP open access software.

Why cycle traffic moving count method?

The cycle traffic moving counts were conducted to measure the intensity and tendencies of cycling during the analysis time frame, providing information which didn't exist previously and therefore answering a research gap regarding the cycling subsystem in Lisbon during the study time frame. Since 2016 there is other data collected from counting cycle traffic in Lisbon, but there are no other known cycle traffic counts available between 2009 and 2016, and, as of the research conducted to date —2022—, there are still no other known cycle traffic counts of any type being conducted in Oeiras municipality.

The moving count method employed is a simplified adaptation of Wardrop & Charlesworth's (1954) method for estimating road traffic volume, speed and flow, taken from a moving car. This method is particularly useful to understand qualitative and quantitative traffic conditions when realised as part of a routine programme (Hobbs, 1979, p. 47). Since counts are performed randomly among different segments covering the case-study traffic arteries —on both Route 1 or Route 2—, and considering that most are short-term period counts, the recommended method is to obtain the maximum amount of samples, done so by spreading counts over different hours of the day, days of the week and months of the year (Hobbs, 1979, pp. 56-57). The moving count method was realised during 394 different days, with and 2071 segment observations during the case-study time frame between 25 July 2009 and 30 November 2021. A simpler equation than road traffic volume, speed and flow was adopted since the dependent variable is exclusively that of cycle traffic volume, extrapolated to and expressed in the form of bicycles per hour.

During the cycle traffic moving counts all cyclists travelling within the same route, in any direction, were counted. The counts included cyclists identified within visual eye distance —considering an approximate radius of 30 m from the observing cyclists' position—adequate for recognizing gender, facial features, haircut type, and age group (Gehl, 2006a, pp. 75-76). The distance of 30 m covers the entire width of cycleways, streets and most avenues travelled in the traffic arteries analysed, including adjacent sidewalks and/or roadway space. Only

cycling was counted, not including skateboarders or scooter users. Besides the explanatory variables annotated at the start of each trip and the cyclists' features, the counts took note of the following information gathered:

- Cyclists travelling along the route in any direction, including cyclists still mounted on bicycles as they are exiting or arriving at bicycle parking locations or bikeshare stations (m_c);
- The duration of each observation: time taken cycling from the beginning to the end of the route segment, in minutes (t_c);

Employing this moving observer method, the total quantity of cyclists observed using the study artery (q_c) is calculated from the total number of cyclists moving within the observer's field of vision while cycling along the same route and associated to the travel time per segment cycled by the observer (t_c). From Wardrop & Charlesworth's (1954) seminal road engineering moving counts, the moving observer method is adapted, to calculate the following simple equation (Eq.):

$$q_c = m_c / t_c \quad (\text{Eq. 1})$$

where q_c is the total number of cyclist movements registered in the observation period. The number of bicycle-users counted and measured per minute is extrapolated to a quantity of cyclists per hour ($q_c h$), considering one hour has 60 minutes, therefore:

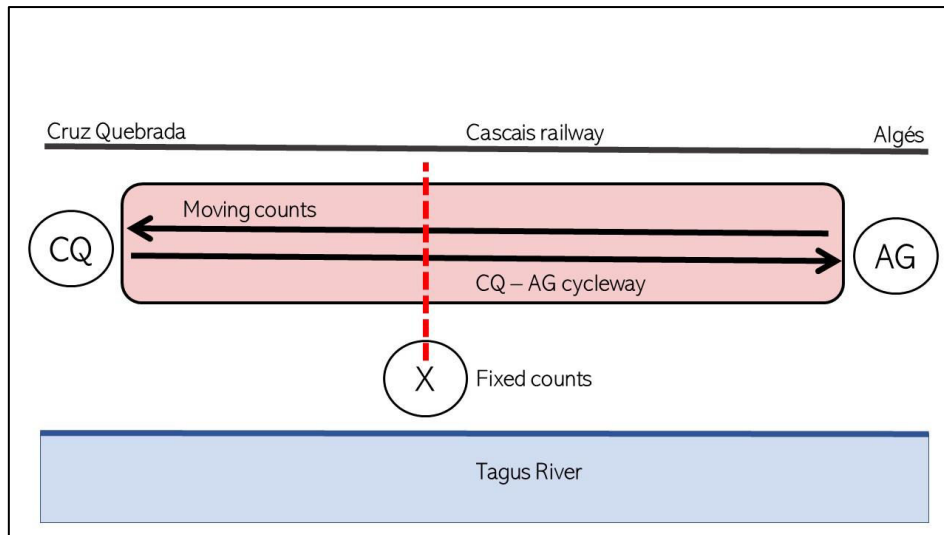
$$q_c h = q_c \times 60 \quad (\text{Eq. 2})$$

Count segments were measured to the minute and segment stops were always made at the same places to avoid discrepancies.

Despite the possibility of statistical error if considered with isolated or few samples, or if the study was only conducted observing short distanced samples, for very short intervals of time, with the intensity of cycle traffic varying on different times of day, and different days of the week being able to influence counts, the extensive area covered, the high number of counts (total segment observations, $n=2071$) and random times and days registered (total different days, $n=394$), allow for accurate measurement of tendencies in cycle traffic (Hobbs, 1979, p. 57), which is the intent of these moving counts. Each route is divided into various segments, allowing for a stop to take note of data collected, verify information, and avoid double counting the same cyclist, which are only counted on the first segment identified.

Validation of cycle traffic moving count accuracy

The cycle traffic moving counts were validated employing an idea developed by University of Aveiro statistics professor José Manuel Martins —of creating a 'laboratory' analysis by conducting fixed counts during 30 minutes in a closed segment—a cycleway with no exits or entries, with one observer conducting moving counts travelling back and forth on the segment and, simultaneously, during the exact same period of time, another observer situated in the middle of the segment conducting fixed counts (Figures 75 and 76).



Figures 76 and 77

Validation method for cycle traffic moving counts on the Cruz Quebrada – Algés cycleway

X = Fixed count observer location, fixed count data collected during 30 minutes at the exact same time that moving counts were collected, on the Cruz Quebrada (CQ)- Algés (AG) cycleway.

The data collected the exact same parameters, *i.e.*, number of cyclists, gender, weather, age group, and other bicycle typologies (Tables 11 and 12). The experiment was conducted on 13 December 2021 between 12:00 and 12:30 midday. Once the experiment was completed the results were compared to check if the results were the same or if there were discrepancies, with no differences between fixed and moving count numbers observed. Thus, from the identical results the moving count method was validated (Martins, 2020). Figures 75 and 76, and Tables 11 and 12, detail how the experiment was conducted, and results obtained using the two methods.

Table 11 - Fixed Counts (validation)

13.12.2021 12:00-12:30 Fixed point on Algés-Cruz Quebrada Cycleway. Counts by Xurdana Peña									
Bicycles Total	Man	Man with helmet	Woman	Woman with helmet	Child (0-12)	Teenager (13-20)	Senior	Lycra and helmet	Bikeshare, cargo bike, delivery (specify)
27	26	16	1				5	11	

Table 12 - Moving Counts (validation)

13.12.2021 12:00-12:30 Moving Counts on Algés-Cruz Quebrada Cycleway.												
Segment	Depart . Hour	Arrival Hour	Bicycles Total	Male	Male with helmet	Female	Female with helmet	Child 0-12	Adoles. 13-20	Senior	Lycra and helmet	Bike-share, cargo bike, delivery (specify)
CQ-AG	1200	1204	4	4	1	0	0					
AG-CQ	1204	1208	6	6	4	0	0			2 m	3 mh	
CQ-AG	1208	1212	7	7	5	0	0				3 mh	
AG-CQ	1212	1218	3	3	2	0	0			1 mh	1 mh	
CQ-AG	1218	1222	2	2	0	0	0					
AG-CQ	1222	1226	5	4	4	1	0			2 mh	4 mh	
CQ-AG	1226	1230	0	0	0	0	0					
			27	26	16	1	0			5	11	

Cycle traffic moving count results

Between July 2009 and 30 November 2021, cycle traffic moving counts realised on 394 different days and a total sample size of 2071 segments, reveal an overall increase of 2425% on the two routes analysed in Lisbon and Oeiras municipalities, from an overall average of 4 bicycles per hour in 2009 to 97 bicycles per hour in 2021.

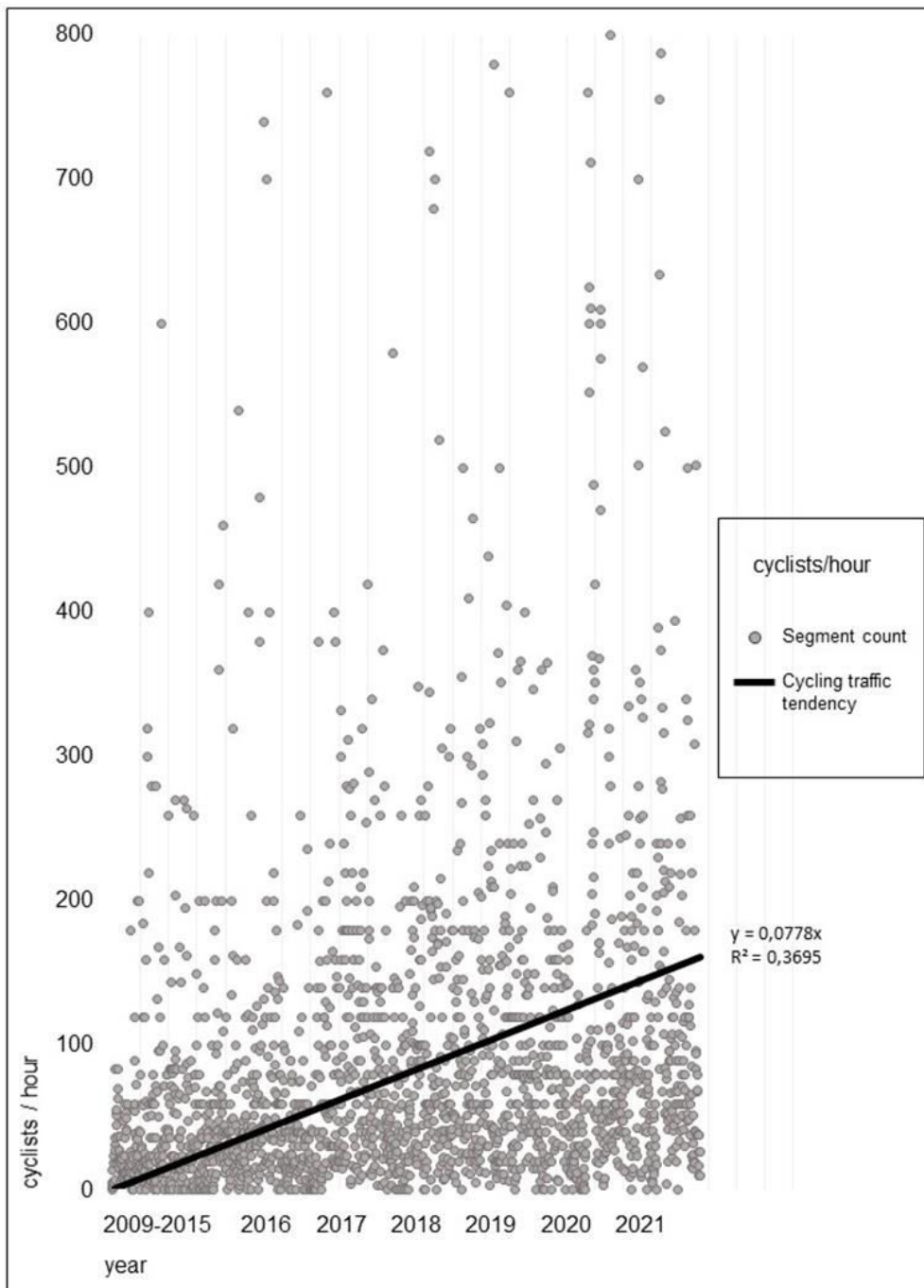


Figure 78

Cycle traffic on two Lisbon case-study traffic arteries

Linear tendency from the moving counts realised between July 2009 and 30 November 2021 in Lisbon and Oeiras municipalities

A comparison of cycle traffic evolution in Lisbon and Oeiras municipalities reveals different levels of policy output implementation and outcomes produced in face of the different circumstances. Lisbon reveals a relatively steady increase in cycle traffic between 2009 and 2021 with an isolated decrease in 2020, amid the COVID-19 pandemic lockdown. Contrastingly Oeiras lags during the entire thirteen-year study time frame except for an abrupt increase in 2020 during the COVID-19 period and immediately after the lockdown was lifted. The COVID-19 period corresponds to office buildings and elementary schools being closed and replaced by work from home arrangements for a significant part of the population, reducing car traffic drastically. Oeiras' significant uptake in cycling amid the pandemic is consistent with other research on the phenomenon (Huang, Loo & Axhausen, 2023; Molloy et al., 2021; Kalter, Geurs & Wismans, 2021). Contrarily, Lisbon's isolated decrease in cycling

during the pandemic may be associated to the fact that the case-study arteries cross the city centre's business, shopping and tourist areas situated with lower housing rates than outlying areas; *i.e.* cyclists from other areas who work, shop or are visiting the central areas disappeared from Lisbon during the lockdown when most of these functions were shut down.

In fact, after sanitary restrictions were lifted in Portugal, Oeiras municipality returned to its usual low cycling performance but with a notable uptake in comparison to pre-COVID-19 years, also consistent with findings from Huang, Loo & Axhausen, (2023), Molloy et al. (2021), and Kalter, Geurs, & Wismans (2021). In Lisbon municipality —on the other hand— the subsystem returned to higher cycling rates with unprecedented levels of cycling achieved, a trend that's corroborated from the Lisbon fixed counter on *Duque d'Avila* cycleway, revealing maximum peaks of cycling and higher averages than those previously observed (see Figure 81, below).

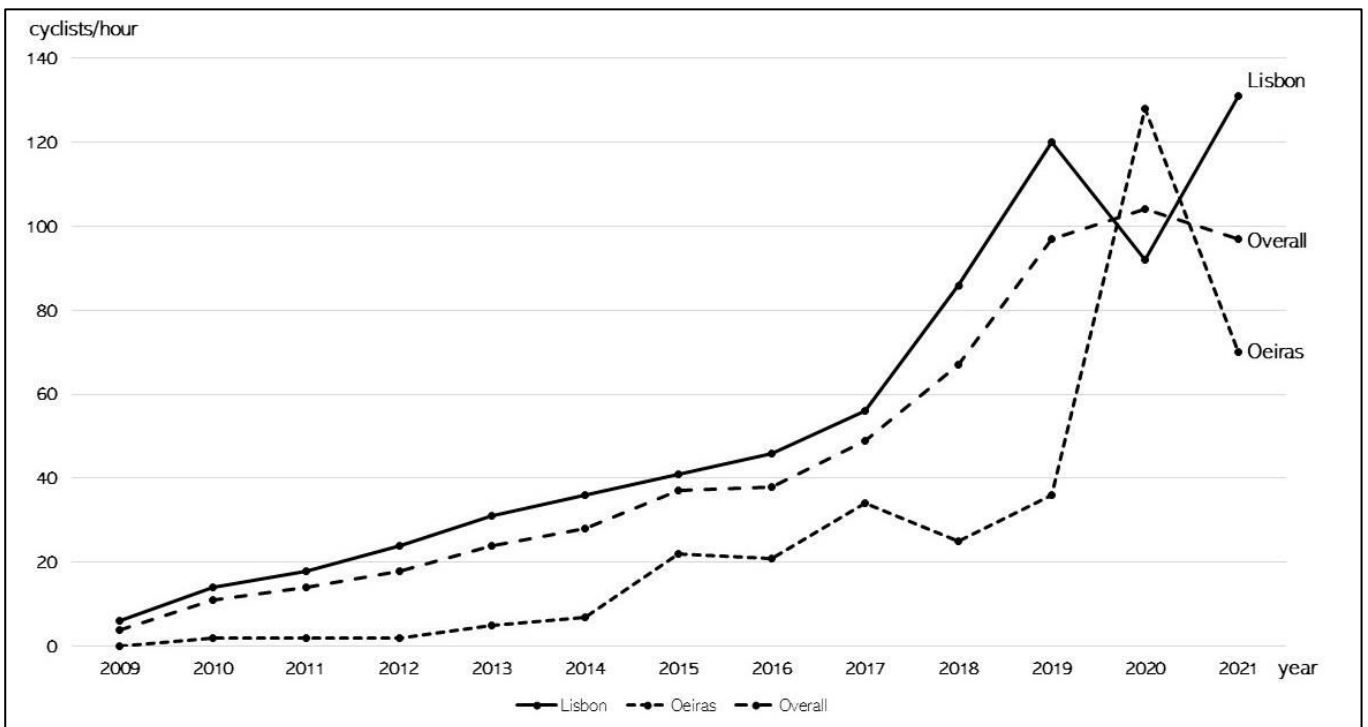


Figure 79
Cycle traffic tendency on the two Lisbon case-study traffic arteries
 Cyclists/hour from the moving counts realised between July 2009 and 30 November 2021 in Lisbon and Oeiras municipalities.

Lisbon and Oeiras municipalities differ in that Lisbon Municipality implemented a linked cycleway network and a large-scale bikeshare system, two basic infrastructural elements that are missing in Oeiras. In normal circumstances, the role of adequate policies appears to be a key element of increased cycling, but a linear regression analysis clarifies the differences and correlates the dependent variable of outcomes (cyclists/hour) with the explanatory variables associated with policy outputs: cycleways, bikeshare system, and the two different municipalities.

4.9.2 Other cycle traffic data in Lisbon

Other sources of data are helpful in characterising cycling's uptake in Lisbon, generally corroborating the trend in recent years. The different methods available and general observations regarding these are the following:

- Fixed manual counts performed by IST-CERIS-U-Shift between 2016 and 2021 —during morning and afternoon rush hours— show sustained uptake in bicycle traffic after the expansion of the cycling network in Lisbon’s central arteries (Moura et al., 2017, 2019, 2021, 2020). A comparison between rush hour fixed counts realised in July 2016 before a cycleway existed and the same location in May and June, 2017 —after the cycleway opened— register a 785% increase at a key cycling intersection in Lisbon’s central business area (Moura et al., 2017, p. 19), also located on my moving count Route 2 . Considering counts taken during rush hour at 19 locations in the Lisbon, between 2017 and 2021, Moura et al. (2021) observed an overall increase of 154% in the comparative volume of cyclists per hour, considering all cyclists observed simultaneously (p. 20).

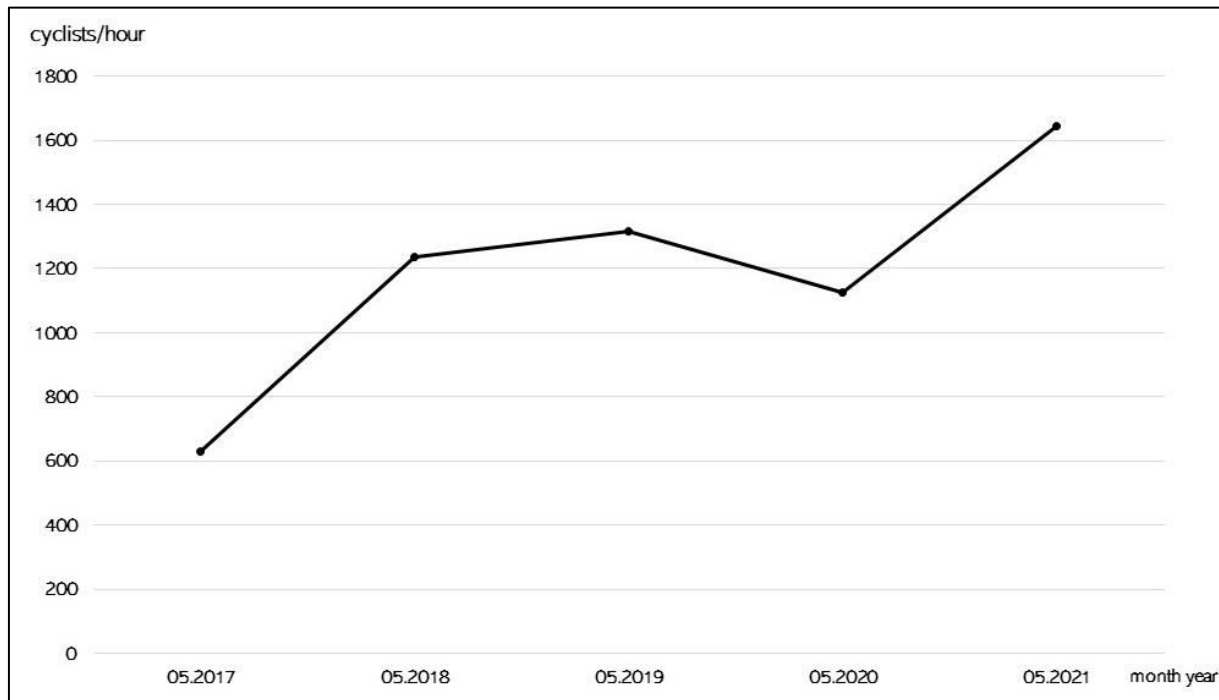


Figure 80
Cycle traffic tendency 19 locations in Lisbon municipality, 2017-2021
 (Moura et al., 2021, p. 20)

- Between 26 January 2016 and 1 November 2021¹⁴, the only permanent inductive loop cycle traffic counter embedded on a city cycleway, registered an uptake of 663% in cyclist and scooter traffic, counted from an average of 266 bicycles or scooters/day during the year of 2016 to 1,763 bicycles or e-scooters/day in 2021 (Câmara Municipal de Lisboa, 2021d).

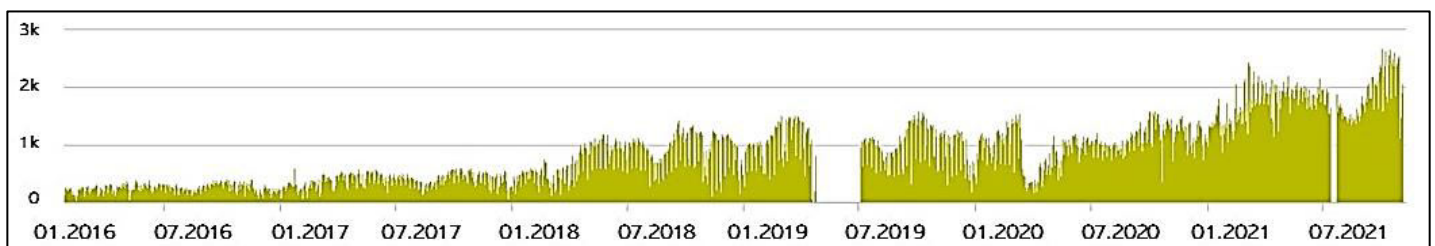


Figure 81
Cycle traffic tendency at the Duque d'Avila cycleway in Lisbon municipality, 2016-2021
 (Câmara Municipal de Lisboa, 2021d)

¹⁴ The data collected from the *Duque d'Avila* cycleway counter stopped being available online for dates after 1 July 2021 since Lisbon Municipality had to pay for the service to be renewed and hadn't done so to date (February 2022).

Contrastingly, the two permanent inductive loop cycle traffic counters embedded on two cycleways in Cascais municipality reveal an undefined tendency between their operational start on 27 and 28 April 2019 and 10 December 2021, with much lower cycle traffic averages than the Lisbon counter.

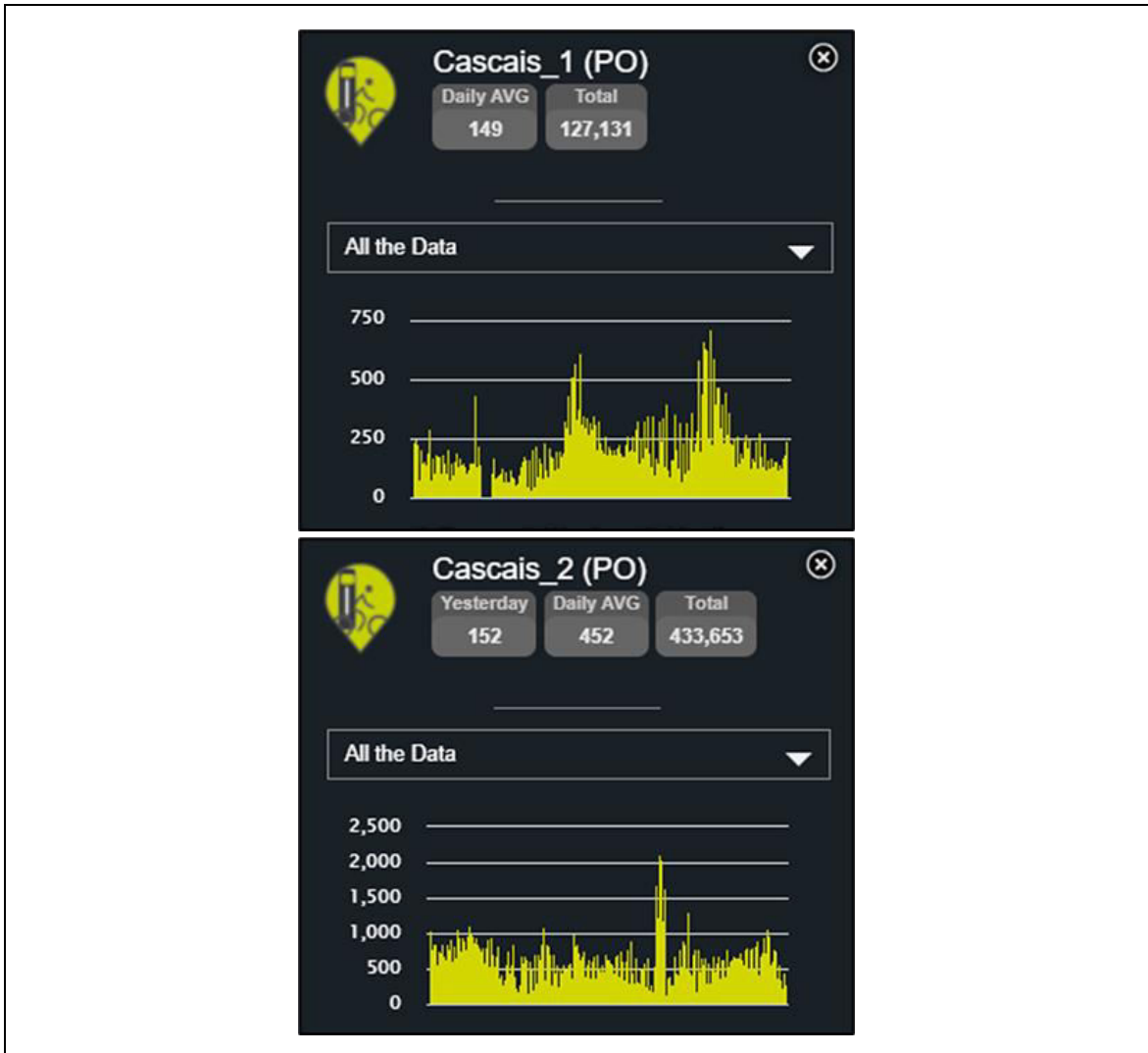


Figure 82

Cycle traffic tendency at two cycleway counters in Cascais municipality 2019-2021
(Eco-Counter, 2021)

- Since 10 July 2021, fixed radar cycle traffic counters have been operating at 34 locations in Lisbon municipality, but from the crests and troughs observed in the graphics there appear to be occasional calibration issues, and possibly due to the short time span an increase is observed but tendencies aren't clear (Câmara Municipal de Lisboa, 2021i; Ciclovias.pt, 2022b).¹⁵

¹⁵ The 34 radar bicycle-traffic counters installed during the Summer of 2021 don't provide a sufficient time period for the case of this ACF study, but they do confirm an increase in cycling (Câmara Municipal de Lisboa, 2021i; Ciclovias.pt, 2022b).

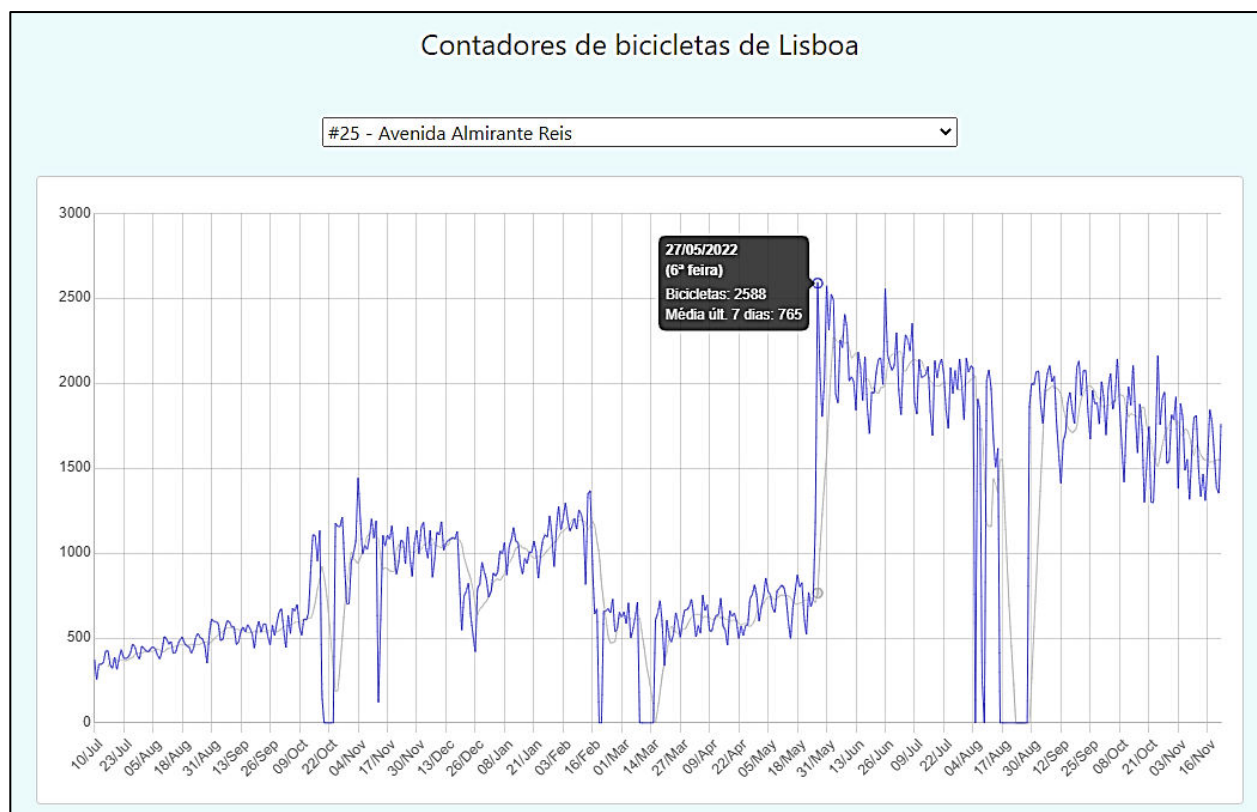


Figure 83
Data from one of the 34 fixed radar cycle traffic counters in Lisbon municipality
 (Ciclovias.pt, 2022b)

- The 2011 and 2021 national census, the 2017 metropolitan area mobility survey, and Lisboa E-Nova's city observatories also provide data corroborating a significant increase in cycling, despite not being perfectly comparable to traffic counts: AML's 0.1% cycling modal share according to the 2011 national census for the longest leg of commutes in the AML (IMT, 2014; INE, 2012), increased to 0.5% of all trips in the 2017 metropolitan area mobility survey (INE, 2018), and also 0.5% as the principal means of transport for commutes according to the 2021 national census (INE, 2022a). Cycling in the AML registered an uptake of 250% —and Lisbon an uptake of 650%— between the 2011 and 2021 national censuses. Oeiras municipality— from 0.1% in modal share to 0.4%, a 400% increase between 2011 and 2021. Cascais, on the other hand, registered a decrease from 1.4% cycling modal share in 2011 to 0,6% in 2021.

With an even more detailed look at Lisbon municipality's mobility system, the Lisboa E-Nova city observatories indicate 1.7% cycling modal share in 2020, of which 1.3% are private bicycles and 0.4% are bikeshare system bicycles. Not accounted for in this research, but of significance is that Lisbon's mobility system also registered 0.6% private e-scooters and 0.4% shared e-scooters in 2020, totalling a micromobility modal share of 2.7% (Lisboa E-Nova, 2022).

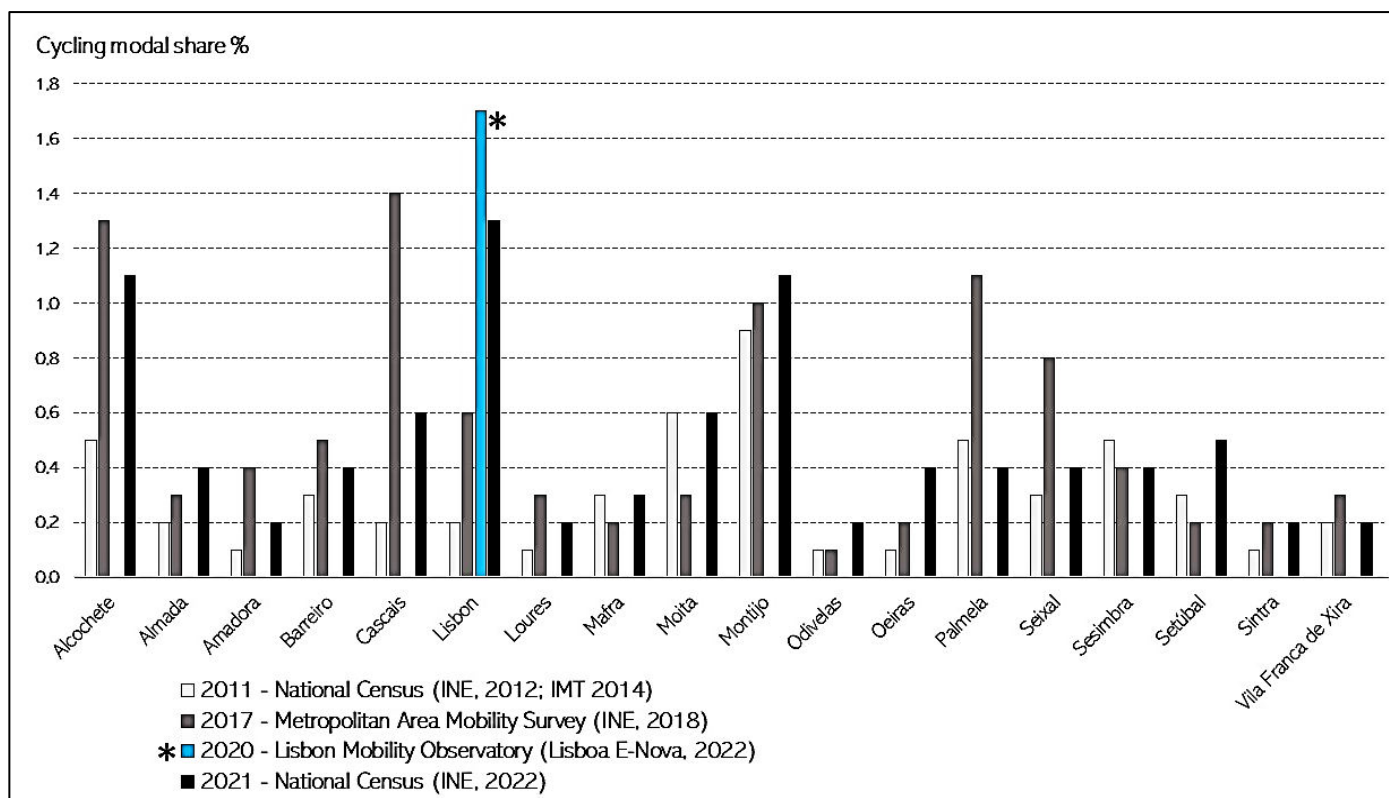


Figure 84
Cycling modal share evolution in the AML municipalities between 2011 and 2021

Other useful cycling data sources also exist from smartphone user applications (apps). Activity apps such as Strava—with the cycling option—and cycling-specific apps such as Naviki provide relevant insights into cycle traffic volumes, gathering sufficient data from its many users to generate heatmaps illustrating routes most used by cyclists worldwide. These applications provide commuter-based information from the data collected—with the limitation of only measuring app-user trips—which in many cases will be equipped commuters, leisure, and sports cyclists but may omit casual daily local mobility trips. These applications interact with other digital platforms providing a useful map of information for comparison of routes used, existing infrastructure, and particularities for each locality. Strava for instance is overlaid on the OpenStreetMap (OSM) platform and can be zoomed for relatively high detail at the urban or regional scale. Insights from these applications provide paths for future research on any city area, being useful for numerous areas of study and providing a clear picture of intensity and preferred routes (at least from the app users). Strava also set up the Strava Metro online platform publishing brief articles with news and insights obtained from the data collected (Strava Metro, 2021).

Naviki was the application used in the European Cycling Challenge (ECC)—an annual one-month app-based competition between interested European cities—which ran between 2012 and 2017 collecting data on trips cycled by participating citizens from these localities. ECC began in 2012 with 7 cities from 6 countries and a total of 715 cyclist participants to 52 cities from 18 countries and 46,000 cyclist participants in 2016. The ECC 2017 edition had the participation of 52 cities and regions also, including AML for the first—and only—time, AMP, and the Aveiro Region. The ECC participating cyclists from the AML travelled 26,281.4km in May 2017, ranking 28/52 participating cities. Aveiro Region ranked 37/52 and the AMP 47/52 (ECC, 2017).

ECC competitions generated heatmaps which were made available online, illustrating the most used routes, and increasing municipal official's awareness of cycling in their area. Lisbon Municipality and Lisboa E-Nova posted information online (Câmara Municipal de Lisboa, 2017), and printed leaflets to mobilise local cyclists for the competition. Lisboa E-Nova officials distributed the ECC leaflets in Lisbon's April CM ride—held on the last Friday of the month—just before the competition began in May. A total of 262 citizens participated in the AML, with only 117 being active participants. Aveiro Region had 228 participants and 89 active participants, which

comparing to the approximately 7.3 times larger AML population base represented a much higher participation *per capita*, on the other hand AMP had 52 participants 25 active participants.



Figure 85
Cycling heatmap of the Lisbon Metropolitan Area
(Strava, 2022)

4.9.3 Linear regression analysis of cycle traffic moving counts

How exactly did cycling perform between 2009 and 2021? What relations can we find with the cycling policy outputs produced? By applying a linear regression analysis to the cycle traffic moving counts, the importance of public policies on cycling can be associated to the policy process, since the policy outputs produced — cycleway network and bikeshare system— are explanatory variables with cycle traffic expressed in bicycles per hour as the outcome of these policy products, the dependent variable. Likewise, municipal jurisdictions are also explanatory variables analysed. Lisbon municipality, for instance, has much greater intensity of cyclists' coalition interactions than does neighbouring Oeiras municipality, recalling the thesis hypothesis that:

A city's change (Lisbon) is a product shaped by coalition action.

The linear regression analysis of data collected from the 2009-2021 cycle traffic moving counts touches upon Veraart & Schipper's (2020) question, "Does policy matter?" Regarding policy change for increased cycling, — with the due limitations— the linear regression suggest that yes policy does matter, significantly (Table 13, below).

Other explanatory variables which are not associated to the cyclists' coalition were also analysed to compare with the policy-related explanatory variables. The non-policy-related control variables with significance were weekend (vs. weekday), rush hour, no-rain (vs rain). Only weekend cycle traffic manifest as being more significant than the policy output variables, suggesting higher intensity of leisure cycling on weekends. No rain days also have some significance, but less so than the policy related output variables.

Table 13 – Linear Regression of Cycle traffic Variables

Model Summary - Bicycles/Hour

<i>R</i>	<i>R</i> ²	<i>Adjusted R</i> ²	<i>Standard Error of the Estimate</i>
0.52	0.27	0.26	104.43

ANOVA - Bicycles/Hour

	<i>Sum of Squares</i>	<i>df</i>	<i>Mean Square</i>	<i>F</i>	<i>Sig.</i>
Regression	8178072.62	9	908674.74	83.32	0.000
Residual	22347051.39	2049	10906.32		
Total	0525124.00	2058			

Coefficients – Bicycles/Hour

	Unstandardised coefficients		Standardised coefficients	<i>t</i>	Significance (<i>p</i> -value)
	<i>B</i>	Standard Error	<i>Beta</i>		
<i>(Constant)</i>	-1147.18	12681.40	0.00	-0.09	0.928
Weekend	186.58	10.51	0.35	17.74	0.000
Rush Hour	15.55	4.79	0.06	3.24	0.001
No Rain	35.39	6.44	0.11	5.50	0.000
Bikeshare	44.25	6.17	0.18	7.17	0.000
Cycleway	83.20	6.46	0.25	12.88	0.000
Lisbon Municipality	35.98	6.35	0.13	5.66	0.000

Policy outputs are significant explanatory variables, with cycling infrastructure being key: the existence of cycleways points to very significant influence, bikeshare is also significant, but not as much as a cycleway network, and Lisbon municipality is also a significant explanatory variable (in comparison to Oeiras municipality).

Qualitatively, the significance of policy outputs was validated by interviewee's perceptions when asked what sparked an increase in cycling in Lisbon, and what they thought of neighbouring Oeiras and Cascais municipality's change. Different actors addressed similar outputs associated with motivating change:

In Lisbon, the bikeshare system and infrastructure. (Interviewee #2 – Epistemic actor)

In Lisbon, the introduction of the Gira (bikeshare system). In Oeiras and Cascais I don't know if there was any event). (Interviewee #3 – Activist)

I think that one of the great moments and milestones that brought people together in the discussion, was the Eixo Central project (which included the Av. Fontes Pereira de Melo – Praça Duque de Saldanha – Avenida da República cycleway) which made a lot of people talk about how we think about the city and about how our city can be different from the one we had. Changing a little the (previous) paradigm focused on the automobile and thinking of a city more for people with different uses for (public) space. I think this project got a lot of people discussing the city they wanted. And I think it brought together many of the people who wanted to cycle, and many of the people who might not yet see (cycling) as a (mobility) option and who do now. I think this was a very important project.

I still remember cycling with my father, absolute leisure, sport, going down to the river and I still remember that there was no cycleway yet... (on the route) that goes from the Tower of Belém to Cais do Sodré. I remember the cycleway didn't exist yet. Perhaps the appearance of this cycleway also motivated people to talk a little bit and people started to think a little more. Deep down I think that the appearance of the first pieces of cycling infrastructure, even if poorly implemented, I think this motivated the appearance of people, and that ended up motivating the appearance of (more cyclists), and people started talking about it and they got together, and many people started to realize that cycling could exist in the city of Lisbon. (Interviewee #11 – Journalist)

From the data analysed, the findings confirm the importance of policy outputs and provide a quantitative picture of the cycling subsystem's performance in Lisbon, demonstrating a clear relation between policy outputs and outcomes. This relation suggests change, a scenario with is also perceived empirically by qualitative insights collected from interviewees.

Nonetheless there are also limitations to the linear regression analysis' relation with cyclists' coalition influence. The linear regression confirms the relation between policy, outputs and outcomes researched —and policy is influenced by coalition actions, coordination, persistence, and intensity— but it doesn't directly answer the cyclists' coalition's relation within the policy process. This relation within the policy process is clarified by a closer look at the policy actors involved and their interactions within the cycling subsystem and the outputs and outcomes produced. The following section analysis this relation between policy actors and their actions in greater detail.

4.10 Coalescing citizens, associations, and social movements

Over time cycling citizens in Lisbon have created forms of subsystem resistance and revival as a mobility practice. This struggle has occurred through both individual actions —by simply cycling, by taking to the road and adapting to a mostly unaware, not to mention frequently hostile physical and social environment— and by diverse means of collective action also. It is the interface between cycling as an individual practice and the

collective actions and manifestations that the cyclists' coalitions undertake that involve entry into the policy process and change. These collective actions and manifestations include the 'human infrastructure' made up of citizen's collective action, starting with the inevitable CM or CM-style rides to other initiatives which have aimed at redrawing the possibilities of public street space and the perception of the city among participants, bystanders, and —from their actions and communication mechanisms—, public opinion. During the first years of the 2009–2021 time frame, for instance, social networks covered what general media mostly ignored regarding cycling —and significantly— some books on normal bicycle use began to be published, explaining both practical matters regarding cycling in Portugal but also the initiatives where common citizens could participate and learn how to overcome common barriers to bicycle-use in the generally bicycle unfriendly setting of Portuguese cities, and easing entry into cycling practice.

For a brief period, between May 2014 and May 2016, an online publication named Pedais.pt run by António Martins Neves reported on cycling related matter, with extensive coverage of cycling as a mobility practice and related events occurring in the country. Likewise, one of Portugal's most important mainstream radio stations —TSF— held a weekly programme focusing on bicycle related matters, including leisure, sports, industry, but also mobility and social issues. TSF Bikes, hosted by José Carlos Barreto gave cycling national radio projection —from 11 January 2014 to 31 December 2020— with mostly leisure and sports-oriented content, but also with occasional pieces on legislation and urban cycling related matters (TSF, 2020).

4.10.1 Lisbon's cycling citizens: resistance and revival

Unintentionally, social network publications, and mainstream books, media publications and programmes communicated a form of citizen association and activism working beyond street level protest rides and social network communication, since the policy issue and subsystem entered the mainstream commercial realm of bookstores but also media, magazines, newspapers and, in some cases, television interviews. Simultaneously activism was growing and spreading beyond Lisbon's city centre, and publications addressing the emerging policy conflict with automobility-centred governance structures began to appear in the social networks, media, and activists' forums, inciting greater public participation. One interviewee —an activist— describes how the policy conflict led to greater citizen participation:

The MUBi letter (MUBi, 2013a)...That's where the public participation starts. That's when (Deputy Mayor) Sá Fernandes begins to distrust MUBi... I think it was with this letter that (Deputy Mayor) Sá Fernandes and (his policy entrepreneurs), etc. thought, hey, these guys (MUBi) are just hitting us on the head, we're just getting upset with this, we're getting hit on the head by ACP, we're getting hit by ACA-M. They lost fuel with this. ... And there were other interested parties, Nunes da Silva who became Deputy Mayor for Mobility and who wanted cycling, but not so much. ...And this letter from MUBi stating that "It was a historic moment" is irony, because in fact there was nothing. (Interviewee #3 – Activist)

The policy discussion spread as common citizens were exposed to an increasing public debate and programmes referring to cycling, unprecedented prior to Lisbon's first cycleway inaugurations, one in 2001, but several since 2009 and the first PPB proposals. This greater exposure and the increasing number of cyclists' initiatives —from leisure rides to CM protest celebrations also gained greater visibility— with more people starting to experiment cycling. A citizen and activist interviewees describe how citizen involvement interrelates with social behaviours —increasing cycling as a practice— and introducing more (new) cyclist citizens within the policy debate also:

The common citizen (has impact) ... one citizen can influence various citizens by his/her attitude. (Interviewee #4 – Citizen)

I was using public transport and later driving to college, and I was so fed up, so fed up, I was really fed up with that lifestyle. I was saturated with that experience...what annoyed me was obviously the

intellectual boredom and the loss of time stuck in a car in traffic... it was almost spiritual, often these routes, from a scenic point of view, suck-up the joy of our soul. I needed to move again. It was a time when I was very sedentary... I started to miss cycling. It was those two things.

Underlying this was my general environmental concern. I wanted to solve the problem fast for me, and solve the more macro problem also... the lifestyle creates unsustainable dynamics. In 2004/2005 I started cycling again. ... Either you give up or you have to do something. ...I had to change, I had to intervene. (Interviewee #6 – Activist)

There is a dimension that is more primitive, in the sense of being the first, which is more under one's skin, the pleasure, the good sensations, the fun of cycling. The person discovers the city in another way... Each part conquered is a discovery that the person appreciates, and then it becomes a habit. And the rest comes from pleasure, which is the essential factor, people feel good because they are exercising their bodies, and a discovery of the city, which does not happen by car, or by public transport. (Interviewee #8 – Activist)

Publications online through media and social networks, radio broadcasts, and books also reflected and contributed to this social change—which was starting at the street level— disseminating this social transition and introducing it into the policy discussion also. Among the most notable publications during this seminal period were two books aiming at depicting cycling as a normal practice in Portuguese cities, namely Laura Alves' & Pedro Carvalho's (2013) *'A Gloriosa Bicicleta – Compêndio de costumes, emoções e desvarios em duas rodas'* (*The Glorious Bicycle – A compendium of fantasies, emotions and rants on two wheels*) and Miguel Barroso's (2017) *'O Livro da Bicicleta'* (*The Bicycle Book*).

Both books provided practical advice for cycling and useful resources for starters. Alves & Carvalho (2013) describe activist initiatives operating in Portugal at the time, with most happening in Lisbon and open to anyone interested (pp. 159-165). Barroso (2017) explained national bicycle use initiatives, entities, and projects available in Portugal at the time, international resources, and recommended reading, plus numerous photographs of cycling citizens and their explanations in a book which debunked many common myths, revealing how cycling is much more universal than what public opinion might consider it to be (pp. 83-87, 104-109, 130-135, 191-196). Besides this publication, Miguel Barroso fostered cycling communication with his online *Lisbon Cycle Chic* publications since August 2010, which initially included a series of cycle rides in the city and an intense activity in the blog and Facebook from the start, and more recently Instagram and Twitter, normalising cycling as a habitual activity by means of photographs of its daily use. Similarly, Laura Alves had prompted the *Maria de Bicicleta* project from February to September 2014, with photographer Vitorino Coragem, a documentary exhibit presenting interviews and photographs of 20 women who cycle for their daily mobility needs, over a period of 20 weeks. The programme culminated with a Lisbon Municipality supported EMW presentation in September 2014, further advancing the normality of cycling as something that's usual and possible among women (Alves, 2014; Maria Bicicleta, 2014).

Impacting photographic productions addressing everyday cycling have been developed by photographer Arthur Lourenço—with *Diário de Lisboa* since 2009 (Lourenço, 2009)— and a number of other productions, namely *Uma Lisboa Ciclista* with photographs of cyclists in Lisbon regularly presented on the social networks since 2014 (Lourenço, 2014), and several exhibits of his photographic work presented in Lisbon, at the national Parliament, and various localities throughout Portugal. Once again, as with *Lisbon Cycle Chic* but with a different perspective, Lourenço's photographs normalise cycling as a habitual mobility practice, with a diversity of people normally dressed, without helmets and no high-viz reflective wear. Lourenço's pictures have had the impact of relating to unique Lisbon locations but also international coverage of alternative cycling events such as *Tweed Cycle Rides*, *L'Eroica*, *A Clássica*, and numerous cycle rides, identifying cycling not only with the city's ambience but with other landscapes, currently organised in different sections of his *Lisbon Cycling 'velocipedic cult'* site (Lourenço, 2021).

Miguel Barroso's *Lisbon Cycle Chic*, Artur Lourenço's photographic productions and Laura Alves' texts all reveal artistic and communicative capacities with the penchant of enhancing the appeal and normality of cycling, while

inserting it into Lisbon's and Portugal's varied contemporary settings. Numerous other citizen's initiatives also helped promote cycling in Lisbon —and throughout Portugal— during this period. Intense activity involved blogs and later social network publications posted by citizens, activists and associations, but also grassroots groups with continuous and extremely varied on-line communications and/or activities. Some examples are *Ciclovia na Marginal* —discussed previously— emerging from a PPB proposal in Oeiras in May 2014 (Ciclovia na Marginal, 2014), *Oeiras Commute* since 2010 (Oeiras Commute, 2010), *Ciclovia*, a national-scale endeavour to track all cycleways in Portugal, conducted by Vitor Fonte Rodrigues from Matosinhos, since 2008 (Ciclovia, 2021). *Ciclovia*'s information provided much of the historical knowledge regarding cycleway implementation in Portugal, including information on several AML localities used in this thesis.

During most of the 2009–2021 time frame Portugal's cyclists' social network interactions generally used Facebook for disseminating information, with numerous posts, discussions, and updates using Facebook-based groups such as *Massa Crítica Lisboa* (since 2009), *A Bicicleta como Meio de Transporte* (since 2010), *Ciclismo Urbano em Portugal* (since 2011), and many other pages, groups, and communities on Facebook. Cyclist citizens' posts also interacted on numerous international Facebook groups such as Mikeal Collville Andersen's *The Slow Bicycle Movement* (since 2008), and more recently an increasing number of publications on Twitter, Instagram, YouTube, and other online platforms.

As with many grassroots and citizens' actions, some of the first on-line citizens' initiatives appeared and disappeared, especially as blogs such as *Um Marginal na Marginal* (a pun in Portuguese, also meaning *A Marginalised person on the Marginal Avenue*) between c. 2006 and c. 2009 (FPCUB, 2007b), —some transitioning from a blog to Facebook— such as *A Costureira Ciclista (The Cycling Seamstress)* between 2013 and 2019 (A Costureira Ciclista, 2013), among several others. Likewise, CM cycle rides in less central localities have also started and disappeared sporadically, or intermittently, while in others continuity and collective action has kept steady or increased throughout several parts of the metropolitan area.

Other non-governmental cycling outputs produced in Lisbon during the 2009-2021 period include cycle tourism measures which also overlap leisure with daily cycling, for instance in 2005 Jorge Didier Mimoso launched *Bike Iberia* —a large-scale bicycle rental shop in the city centre— attracting both tourists and residents to leisure cycling in the city and surroundings, and publishing the city's first printed edition bicycle map in 2014, based on similar prints he had observed previously in North American cities: the *Lisbon Bike Map* (Bikelberia, 2014).

Similarly, Paulo Guerra dos Santos, a road and transport engineer, and long-distance cycling expert, established a national cycleway network since 2011 (Rede Nacional de Cicloturismo - Portugal, 2011), publishing an annual cycle tourism guide of mainland Portugal, with an increasing number of routes surveyed and mapped since 2018 (Ecovias de Portugal, 2021). Other small-business initiatives also appeared during the 2009-2021 period, including new bicycle shops salvaging and repairing old bicycles, and located in different neighbourhoods throughout the city, such as Vitor Peixoto's *RCicla* bike shop, repair, and very low-cost rental, teamed-up with Marco Costa's *Grémio* vegan café opening May 2014 (Camisola Amarela, 2014; Jornal i, 2014a), Pedro Gil's *VeloCorvo* since c. 2013, and Salvador Esteve's *Salva Bicla*'s since c. 2015, these locations also served as focal points for cyclists and continue to do so. The *Velo-cité* café/bicycle shop launched by João Camolas and Rui Amador also played a focal role between 2012 and 2018, located on the newly concluded *Duque d'Avila* cycleway. Each of these individuals has a history with cycling worth further research.

João Camolas became one of Lisbon's leading cycling advisors for city hall —starting for Deputy Mayor Sá Fernandes, with advisor Duarte Mata who together were key in placing cycling on the decision-making agenda and getting outputs done, with Camolas continuing as advisor to Deputy Mayor Miguel Gaspar during the 2017-2021 mandate, when all cycling matters were transferred officially to the Mobility Department. Rui Amador later launched the *Bicivay* bicycle parking company which has developed bicycle parking and storage solutions implemented throughout Portugal and beyond the national borders. Beyond the city limits, in the AML there are other examples worth further research, such as *Pinto & Mourão* (a.k.a *Oeiras Bike*) in Santo Amaro de Oeiras, a family-run bicycle shop and repair location operating since 1948, visited by both leisure and mobility-oriented cyclists.

4.10.2 Lisbon's cycling associations and grassroots movements, boosted by internet

The existence of a vibrant, active cycling cultural base is crucial to feed continuous, perseverant coalition-building and influence. Lisbon's existing cyclists' associations (FPCUB since 1987, MUBi since 2009, Cicloda since 2014) were all fundamental in different ways. Cicloda has emerged as a cyclist's association from CM and 'Cicloficina dos Anjos' with constant involvement in local and infra-local cycling issues in Lisbon and where there are 'Cicloficina' bicycle repair movements. FPCUB and MUBi have both become relatively influential associations, emerging from different origins, with FPCUB rarely cooperating with other cyclists' associations. MUBi on the other hand has managed to cooperate regularly with Portugal's sports cycling federation UVP-FPC. UVP-FPC's Sandro Araújo has been pivotal strengthening the relation between sports and mobility cycling, especially since 2012 as member of the cycling federation's board of directors and since 2013 as vice president. MUBi has also established close ties with the pedestrian's association ACA-M and the vulnerable road users' umbrella association Estrada Viva from the start, with key coordination from Mário Alves even before the urban cyclists' association was founded, joining and coordination among a diverse group of NGO's aiming at decreasing road danger and reclaiming the streets.

MUBi emerged in 2009 associated with the monthly CM cycle rides which in Lisbon started on a regular basis in 2003, gaining momentum during a decade, and, according to Félix et al. (2019) became relatively ineffective in the city core after 2012 (p. 9). Contrastingly, in the outlying municipalities of Oeiras and Cascais, with a lower intensity of collective action and pressure, and a much greater reluctance to implement cycling outputs, CM cycle rides appeared much later, in 2015 -sparked by the Oeiras 2014 PPB winning results for the coastal cycleway and the municipal refusal to implement- but were never as intense or persistent as in the city core.

In Lisbon, CM cycle rides have persisted regularly for almost twenty years —with participation decreasing significantly when infrastructure began to be implemented at a stronger pace in the city (2016- 2021)— but quickly reappearing with greater robustness in critical moments when cycling infrastructure was placed at risk. One example of quick mobilisation was when Lisbon's PSD/CDS opposition questioned the new cycleways being implemented the central *Av. Fontes Pereira de Melo- Saldanha-Av. da República* central traffic artery, another was when the newly elected mayor took office with one of the campaign promises being the removal of a key newly implemented cycleway on *Av. Almirante Reis*. A CM-style cycling protest joined around one thousand cyclists very quickly —plus approximately one hundred pedestrians and climate activists— preceded by a letter signed by 43 local and national associations of varied social areas. The October 2022 *Almirante Reis* cycle protest was the most participated CM-style ride ever held in Lisbon (Lusa, 2021a). Regarding these types of protests, interviewees addressed the centrality of CM rides: "...*Critical Mass was really important*" (Interviewee #2 – Epistemic actor). CM is also pointed out as a binding element of activism: "*It really was Critical Mass. We started participating around 2004, 2005 ... The aggregating blog appeared in 2007 or 2008. ...At that time, I met several people through blogs.*" (Interviewee #6 – Activist)

As previously discussed, CM and other protest cycle rides are key collective actions to start sparking policy influence aiming at introducing cycling in a setting where it has been sidelined from the political agenda (Flynn, 2016). Protest or celebratory rides need regularity and frequent action —but also a prolonged period of intense coalition work in several dimensions— since the policy making agenda is much slower at learning, changing and responding. This kind of intensity was observed in Lisbon, with a crescendo of coalition action related to the regularly held CM rides since 2003 and taking other forms —with policy actors associating in different ways— over time.

In contrast, in the outlying Oeiras and Cascais municipalities the peak of CM activism only lasted two to three years, and after initiating with *Ciclovia na Marginal* since 2014, was partially fed by Lisbon's core municipality with the annual *Mega-Massa Crítica Lisboa–Oeiras* held between 2015 and 2017 and its policy actors. Among coalition actors with knowledge or some sort of involvement in Lisbon's cycling scenario over the two decades

(2003-2023) several mention CM as one of the key factors triggering greater collective action and fostering it over time. Nonetheless, interviewee's opinions vary as to its causes, with an activist summing possible reasons:

"We were in particularly bad shape regarding accidents and congestion. Critical Mass was important, it was the cradle of many things. ... Why did Critical Mass appear when it did? And why did it have adherents when it did?... I have an idea, or at least some intuition, that the issue of Critical Mass at that time, or some movements in that direction, might have been because we reached a saturation point." (Interviewee #6 – Activist)

Lisbon's CM has been an important focal point for different cycling and street-space struggles, with occasional participation from other types of coalition policy interactions joining in these monthly meetings. Technical visits from foreign cyclists' delegations to Lisbon, for instance, participated at different moments, including coalition meetings integrated with other events, such as the VOCA – Volunteers of Cycling Academy meeting hosted by MUBi—in Lisbon—in February 2013. Twelve cyclists' associations from European countries participated in VOCA—including MUBi from Portugal. VOCA was an EU-funded learning partnership programme coordinated by the Polish environmentalist and sustainable transport association Zielone Mazowsze, meeting in different participant country cities between 2011 and 2013. In Lisbon VOCA participants joined CM, as narrated by the Hungarian cyclists' association on their visit report: *"The program was part of the local "critical mass" due on the last Friday of each month, which really serves to raise awareness and promote cycling with a few hundred participants."* (Magyar Kerékpárosklub, 2013)

CM has also mobilised to show the strength and will of the local cyclists' coalition in key moments, and since it only occurs once a month, it is viewed by some as an important fostering moment for activism and for other cycling-related projects with closer associations to citizens than to formal organisations. A Lisbon activist suggests that regularity is important to keep the policy community linked, ensure communication and trust among participants, and projects working beyond the boundaries of the CM as a street occupying event for a few hours each month:

Critical Mass is important to communicate outwards by its size, now in terms of nurturing the community it needs regularity ...Trusting the other person, what they want to do, their interests, their values regarding that issue. ...This issue of trust is very important. ...

In participatory terms...regularity, in the past you had fewer people, but it was a consistent thing. ... You saw the person once a month, you talked, you got to know people little by little, and from this familiarity that you developed, you realised that they have common interests, which, you also develop in the meantime... 'Cicloficina' and MUBi emerged from Critical Mass. It stopped functioning as this melting pot of creativity, of cooperation. ... We cannot continue to debate and discuss on social media; we must meet each other. (Interviewee #6 – Activist)

A citizen also mentions the importance of the social networks, with impacts from *Ciclovía na Marginal* group which had proposed the winning proposals for cycleways in Oeiras' PPB since 2014—systematically rejected by the municipality—but intensifying social network activity and involved in the creation of a political association and a party coalition for local government in 2021. In many ways the cyclists' coalition grew with social network action: *"I notice this in the social networks... 'Ciclovía na Marginal' and other groups of cyclists on the social networks."* (Interviewee #1 – Citizen)

Internet communications and social networks played a role joining like-minded citizens in a relatively bicycle-unfriendly city. But physical action was also required to trigger change and in Lisbon this influence for transition occurred in a variety of ways—through CM rides, *Cicloficina* community bicycle organisations, bike-to-school initiatives—and other related programmes. In some cases these events also reached out to the municipality and other governance entities—e.g. Lisboa-E-Nova's bike-to-work *Um dia a pedalar, porque não?* and bike-to-school initiatives, Lisbon Municipality's bike-to-school trains—raising awareness within these structures and increasing their relations with cyclists' associations which got involved. These initiatives also engrossed coalition actions and membership, while demonstrating local governments' and governance networks' importance to leverage interactions for change.

CM initiatives in Lisbon are directly linked to other forms of citizen driven co-governance and involvement, namely the *Cicloficina* community bicycle organisations existing in Lisbon since February 2007 (Cicloficina, 2013) and in November 2014 its formal association CICLODA - *Associação Oficina da Ciclomobilidade* (Cicloda, 2021), the formation of the urban cyclists' association MUBi in March 2009 (MUBi, 2010), and on a more informal but regular basis the cyclists' movement was nurtured through intensive internet social network actions from numerous individuals, either integrated with pre-existing activism or joining in during this period of cyclist activism growth.

The internet also demonstrated its function as a practical means for communicating in a large, sprawled city, empowering grassroots activism through greater outreach to citizens. Organisationally the initial CM e-mail list *Bicicletada_Lx* was important for exchanging ideas, discussions and coordination, and in the blogosphere culture of the first decade of the 2000's *Planeta Bicicultura*, —which took form online since 2008— centralised regular posts from 65 bicycle-use related blogs in a single site providing varied sources of information on cycling related issues (Planeta Bicicultura, 2021). MUBi's foundation in 2009 also gave form to a very active communications e-mail list —spinning-off from the practices of the *Bicicletada_Lx* e-mailing lists— and with several similarities and many of the same individuals involved. MUBi's communicative tools evolved to an online forum at the start of 2015, which is still active online, and the seminal *Bicicletada_Lx* e-mail list still exists in 2022, despite having much less significance. Current practices work through a wider diversity of even more encompassing and immediate on-line platforms for communication and coordination including Whatsapp and other social network conversations and groups.

MUBi was one of the most important information vehicles for me. ... I think maybe the fact that the internet exists, and that the internet is a meeting place, and that there was a group that at the time still seemed quite restricted, and there was, perhaps, a community that you could count with the fingers of two hands, from people who really cycled in the city of Lisbon. But these people were finding each other, and then they were finding others, I think I got there that way. I think that the internet and the possibilities it offers ended up making it possible for a group that was very small and dispersed to meet; forums, social networks, places on the internet that allow people to meet, I think that was it. (Interviewee #11 – Journalist)

An important online citizen-based initiative is that of open-source mapping tools, which display cycling infrastructure in many cases where there were no other sources. *CicloviasLx*, developed by Francisco Seixas since 2009 is the key cycle map for Lisbon, initially focused on Lisbon's cycleway network as an open-source cycling infrastructure map with cycleways, bikeshare systems, bicycle parking and other functions, it was updated to *Ciclovias.pt* in May 2020 with new functionalities added and API's linking information from several bikeshare systems operating in Portuguese localities (Ciclovias.pt, 2021; Seixas, 2020). Francisco Seixas' *Ciclovias.pt* has been a crucial tool to obtain knowledge used in this thesis regarding cycleway network implementation in the AML, providing a more complete picture of what has been implemented in Portugal than the international OpenStreetMap.org map, which despite including cycling infrastructure, information is not as up to date or comprehensive. *Ciclovias.pt* is the only application currently providing bikeshare system API links with operators, and besides Lisboa E-Nova – Energy and Environment Agency and Mario Rui André's online publication *Lisboa para Pessoas*, it was the first and still one of the few sites with information from the 34 bicycle traffic sensors installed.

On a final note regarding online cyclists' coalition action, a translation of the Cycling Embassy of Great Britain's 'Cycling Fallacies' site was realised in June, 2016 by a Lisbon cyclists' coalition citizen (Pereira & Costello, 2016), becoming one of the first languages fully translated on the *cyclingfallacies.com* site, from a template of short, clear explanations to debunk common myths about cycling (Cycling Fallacies, 2016).

4.10.3 Cyclist organisations' dynamics

Portugal's cyclists' and cycling-related associations are numerous, but an effective national level umbrella association uniting all of these organisations does not exist, and an activist/industry FCCO is also missing in Portugal. Considering the significant size of the country's bicycle manufacturing and parts industry, the fact that an FCCO for all cycling related policy organisations doesn't exist suggest that national-level coalition coordination issues exist. Such an FCCO could be established by including the existing associations —Braga Ciclável, Ciclaveiro, Cicloda, FPCUB, UVP-FPC, MUBi, etc.— and industry (ABIMOTA) with adequate articulation. A major hindrance referred to by several interviewees is that national cyclists' organisations haven't been capable of coalescing. Some blame part of the problem due to the particularities of the largest and only national bicycle-users' organisation —FPCUB the Portuguese Cycle Tourism and Bicycle Users' Federation— while the other large organisation —UVP-FPC the Portuguese Cycling Federation— is mostly a sports cycling organisation and not a cyclists' for mobility association as its core focus. At a broader level, the inexistence of public policies encouraging this unification of efforts haven't helped speed-up the policy process, since there is no national umbrella interest group linked with government or a national CS.

Another hindrance is that there are no regional-level cyclists' interest groups with sufficient autonomy, scale, and dialogue for an FCCO. There is no metropolitan area-wide dedicated cyclists' organisation in the AML. Existing association initiatives are either fragmented among associations or dispersed in smaller working groups —for each municipality, for instance— or diffused in vaster-scale national policy campaigns, such as national election issues, or municipal issues preceding municipal elections occurring nationwide. Since there is a policy struggle in various municipalities of the AML —and in some cases this has led to protracted, long-lasting struggles by some local groups— the fact that a formal, permanent (cyclists') interest group coalition hasn't been established points to a handicap in achieving effective social change in the larger Lisbon FUA in comparison to the core city areas. This transitional lag is aggravated by the non-existence of politically relevant —elected— regional structures, such as an AML regional government and a corresponding regional level cyclists' interest group coalition.

Reciprocal policy influence between European-level policy and national, regional and local-level policy-making structures, as concerns cyclists' interest groups, is reflected in the ECF, CONEBI, and CIE, as an interest group coalition dealing with specific subsystem issues, established from affiliate membership, and with stable resources and operating structures accomplishing the policy-focused tasks, many of which are informed from, distributed and replicated from/to national-scale member-organisations in European countries. Those with the most intense activity and organisation at a national level —which also emanates from local cyclists' coalition groups with the most effective influence in their cities— have also contributed with greater organisational task achievements and influence.

Portugal's ECF member associations —FPCUB and MUBi— have contributed with content and membership activities, and participate in ECF venues, but there are no Portuguese board members or project managers in this European level interest group, and relations between FPCUB and MUBi aren't optimal. FPCUB also has had issues with and other cyclists' groups also. FPCUB, for instance, had withheld funds attributed to a project developed by *Cicloficina* and awarded with an EC prize under the '*Do The Right Mix*' sustainable mobility programme (Cicloficina, 2015), leading to *Cicloficina* formally associating and creating Cicloda. On the other as an ECF-member who would have to approve MUBi's access to ECF European Leadership programme funds aiming to help small associations grow larger, FPCUB stalled in 2017-2018, and the programme was later cancelled, according to an anonymous source at MUBi involved in the issue at the time. More promisingly, however, is relations between Cicloda/*Cicloficina*, MUBi, and UVP-FPC have been excellent, and a cooperation and information sharing protocol celebrated between MUBi and UVP-FPC in December 2014 (MUBi, 2014d).

The problem of lack of articulation is known in Lisbon's cyclists' community, and also to various policy actors from different areas:

There was Zé Caetano (founder and president of FPCUB since 1987), there was MUBi, that was created at that time, Critical Mass had some representatives who later appeared here..., and later the Portuguese Cycling Federation (UVP-FPC). And with these four groups we started to design the network. With positions sometimes radically opposite. There were those who defended... that more than cycling lanes, what was important was taking cars.” (Interviewee #9 – Former Policy Broker)

(Does not take risks) FPCUB, since it is politically compromised, it does not want to let politicians down. (Taking risks) Critical mass, citizens. Even if they work in an organisation, they take off their hats and participate as citizens. (Interviewee #2 – Epistemic actor)

Cycling is unique, and there are many ways to cycle, but most of the organisations are closed within themselves each...all of them. They all seek to play a leading role, to influence whoever decides, and they never worked together. (Interviewee #4 – Citizen)

Also symptomatic of the lack of national-level coalition intensity and coordination in Portugal is the lack of regional policies for associative articulation between cyclists’ interest groups. This lack of regional policy is reflected at the metropolitan level in the AML also, since there is no regional level cyclists’ association or governance structure. National level cyclists’ associations focus on mobility issues is most intense and disproportionately concentrated in Lisbon municipality and to a lesser extent, occasionally in outlying AML municipalities, Porto, Aveiro, Braga, Algarve region, and a few isolated cases beyond that.

Event parallels triggering infra-local cyclist coalitions

Considering other types of informal association in different AML localities —beyond Lisbon’s city limits, between 2009 and 2021— cyclist citizens and groups acted with increasing intensity on the social networks, and participation in CM bicycle rides; besides Lisbon’s monthly CM ride, three examples which have persisted in the AML until 2022 are *Massa Crítica Almada* with regular rides since 2011, *Massa Crítica de Santa Iria* and *Massa Crítica de Oeiras*, with intermittent rides since 2011 and 2015 respectively. As previously discussed, in Lisbon, CM also transformed, fragmented, and generated other movements, as noted by an activist:

Historically it was observed that with the breakdown of Critical Mass, which mobilised 600 or so people, then declined a little, from 2009-2010... it was perhaps the peak of Critical Mass. It fragmented. ... People did not stop cycling; they broke up into various groups. (Interviewee #8 – Activist)

Another more recent spin-off from CM rides and the work of cyclist citizens are the bike-to-school trains. In Portugal the prototype action preceding bike-to-school trains was started by MUBi articulating with Lisboa E-Nova, introducing a Bike to School day programme in fourteen city schools during the Spring of 2014, reaching out to over 200 students in the city, plus teachers and some interested parents (MUBi, 2014a, 2014b). In this case Bike to School was a spin-off from Lisboa E-Nova’s ‘*Um dia a pedalar, porque não?*’ bike-to-work day (Pereira, 2022) leveraged by MUBi.

Bike to School also provided a real-life sample of what other programmes could do. The bike-to-school trains, for instance, were launched by João Bernardino the year following the MUBi Bike to School project — coordinated by Ricardo Ferreira, João Bernardino, and myself, with the support of several MUBi members during the preparation and rides. Bernardino coordinated for support from Sofia Lima, supervisor for mobility at *Junta de Freguesia do Parque das Nações*, the infra-local borough government at Parque das Nações, joined by Gonçalo Peres. The *CicloExpresso do Oriente* started in Lisbon’s *Parque das Nações* neighbourhood in 2015, later evolving into the municipally sponsored bike-to-school trains ‘*Comboios de Bicicletas*’, a programme with eighteen routes serving eleven schools the city since 2020 with (Câmara Municipal de Lisboa, 2021g). Bike-to-school trains were replicated in several locations throughout Portugal, including *CicloExpresso Aveiro* since 2017 (CicloExpresso, 2021) expanded in 2020 as a PPB winning proposal involving a significant local coalition and the Municipality of Aveiro (Rota Segura para a Escola, 2022). In the AML ‘*Alfragide Sobre*

Rodas' activated bike-to-school trains in the municipality of Amadora since April 2021 (Alfragide Sobre Rodas, 2021).

In Lisbon the bike-to-school initiatives also coincided with the 'Lisboa Sem Rodinhas' cycling lessons for school children, launched by the Municipality in 2019, promoting generalised bicycle use for elementary school-aged children (Câmara Municipal de Lisboa, 2021e), while annual 'Hands Up' surveys have been realised at schools to understand student's mobility habits in the city since 2018 (Câmara Municipal de Lisboa, 2021f).

A series of other actions realised by the cyclists' coalition directly or indirectly continued to evolve between 2009 and 2022 from local CM rides. These CM rides and their offspring have functioned as crucial social mechanism for coalition building, as described by an activist interviewed:

I witnessed... forums which were held with the guys from Critical Mass, election candidates were invited to include cycling in their political programs, organisations and mobilisations were done to form associations such as MUBi, joining people for 'Cicloficina', for cycle rides, for races, for Alley-Cats (which were held between c. 2011 and 2015 or 2016). The bicycle is above all a social meeting point. Deeply social. The amount of people I met thanks to bicycle-use activities is much greater than the amount of people I met by other means. Many people know 'Cicloficina' because it also has this thing that the 'Federation' (FPCUB) and MUBi don't, which is a physical site. It's a place where people can see bicycles and parts, and get their hands dirty. But there are also other associations, one that is not an association, it is an event that is the 'Ride Lisboa', or the 'Alley Cats' that used to happen. (Ride Lisbon) is a group of people who get together, they use Strava a lot and go on a night tour of Lisbon, in certain sections, to beat records. (Interviewee #8 – Activist)

Lisbon's cyclists' coalition didn't evolve linearly, but through a set of developments, set-backs, stalls, varying metamorphoses, and reorganisation of social actions over time. The cyclist's coalition evolved from a general process which—in several cases—passed informal CM to collective organisations to finally entering into the institutional policy process, but also from apparently less impacting parallel developments associated to municipal decisions with much more discrete links to the cyclists' coalition. Cascais' municipal decision to build a cycleway in 1996 or implement a bikeshare system in 2001, improve it in 2005, and overhaul it completely in 2016 were apparently internal decisions, as were other similar decisions with Lisbon's first cycleway in 2001 or Almada's cycle plan in 2005, emanating from within the political and institutional structures governing at the time, instead of permeating from cyclists' coalition coordination and intense action. But the growing intensity of policy process for change, with consistent formulation and implementation for impacting outputs over time isn't evident in Cascais or Almada where coalition intensity hasn't been persistent, unlike in Lisbon municipality.

Furthering institutional and systemic organisation in Lisbon

The role of cyclists' coalitions is complex and multipronged. On one hand coalitions seek a place in the bargaining table, participating in policy issues by means of idea transfer and exchange, providing new perspectives, but also entering the institutional process with key policy actors. These policy actors—policy brokers, entrepreneurs epistemic actors and citizens—provide new insights through diverse means, influencing decisions which integrate cycling into the governance systems defining the process and decisions taken. As an opportunity which is aligned with coalition building, the institutional arrangements are pointed out as one of the areas for influence as cyclists' coalition members mature:

In Lisbon, many people continued to fight for better conditions by bicycle, but no longer going to paint sharrows at night, but in other, more diplomatic ways, a more diplomatic activism. (Interviewee #2 – Epistemic actor)

I feel that there was, I don't know if it's the right word, a certain professionalisation in MUBi's performance -I don't think it's the right word, it's not a professional association-... And I think that the links with the

Lisbon municipality have strengthened, and I know that MUBi also has other active sections, in Aveiro, which I think do a very good job, despite the local government. Therefore, I think the major difference was that it came to be highly regarded in municipal governments, especially in Lisbon, so it started to be consulted and it also sought being consulted. ...I think the opening of municipal governments to listen to these associations counts a great deal, and I think that maybe it happened with greater intensity, I would even say in Lisbon with (Mayor) Fernando Medina, more than with (his preceding Mayor) António Costa, it seems to me. (Interviewee #11 – Journalist)

At the national level a promising note is the organisation of Portugal's robust cycling industry, —which despite requiring further articulation with cyclists' associations, activism, and citizens— it already seems to be working with some of the epistemic groups, if not regularly, at least occasionally. Portuguese cycling industry figures have been involved in the CONEBI structures —diversifying coalition influence at the industry and international levels— and ABIMOTA is making its presence heard in national media with greater frequency.

By advancing one step further, with regular articulation with the media, activists and associations Portugal's cycling industry has an enormous untapped potential for influence and effective policy transfer and learning work with Portuguese cities and regions, sharing, and disseminating know-how with national and municipal government structures which can have an incredible impact in localities nationwide —including the AML— its largest national market region. In this respect lessons from coordination in Lisbon could be adapted for use in other cities —not only in Portugal— but wherever a national Portuguese CS or a Portuguese Cycling Embassy finds opportunities to provide optimal policy articulation associated between the cycling industry, epistemic groups, associations, activism, and government structures working on an urban, social, environmental, climate and also economic transition including cycling.

4.10.4 Lisbon's epistemic cyclists' communities

Lisbon's cyclists' epistemic community has a significant expert group in various areas, and includes an important academic base with an increasing number of outputs produced. The academic side of the epistemic community has interacted with numerous policy actors while working in numerous universities and higher learning institutes and establishing international partnerships in varied research fronts. University of Lisbon's (UL) *Instituto Superior Técnico* (IST) with a focus on engineering, especially through the CESIR research unit and the U-Shift group with Filipe Moura, Rosa Félix, Paulo Cambra, and Ricardo Sobral, among others (U-Shift, 2021b). Patrícia C. Melo's extensive research on urban, regional transport and mobility economics at UL's Lisbon School of Economics & Management *Instituto Superior de Economia e Gestão* (ISEG) UECE and ISEG/REM research units (Melo, 2021). UL's Faculty of Architecture has several different epistemic networks and partnerships addressing cycling also, with the research unit *Centro de Investigação em Arquitetura, Urbanismo e Design* (CIAUD) producing relevant outputs. Most significantly António Pedro Figueredo and David Vale developed the comprehensive Bicycle Friendly Index (BFI) of Portugal's municipalities (Figueredo & Vale, 2018), currently housed under the URBinLAB research programme, and João Marrana and Francisco Serdoura researched cycling as the 'new' mobility (Marrana & Serdoura, 2016), and cycling policy and strategy implementation exemplified by Lisbon's cycleway network evolution (Marrana & Serdoura, 2017). Ana Santos at the University of Lisbon's Faculty of Human Kinetics has conducted ethnographic research and multidisciplinary work addressing cycling with several epistemic outputs produced, including a commemorative bicycle tour passing by several historic sports related localities in Lisbon and Oeiras municipalities in 2016, including the site where Lisbon's first velodrome used to be located at (in Algés, from 1896 to c. 1905), organised by the UL FMH with the ACL, the Lisbon cycling association (FMH | ACL, 2016), and also the 'Dar a Volta' national cycling tour in 2017 with a seminar at FMH in March 2017, addressing the work she developed and presentations from numerous experts and scholars studying cycling, cycle-tourism, and cycling related matters.

Lisbon's *Centro Interuniversitário de História das Ciências e da Tecnologia* (CIUHCT), an interuniversity research centre for the history of sciences and technology between the University of Lisbon's Faculty of Science (FCUL) and NOVA University's (UNL) Faculty of Science and Technology (FCT) has been researching the socio-historical-technological dimensions of automobility and motorisation addressing several different dimensions of cycling with the research being led by M. Luísa de Sousa from UNL FCT and João Machado from UL FCUL. Most recently a CIUHCT Hi-BicLab research group was created to explore "*Lisbon's historical experience with cycling mobilities, as well as the factors that prevented or promoted their use, arguing that history is important in contributing to fairer urban mobilities*" with an extensive multidisciplinary research team from several Portuguese universities, with M. Luísa Sousa (CIUHCT, FCT NOVA), David Vale (CIAUD, FAUL), Diego Cavalcanti Araújo (CIUHCT, FCT NOVA), Patrícia C. Melo (UECE, ISEG/UL), Jaume Valentines-Álvarez (CIUHCT, FCT NOVA), Cristina Luís (CIUHCT, FCUL), João Machado (CIUHCT, FCT NOVA), Bernardo Campos Pereira (GOVCOPP, UA), and Hugo Silveira Pereira (CIUHCT, FCT NOVA) developing several initiatives and producing research work in 2022 and 2023 (CIUHCT, 2022).

Miguel Atanásio Carvalho from Lisbon's University Institute ISCTE is an epistemic actor with prolific communications and keen insights into the microeconomics, economics, and social biases of automobility's dominance in Portugal's, and especially Lisbon's contemporary setting. Many other actors not listed here are also working on numerous epistemic projects either as researchers, project-members or experts researching, developing, and advancing knowledge on the different dimensions of cycling, interacting with numerous municipalities, government organisms and governance structures throughout the country, including Lisbon and other AML municipalities. The role of epistemic communities is addressed by policy brokers interviewed, pointing to their crucial work for future developments:

Since its institutional founding MUBi has had an important role around a set of legislative outputs. And our support in relation to the 2011 census so that the bicycle could be registered. We did very important political work in this matter. And now you are working with José Carlos Mota, one of the most important people in this area (of placing sustainable mobility and cities in the institutional agenda). (Interviewee #9 – Former Policy Broker)

AML and the work being done at Técnico (IST)... Cascais has had an important role in the dissemination of extremely innovative things, not least because it leapt out, it didn't wait and delegate powers to the Metropolitan Transport Authority. ... They realized that in fact this is not done by the sum of parts, this is done by another type of vision. (Interviewee #9 – Former Policy Broker)

Research units studying different dimensions of cycling are also present in several important Portuguese universities outside AML, addressing crucial issues regarding the cycling subsystem. University of Aveiro (UA) is the most prominent, with numerous key outputs produced under José Carlos Mota's leadership such as the *Promoção do Valor Económico da Bicicleta* promoting the economic benefits of cycling in partnership with Portugal's bicycle industry ABIMOTA (2013), *Plataforma Tecnológica da Bicicleta* a platform for knowledge transfer and learning (since 2014), *Compromisso pela Bicicleta* a national level partnership with key policy organisations from diverse areas aiming at increasing commitment to cycling as a key mobility mode (2016), the ECF Scientists for Cycling Colloquium 2016 Aveiro at the UA campus (*Plataforma Tecnológica da Bicicleta e Mobilidade Suave*, 2016), and L3P *Laboratório de Planeamento e Políticas Públicas* (since 2016) promoting sustainable urban and territorial planning and policies focusing on citizenship and public participation, sustainable mobility, public space, and social (L3P, 2022). Under the L3P lab University of Aveiro and University of Porto (UP) organised the BooST programme with Portuguese municipalities, as addressed previously (section 3.5.3 – Policy transfer mechanisms). UP has produced significant publications, seminars, and research initiatives produced under the leadership of Cecília Silva, advancing relevant knowledge on the cycling subsystem. Other epistemic work on different aspects of the cycling subsystem have also advanced at the University of Minho (UM), University of Coimbra (UC), other higher learning institutions, and innovation and research and development (R&D) centres. Several have conducted research and projects directly involving participation from AML municipalities, such as UA and UP's BooST programme, or CEiiA, a research and design

(R&D) centre based in Matosinhos (AMP), which worked closely with Cascais Municipality developing the municipal bikeshare system, universal bicycle parking scheme and docks, 'Mobicascais'.

4.10.5 Lisbon's cyclists' coalition: from citizens to collective action

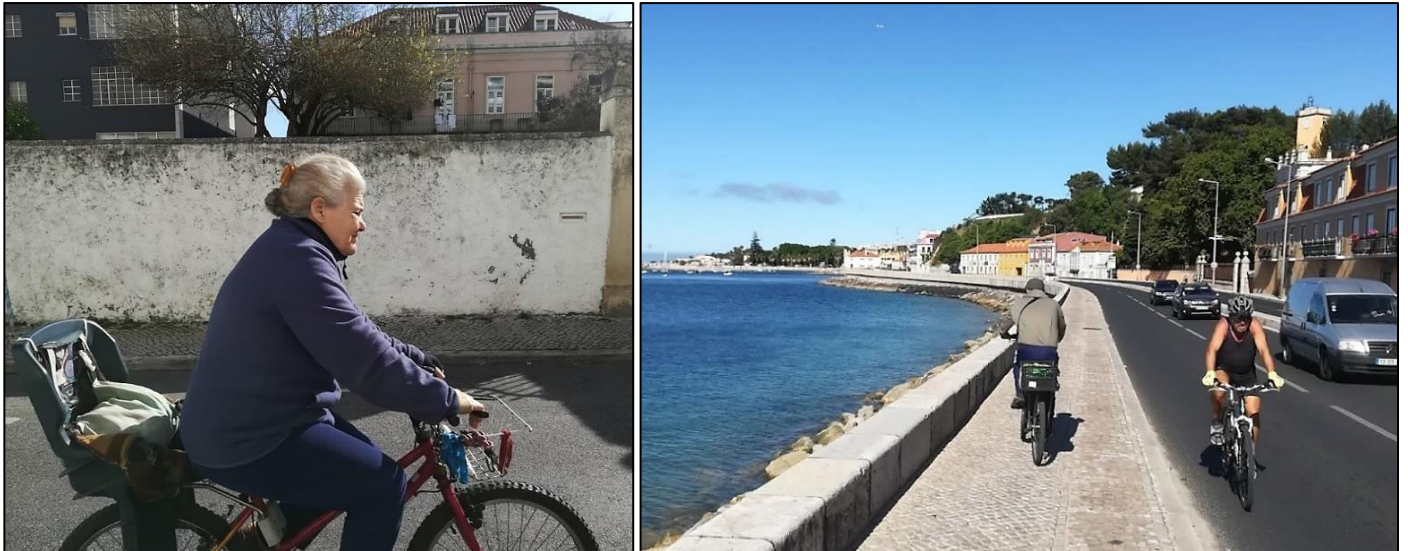
Cycling has undoubtedly increased in Lisbon, gaining notoriety, entering the policy agenda, and the coalition of cyclists has influenced the policy process and contributed to policy change in Lisbon's municipal mobility paradigm between 2009 and 2021, but not so relevantly in the outlying AML municipalities. The impacting influence in Lisbon Municipality is addressed in policy debates, increasing organisation on behalf of cyclists, outputs produced in the city, especially between 2016 and 2021, and the growing number of cyclists confirmed by several different data sources. In fact, the key to cycling are the cyclists themselves, the greater the number of cyclists, the more visible the practice becomes, and the more citizens become aware as part of the electorate and the decisions made around cycling.

The 'safety in numbers' concept also applies to the 'visibility in numbers' in the streetscape, but also in the political debate and the electorate. In this respect, the cyclists' coalition has revealed a series of inherent strengths as a mobility practice which reclaim city streets by their mere presence, and also through cyclists' capacity to organise, communicate, and reach out to the broader society. Even in a setting with very low rates of cycling the coalition was able to mobilise and communicate, reaching out to an increasing number of citizens. Interviewee #3 summarises this uptake as follows:

(Cycling is) important in terms of communication. Cyclists are extremely enthusiastic, with strength, and an outstanding stamina. They may be 0.5% (of modal share) in Lisbon, and they swell and have an exponential political strength, pedestrians are 100% and they have minimal political strength, they're almost non-existent. ...Even globally, pedestrians must partner with cyclists, and cyclists with pedestrians. Cyclists have every advantage in joining the 100%, in terms of votes, everyone does. And pedestrians, the 100%, have every advantage in associating with cyclists because they have an immeasurable political force. I already use it on social networks... If I post a post something which refers to pedestrians and cyclists, the tweet or post on Facebook is shared 10 times more. (Interviewee #3 – Activist)

Cyclist's outreach —increasing interrelations with diverse social sectors, epistemic groups, institutions, and political parties also— has received greater attention from different policy areas and increased the intensity of relations developed. It is this interaction that has worked at the key to coalition building and influence. In Lisbon cyclists' coalition influence has reached many —but not all sectors of influence— and is still working with relatively limited results and an uncertain future regarding the outcomes being sought for an urban and mobility system transition at the scale of the FUA.

The coalition's practical influence beyond the core Lisbon city area —in the surrounding AML and Portugal's national scenario— is still uncertain. Some instruments such as sustainability audits —e.g., ECO XXI Green Flag award, CoM involvement by municipalities—, cycling programmes —e.g., BooST and Hi-BicLab research projects, associations' election surveys of political programmes—, and national policy outputs —e.g., traffic code, national cycling strategy— point in a hopeful direction, but the limited scale of influence these have achieved so far is indicative of a persistent delay in policymakers being able to realise the transition to greater cycling which is being sought by the cyclists' coalition. Furthermore, some municipal and national policy outputs are aiming in the opposite direction are still receiving much more public funding and receiving positive media attention than complementary measures, e.g. large, dispersed projects and the associated road-building reinforcing automobility, bailing-out the national airline instead of recapitalising the national train company and reactivating international passenger rail service, etc..



Figures 86 and 87

Senior cyclists in the AML

Figure 86 - Cruz Quebrada, Oeiras. Figure 87 - Paço de Arcos, Oeiras

Coordination, association, and coalition building

Collective action and intensity has started from ‘outside’ the institutional sphere and through persistent action, employing diverse means and channels and seeping into the institutional governance structures in Lisbon. Street-level collective action is a fundamental start and manifestations of continuity are crucial in critical moments, yet the coalition is much more than activism and works through other social and political interactions. Where activist intensity has persisted with arrangements which are useful for promoting change. Collective reaction to three specific types of incidents were observed in Lisbon during the study time frame. These coalition actions in Lisbon were related to events which have sparked greater visibility of the cyclists’ coalition, associated with policy conflicts which suggest cycling’s exclusion and working as feedback, as previously conceptualised theoretically in the Policy Conflict (in section 2.5.11 and Figure 17 - Policy conflict framework flow diagram), and manifest in general terms in bottom-up policy action situations (see section 2.5.3):

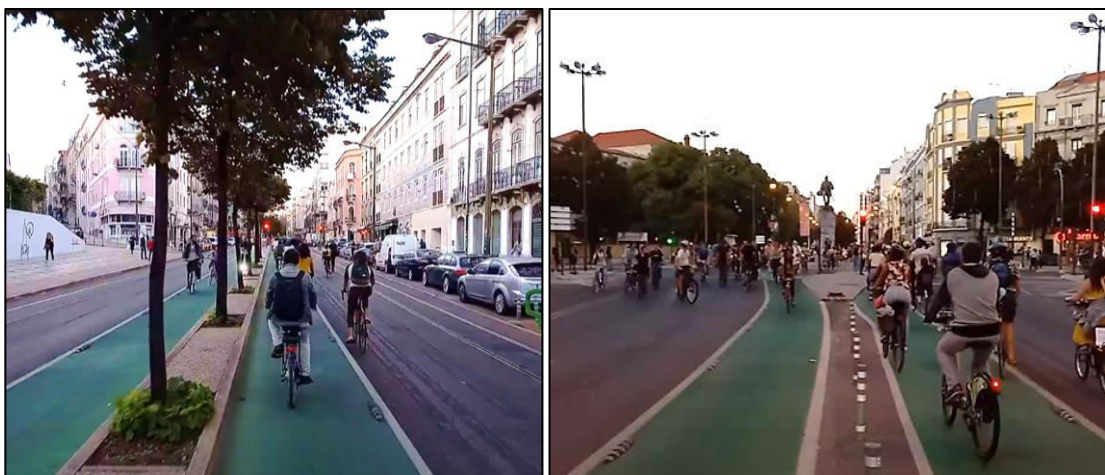
1. Non-participative organisms, either elected municipal policymakers who didn’t respond to the subsystem and/or flawed mechanisms such as non-response to PPB proposals, observed in Lisbon, Oeiras, and possibly Cascais. CM protest rides are the most common, or alternatively organised protests as described previously when the road safety authority (ANSR) launched its strategic road safety plan sidelining cyclists’ demands. The largest agglomeration of cyclists’ protest in Portugal was in Lisbon, with an unprecedented participation protest ride to save the *Almirante Reis* cycleway held in October 2021 with around one thousand cyclists and one hundred pedestrians.
2. Cyclists’ deaths also prompted large protests in Lisbon, with participation growing over time, and by July 2020 and in June 2021 after two cyclists were run over by cars; a teenage girl in 2020 when a car ran a red light and a pregnant woman in 2021 (Valente, 2021). Both these protests gathered around 600 and 700 protesters, respectively, according to participants’ estimates.
3. Exclusionary political declarations from politicians or politically driven groups have also triggered feedback formalised as collective action responses, such as when the *Av. Fontes Pereira de Melo-Saldanha-Av. da República* cycleway implementation was contested by automobility interests, and a car-drivers’ protest consisting of cars honking —‘buziñão’ in Portuguese— was met by a larger group of cyclists silently protesting in defence of the cycleway (Inês; Boaventura & Borges, 2016).



Figure 88

Almirante Reis cycleway protest flyer, October 2021 (Photograph: Laura Alves, 2021)

The collective action organised by cyclists' coalitions is multipronged and works with a wide variety of policy actors, with its social basis starting with citizens and activism. Street-level collective action has aimed at policy brokers, especially local decision-makers at the municipal level—with CM rides, protest rides, protests—, but also general demonstrations condemning political inaction from national governments and the public authorities they supervise, including disapproval of non-elected, appointed leadership and organisms with closed models of policy implementation—e.g. by the national road safety authority (ANSR) and the national highway (and railway) organism (IP). Lisbon's cyclists' coalition coordination was mentioned by several interviewees, and collective action is not limited to Lisbon municipality but also outlying AML localities, such as Oeiras and Almada—where CM cycle rides remain active and local cyclists' actions take form—albeit with much less intensity than in the Lisbon city core. Much of the coverage of these actions has been provided by the social networks which the media has generally ignored; initially with blogs and internet sites, evolving to Facebook, Twitter, Instagram, YouTube, and messenger apps using smartphones.



Figures 89 and 90

Almirante Reis cycleway protest, October 2021

Collaborative mechanisms for citizen participation and epistemic actions

Coalition building and action is also sustained on a continuous level through diverse collaborative tools available online. In Lisbon three collaborative citizen tools have been observed as having greater intensity of use during the 2009-2021 case study period, one of which was already discussed due to its significance mapping Lisbon's cycling infrastructure: *Ciclovias.pt*. Another collaborative tool is *Cidades Cicláveis*, identifying bicycle parking locations. *Cidades Cicláveis* was originally developed by Brazilian cycle activism and imported by MUBi. Another collaborative cyclists' tool commonly used in Portugal is *OpenStreetMaps*, a global open-source map with infrastructure. Despite its global reach, in some cases infrastructure which does not really exist is mapped on *OpenStreetMaps*, such as the cycle tourism routes and EuroVelo 1 route which in most cases in Portugal in 2022 have no signage or other means of wayfinding installed and don't have dedicated cycleways. In this respect *Ciclovias.pt* is more precise, possibly due to its easier use and the proximity of its national scale.

In all cases, relevant questions regarding the local cyclists' coalition and involvement in these collaborative tools emerge. Activist involvement and general citizen mobilisation are to a certain extent reflected in the density of inputs in these open-source platforms since they display the level of inputs introduced in each location, but also the following questions:

Is the information on these platforms reliable? Are the routes and information uploaded by different participants accurate and trustworthy? Some of the routes on *OpenStreetMaps* don't exist as dedicated or signed cycleways, as mentioned above.

Where are these collaborative tools from? User participation from these online tools suggest the possibility of identifying where the cyclists' coalition is better articulated, or at least where its members are most active. Also if these tools are a local product—as *CicloviasLx* was when it started, now national *Ciclovias.pt*—a national platform—as *Ciclovias.pt* has become—or a global-scale platform, such as *OpenStreetMaps.org*.

Where is the infrastructure? These open-source platforms indicate the level of cyclists' action with these platforms—but more importantly for policy output analysis—they point to the level of development, or conversely, the level of mobility poverty in each location when associated with other means of transport. The information grafted onto these platforms exhibits the existing cycling infrastructure and its status near major trip generating locations—e.g., public transport hubs such as train stations and train, metro, ferry-boat interfaces—specifically cycling mobility's level of development or poverty accessing these strategic mobility nodes and other large trip generating facilities.

Where is infrastructure missing? This is relevant to understand some aspects of cycling's culture in each locality—the level of participation from on-line platform entries—from 1. the coalition's level of articulation reflected in its technical skills and capacity for policy learning and transfer, and 2. participation from policy actors at the user level: activists (acting in these circumstances almost as micro-level policy entrepreneurs to society, disseminating the on-line tool on social networks and media) and general citizens which participate and collaborate inserting information on these open-source platforms with local knowledge acquired as everyday bicycle-users.

Alliances for greater policy process impact

Collaborative interactions have closer contact with the policy process where public participation exists through institutional mechanisms aiming at this form of policy influence. The advent of PPB's in Porto Alegre, Brazil in the early 1990s has spread to other Brazilian and Portuguese municipalities. In Portugal PPBs were innovated by becoming institutional online participatory mechanisms in municipalities where they are held. PPB proposals and potential alliances for policy output implementation favouring cycling appear linked to endogenous policy factors which can also leverage the subsystem—sustainability and climate networks, environment, and health,

leisure, etc.— which in turn may spark a more interested response for quicker impact and new pro-cycling partnerships from different policy areas.

Tourism, for instance, is also a policy opportunity to forge alliances where the cycling subsystem provides opportunities for change. In fact, Cascais' first cycleway in 1996 and Lisbon's first metropolitan area-oriented cycleway in 2009 are both situated on important focal areas for tourism, along prominent coastal and riverside areas. Curiously, the Oeiras' 2014 PPB winning proposal was for a coastal cycleway with a very high potential for tourism; a cycling solution in a coastal area with beaches, village centres, and recognised potential for leisure, health, and more sustainable mobility. In 2021, Matthew Baldwin—then European Coordinator for Road Safety and Sustainable Mobility Coordinator at DG MOVE—cycled between Cascais and Lisbon mentioning in a plenary session on cycling and tourism at VCC21 that a Lisbon-Cascais cycleway on the coastal avenue is a 'no brainer' that would 'go like hot cakes' to achieve a greater balance of tourism throughout the territory instead of having visitors clustered in the three most prominent locations of Lisbon, Cascais, and Sintra (Baldwin, 2021).

Active and/or sustainable tourism and healthy lifestyles are also recognised as being associated to subsystem policy process advancements and implementations, with Interviewee #10, a former policy broker, putting the finger on it:

I would say that healthier lifestyle habits today are a major concern for people, that this was the fundamental factor, and a search for more of an outdoor life. We are talking about Cascais, where the great demand is for more for leisure and not for daily mobility.” (Interviewee #10 – Former Policy Broker)

Several meta issues point directly to the benefits of more cycling as a key subsystem in the mobility equation: congestion, health, leisure-time, environment, emissions reductions, pollutant and particulate matter reduction, noise reduction, etc. In this respect Beatley's (2000) early analysis of 'green urbanism' points to Zurich's seminal referenda for public transport which revealed the public's greater support for public transport than that of city policy brokers, a lesson which can be applicable to walking and cycling projects also by encompassing broader population segments instead of only the orientations though tout by politicians and their circle of government: "When the opinions of the broader public are considered, a different view emerges." (p. 119)

On the other hand, alliances with like-minded goals for city streets provide an important ally for collaborative processes, as pointed out by Interviewee #6 regarding coordination between the cyclists' association MUBi, vulnerable road users' umbrella association Estrada Viva, and the pedestrians' association ACA-M in Lisbon:

MUBi, Estrada Viva, ACA-M...A city that's good for pedestrians is easier to be good for cycling, therefore, let's say they're allies to the cause. (Interviewee #6 – Activist)

The proposals for walking and cycling infrastructure in Lisbon's, Cascais' and Oeiras' PPB have to a certain extent exposed comparable social tendencies, when wider segments of the population are brought into the decision-making process. New concepts were introduced on the institutional agendas, which local policy brokers weren't aware of before these participatory mechanisms existed. In Lisbon, the cycleway network's significant expansion follows PPB proposals in some cases—informed by these, but not always being a completely or directly implemented as proposed. New cycle paths, parks and green spaces were consistently among the most elected proposals since Lisbon's PPB launch in 2008 and during the following years until the local government started implementing a more ambitious cycleway network expansion from 2016 to 2021. In Oeiras, the 2014 PPB was central at placing active mobility on the political agenda, despite lack of direct policy brokerage and response to what was proposed by citizens. Alliances between reclaim the streets initiatives, pedestrians and cyclists could further enhance this existing area of participation in municipalities with PPBs.

4.10.6 Status of Lisbon's cyclists' coalition in 2022

Considering the variety of practical coalition actions, links, relations, and elements produced in cities where the cycling subsystem interacts —cities with different rates of cycling in general, and in Lisbon in particular— the cyclists' coalition is framed as a conceptual-practical construct. This construct of the coalition consists of policy actors and their interactions, with a temporal organisation operationalised within the policy process for change, through the policy elements, links and relations between these elements, the critical gaps where its action hasn't reached or intensified sufficiently, and also its practical status through outputs produced or still missing in comparison to cities with high rates of cycling, and outcomes.

The diagram of the Lisbon's cyclists' coalition (Figure 91) indicates that the bind between the policy elements for change are 1. cycling as a normal (social) and mobility practice, a coalition 'glue' which is applicable in any given context, and 2. research and advancement of new knowledge and perspectives —which are key in defying the perspectives of a setting which by being so intensely focused on automobility excludes cycling— to explain cycling's viability and legitimacy in the urban mobility system.

The binding links and the original policy process elements from Figure 3 —in section 2.2 What are advocacy coalitions?— is incorporated into a practical adaptation of the simplified ACF elements within the policy process for change through a detailed operationalisation of the dynamics and practical elements which were observed in Lisbon in Figure 91. This operationalisation of a policy process for change provides a replicable framework which can be used to research different localities in future studies. Figure 91 illustrates the cyclists' coalition in Lisbon and the AML, namely its elements and status identifying in a resumed manner the coalition's strengths but also shortcomings. The shortcomings in identified are viewed as critical gaps considering the 2009-2021-time frame, *i.e.*, policy areas that had not been addressed adequately so far in Lisbon's policy process in 2022.

Each of the areas identified could be researched in greater detail in other political sciences areas also, for instance the evolution of the relation between political parties and cycling has grown and so have the politics involving these. Likewise, as pointed out by a policy broker in office, policy brokers' perspectives have also changed significantly in some of the institutional settings of local politics during this period:

With the (municipal) cabinet, since 2017, I felt more openness and we are already moving on the ground. Maybe not as well as it should be, but it's already advancing. The change started in this mandate. (2013-2017) (Interviewee #5 – Policy Broker)

While this affirmation could be read as political 'lip service' on one hand, it could also be understood as an indicator of the need to further study the perception of what policy brokers consider change. This is particularly relevant since there are considerable critical gaps in legitimising cycling as an important policy subsystem considering the numerous current challenges, and in the AML and in Portugal this legitimation is still working with an institutionally fragile —and in some cases non-existent— framework with regards to the policy issue. The operationalisation resumed in Figure 91 serves to conceptually illustrate and organise the practical elements of the policy process for change —*i.e.*, its actors, links and relations and underpin the critical gaps, identifying the vulnerabilities of the subsystem in the diverse areas of formulation, implementation, outputs and how they are reflected in outcomes.

Case study research findings provide a detailed analysis of Lisbon's cyclists' coalition's influence and achievements in the city's policy process for change with coalescing citizens, associations, and social movements identified through numerous links and relations. Several critical gaps are also identified —especially in learning, outputs and outcomes achieved, pointing to limitations in policy process analysis focusing on the subsystem itself. Limitations result from overlaps bridging between institutional policy mechanisms and actors on one hand and social movements and persistencies which also work beyond the sphere of public policy on the other. Impacts from these overlapping 'outside' links and relations are areas for careful future examination, considering territorial specificities working beyond the policy process, especially the limitations of this research regarding sociohistorical specificities and non-urban territories.

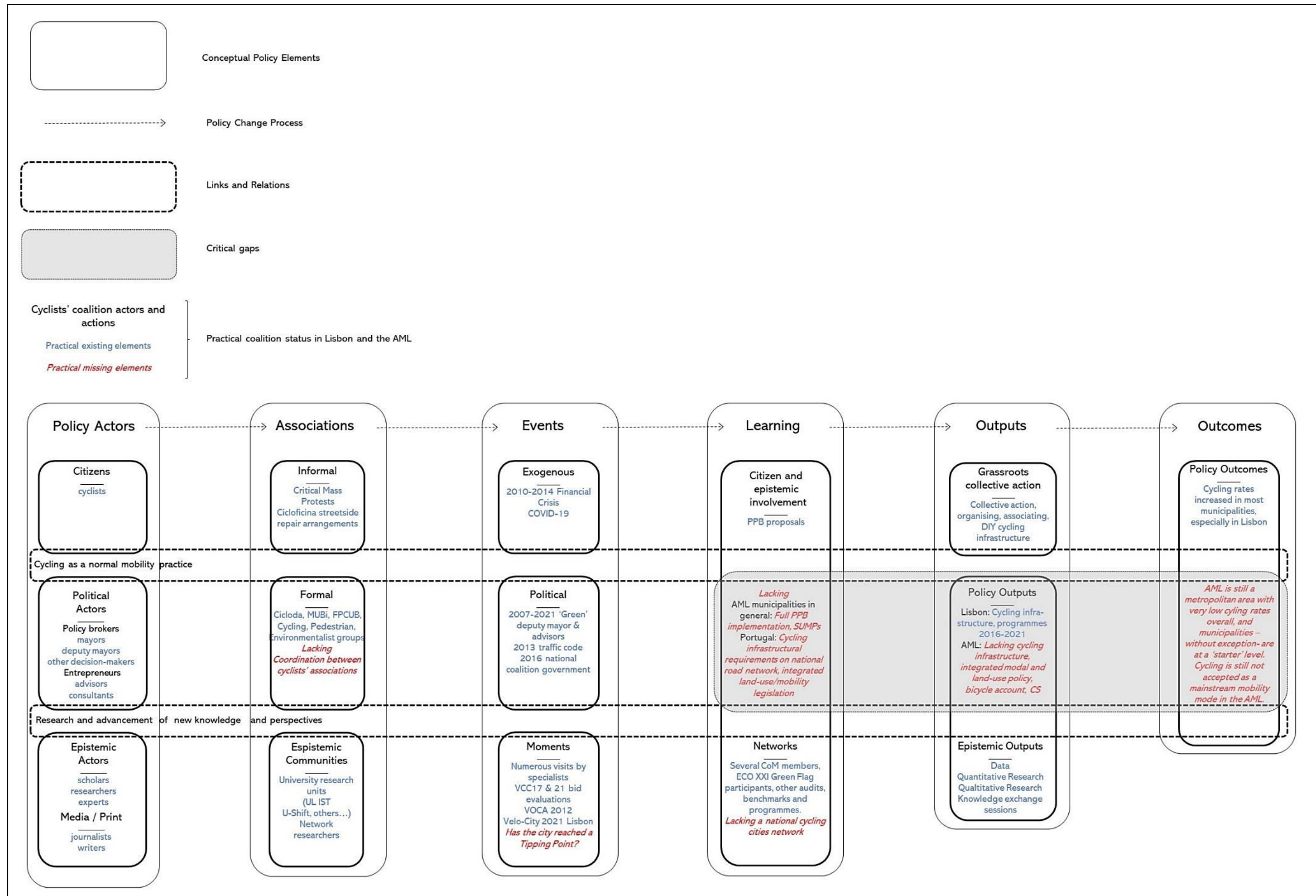


Figure 91

A diagram of Lisbon's cyclist's coalition and its operationalisation within the policy process for change (Status in 2022)

5. Conclusion

The Almirante Reis Cycleway is to end. (Carlos Moedas, Mayor of Lisbon when in opposition, 5 months before being elected) (Almeida, Rodrigues, & Pincha, 2021))

This thesis has produced research on the cyclists' coalition and clarified —through an ACF analysis— that in fact change has occurred in Lisbon, mapping this policy process both conceptually, on a general comparative level and in the case-study. Furthermore, the case-study introduced an innovative moving count method for measuring cycling traffic —to register tendencies— and complemented research with data collected from other sources, namely qualitative evidence provided by the eleven interviewees, document research, and personal notes. Research established and validated several links between policy actions and the uptake observed in Lisbon.

Conceptually, considering the mixed method of data provided, research addresses the phenomenon of coalition involvement in cycling's uptake —and links the subsystem's increasing presence in the urban mobility system— with collective action and coalition mechanisms. Quantitatively policy change —outcomes— are related to policy outputs produced, and the phenomenon is analysed using a conceptual basis that can be applied either in other localities or for exploring overlapping areas of study which haven't been addressed in this investigation. Research addresses ACF policy process elements in a bounded time frame (2009-2021), confirms the hypothesis of (Lisbon's) policy change (for cycling) as being a product shaped by coalition action and provides a basis for future investigations in this city, its FUA, and/or other localities.

Several questions also emerge as to the depth of the policy process' ambit of analysis and the impacts this change has achieved, since the case study also identifies systemic issues which remain present regarding the institutional recognition of cycling as a legitimate mode of mobility throughout the AML; specifically the recognition of the cycling subsystem as viable alternative to automobility or public transport in locations where it is generally the fastest, least energy-consuming, least polluting, and healthiest mode of transport, given adequate conditions for its safe and convenient use. Regarding the cycling subsystem, institutional and participative mechanisms exist, but their relationship with bicycle-use falls short of optimal, and these instruments still haven't achieved an established framework within the mobility and urban systems in the AML's or Portugal's municipalities. It is also worth keeping in mind that there are different levels of development achieved according to the municipality, with Lisbon at the lead of change and the rest of the greater city area lagging. Considering these variations, this conclusion can also be read as a possible start for broader urban and mobility public policy change in different settings employing the available means for coalition influence in the policy process, be it in a core city, its outlying areas, or other localities.

5.1 Final observations

Key concepts such as comprehensive modal integration including cycling, integrated compact urban form with regional-scale land-use policies and local detailing addressing the subsystem, implementation of participative policy arrangements defining the priorities for the mobility system with written commitments (SUMP's), and other institutional mechanisms to deter automobility are practically non-existent in the AML's municipalities and at the metropolitan and regional levels. Furthermore, policy brokers' accountability of honouring participative mechanisms which do exist —*i.e.*, PPBs— in many cases are still to be fulfilled, raising questions regarding

political credibility and the existence of policy brokerage in the way these mechanisms are managed. In fact, bottom-up proposals are not always understood as being fundamental —as illustrated by Interviewee #7— who considers his municipality a leader in the AML, describing a top-down view of innovation and policy transfer:

There are factors here in the municipality that since we arrived, we have a culture of permanent innovation and, therefore, mobility also emerges -multifactorial- from the environment, quality of life, etc., but then there is also an internal culture here in City Hall, we like it, the workers, our colleagues like to be in a municipality that is ahead of the others, being an 'early adopter', new technologies, is a factor. It is rooted in the culture that we transmit to the municipality. (Interviewee #7 – Policy Broker)

This approach differs significantly from policy brokerage mechanisms which work to integrate bottom-up inputs, generally accepting social aspirations and innovative ideas from citizens and associations, but also reinforcing city network policy innovation between the municipalities, and policy learning and transfer mechanisms working transversally between peer cities and with epistemic groups. Exchange and knowledge transfer for shaping change —by increasing the intensity of action between general brokerage actors and cycling subsystem policy actors— point to greater accountability of the political capital, leveraging more effective outputs and change by taking citizen participation seriously. The municipalities in the AML which have engaged with policy transfer mechanisms aiming at some level of policy innovation involving cycling as a normal mobility practice reveal impacts in the municipal governance contexts, even when cycling rates start from an extremely low base point. Lisbon municipality from 2009 to 2021 is a case in point, especially in the years between 2016 and 2021 when interactions produced outputs associated with cycling's visible uptake.

The comparison of city and municipal indicators illustrates the level of comparability between cities on a general level and AML municipalities in the case-study. The city indicator approach helps to identify the existence or not of a relevant cyclists' coalition and the intensity of interaction this network of policy actors exerts in the policy process. The significance of cyclists' coalition influence in local policy processes is in part illustrated by the outputs achieved, but a caveat applies and is also exposed by this exploratory method: the correlation between interaction and influence in the policy process is not necessarily established when basic outputs haven't been produced. Outcomes in certain settings could be a product of other variables —beyond the scope of an ACF analysis of public policy change during a thirteen-year time period— pointing to other possible paths of examination.

To be clear, the relationship between outputs and outcomes doesn't apply necessarily in every setting in areas with very low rates of cycling or where cyclists' coalitions doesn't exist. In such cases, factors beyond policy areas may apply, especially by working with different overlapping factors —*i.e.*, flatter landscape in some municipalities in conjunction with other issues, such as cultural persistence, rural cultures, and economic and social factors. The research shows this possible limitation, for some geographies, when outcomes with slightly higher rates of cycling are not necessarily policy related.

What is important with this research is that —in the policy setting being analysed— the indicators characterise the setting, establishing a structured knowledge base which can be useful for future policy recommendations and possible paths for sustainable development and transitions on one hand, and for further research on the other, including replicability for other localities with low cycling rates, also exploring issues beyond the direct scope of this thesis. Coalition influence and policy process outputs produced can be significant factors associated with increases in cycling, with key outputs —especially a cycleway network— playing a central role in this change, as addressed in the linear regression analysis of cycling counts between 2009 and 2021 and other evidence analysed in this thesis.

The research conducted herewith qualitatively addresses the phenomenon of cycling's uptake and its link with cyclists' coalition mechanisms, with quantitative and qualitative views of change establishing a relation to the policy outputs produced and the outcomes achieved during the study time frame. The hypothesis of Lisbon's policy change as being a product shaped by coalition action is addressed, considering what the coalition is and what it does, and furthermore, this thesis provides a robust basis for future investigations in this city and other

localities also, with the due caveat of the limitations this mixed method has. These limitations provide opportunities for further investigations on the policy process and its overlaps in different settings.

5.2 Research gaps and limitations

Findings from the case study confirm the hypotheses of coalition action influencing impact, but they also identify persisting unanswered issues which require careful examination for future lines of study in this area. Systemic issues identified in the case-study don't address geographical overlaps, requiring more research on the difficulties of achieving social and institutional recognition of cycling as a substitute for auto & public transport where coalition action doesn't exist or exists in a very limited scale. Beyond Lisbon's core city area, for instance, the cycling subsystem and its uptake as a policy issue is still not a discussion in most outlying FUA settings and localities. Furthermore, research within the policy area also identify another related but unaddressed research gap: Institutional and participative mechanisms exist, but they remain limited in scope, also regarding other subsystems and policy issues beyond this thesis' area of study on cycling and its uptake.

This thesis maps but doesn't answer or hypothesise aspects beyond coalition action in the policy process which also raise related questions, requiring more research: Why are policy brokers and their institutional relationships with cycling and other subsystems falling short of optimal in relation to participatory mechanisms? Why aren't PPBs honoured? Why have SUMP's not evolved and been implemented as policy cycles in the case-study city and other localities elsewhere? What's the role of the recent MaaS bicycle supply with the policy subsystem and issue? The thesis identifies policy gaps and provides insights into coalition involvement for change — addressing aspects of these policy process mechanisms— but a critical exploration into policy implications working beyond coalition action needs further research. Brokerage in participatory mechanisms leads back to issues of weak or no openness to different perspectives, and contrasting levels of political and institutional permeability which require more research in the other disciplines of social sciences also: politics, polities, and cultural and social influences. On another level of policy brokerage, the relation between MaaS and the cycling subsystem requires a careful examination also. MaaS is mostly a private economic activity but it has policy implications in the overall mobility system —but also externalities in public space occupation, by private service providers— which require further study regarding its overlaps with cycling and its role in cycling's uptake.

Limitations also apply as to the research method's replicability for different time frames or geographical locations. Considering temporal issues, this method requires sufficient time to analyse policy change, the minimum decade time frame in the ACF is necessary —as previously discussed— and sufficient time to characterise cycle traffic in a study area using the methods available. In this research, the 13-year time frame and the moving counts taken, and other sources of data collected, provide an alternative solution as a response to the lack of data regarding cycling in certain locations between 2009 and 2021. This methodology is useful where cycling is excluded from data collection, but it requires dedicated human resources which could be a time-consuming task —*i.e.*, a person cycling frequently using the same routes and collecting the data. As an offset, this task could be conducted as part of other routines —such as home-work commutes or running errands— as long as adequate routes are chosen.

For other studies following this line of research, grey scholarship including official traffic counts, survey documents, reports, and different information sources are also useful —such as newspaper articles and photographs, or videos, if these exist. Additional historical work and data analysis with methods and sources differing significantly between different countries, and possibly between different sources and localities are an issue to be kept in mind and in some cases could represent research limitations when such information is not available, eventually requiring a flexible approach to data-collection and establishing contact with different

sources —i.e., libraries, documentation centres, personal interviews, etc.— depending on the analysis being conducted and the locality being researched.

Studies aiming at researching cycling in a city for earlier historical periods, for instance, would require data collection which is not always available. In Portugal —at least from the research conducted for this thesis— since there are no known official data sources with cycling traffic counts or surveys prior to the 1938 JAE national highway traffic counts. Possibly historical archives from the national guard, the police, or municipalities can provide more information which hasn't been researched in public policy. In Portugal municipalities were responsible for issuing cyclists' licences and bicycle licence plates between 1954 and 1994 (Pereira, 2018), and some may also have conducted traffic counts including cycling. In other localities and countries similar difficulties are also possible. Morgan's (2019) sociohistorical research of cycling in Johannesburg since 1919, for instance, calculates the share of cycling traffic from vehicle licences instead of traffic counts, since data from traffic surveys addressing cycling is only available since 2002 (pp. 8, 51-54).

One final limitation identified is that of the contrasting levels of policy interaction observed in different municipalities. Coalition action and influence leads at the core —where it is most intense— but tends to lag elsewhere, raising questions as to the scale and boundaries of '*tipping points*' on one hand, and upon the replicability of research in peripheral urban areas, rurban and in rural territories on the other. This limitation poses another related question worth further research: Does territory matter? A careful examination of the overlaps of social and territorial sciences to study the impact of coalition action and other influences in peripheral or rural areas may need to be carefully analysed for future studies.

Considering other settings, limitations and research gaps point to future related research areas to be aware of, namely: policy actor networks coalescing in face of (re)new(ed) challenges, coalitions or smaller policy-oriented groups linking and acting in different scenarios, such as non-core or peripheral areas —with little collective action, or no coalition, response in face of exogenous events, and analysing policy links and action in non-democratic societies.



Figure 92

DIY bicycle sign on sidewalk cobblestones at Av. Miguel Bombarda, Lisbon

(Lerch, 2022)

5.3 Epilogue

'*New times*' await Lisbon, according to the recently-elected mayor's campaign motto, '*Novos tempos*'. The 26 September 2021 municipal election results marked the end of over fourteen years of socialist-led coalition governments with a green-leaning deputy mayor at Lisbon city hall, putting an end to a political cycle and

reactivating the political rotativity that has characterised the city's governance structures since 1976. Lisbon's municipal programmes had a latent but timid automobility restraining policy since the 2007 Summer snap elections which had been triggered by corruption scandals involving automobile parking companies during the previous centre-right PSD ruled mandates of 2001-2005 and 2005-2007, amidst contestation of a motorway tunnel cutting right into the city's central Marquês de Pombal roundabout.

Regarding policy change for cycling—which finally did enter the municipal policy agenda in 2007—VCC21 held in Lisbon 6 to 9 September 2021 was—to a certain extent—the cherry on the cake for cycling's progress in Lisbon and the local cyclists' coalition's accomplishment, and the final moment of an era of significant change. VCC21 showcased the major public space and active mobility transformations Lisbon municipality had achieved in preceding years, with infrastructure implemented since 2009. The conference occurred less than three weeks before the municipal elections, with a focus on cycling's role as a city changer, a landmark for the city's policy, and a celebratory climax of Lisbon's achievements for change. The question is if it was a sufficiently effective booster to continue the path for transformation, with sufficient impact for more change to come, or, alternatively, if the city would stop after 2021, as interviewee #2 had apprehensively questioned, or may have foreshadowed:

I am especially concerned that, being a commitment until next year, 2021, and after that there's no plan, a strategy, a vision for the city. This worries me immensely. They are doing the work for 2021 and then it's over. Then we'll stay a few more years like we are now, stagnated. (Interviewee #2 – Epistemic actor)

VCC is known among the cyclists' coalition as one of the most impacting city changer events addressing the subsystem, but local impacts vary greatly between cities. Furthermore, VCC's impact outside of the coalition also raises some discussion regarding the cyclists' coalition action itself: Is VCC an outreaching conference with social involvement or is it only programmed for a relatively closed policy community of government officials, planners, epistemic actors, activists, and interested citizens as a '*preach to the choir*' moment that does not work beyond the circles of those who are advocating for more cycling? Despite a communications campaign by Lisbon Municipality and some media coverage, were Lisbon's citizens aware of this transformative event? What was their level of involvement? Will the policy outputs preceding the conference have impact in the city's citizens, varied politicians, and in the outlying areas? Was it a sufficiently impacting moment? Recent census data reveal that Lisbon had a much more significant increase in cycling than the rest of Portugal

Did the message get across, and if so, as Macluhan (1964) had devised that "*the medium is the message*", will Lisbon's citizens shift to cycling as part of the formula for reclaiming the city from automobility's hold? Will cycling as a mobility practice be "*the medium that (re)shapes and (regains) control (of) the scale and form of human association and action*" (Macluhan, 1964, p. 24) currently dominated by automobility? Will citizens shift to cycling as a mobility practice after a period of thirteen years of steady outputs for change? These are all unanswered questions that time will tell, but for an encompassing '*tipping point*' to occur in Lisbon, change also has to happen in the AML municipalities that are closest to the city core or have direct links to it and that represent the greatest number of trips into Lisbon municipality, at least Oeiras, Cascais, Amadora, Sintra, Odivelas, Loures, Almada, Seixal, Barreiro, and Montijo. A '*tipping point*' in this conurbation of municipalities hasn't occurred yet, and much coalition action in line with what has been achieved and addressing the critical policy gaps is still to be developed for change to occur.

Change will continue if the coalition continues to mobilise in its varied street-level, citizen participation, association, epistemic and networks working with and among diversified policy actors, including with both the governing policy brokers—which may not be as monolithic as the initial declarations to remove a key cycleway, made by the new Lisbon Mayor Carlos Moedas, have been portrayed (Porto, 2021)— but also with the opposition councillors and members of the municipal parliament— which have a majority number of seats in both bodies. The opposition has revealed positions that are mostly aligned with cycling and may outnumber the municipal governing centre-right coalition in executive and assembly votes, depending on the issues at stake. The socialist councillors, independents, green leaning Livre and Left Bloc, for instance, have all displayed support for the Almirante Reis cycleway, and Mayor Carlos Moedas has shifted from promising to remove the cycleway to keeping it and planning on overhauling the entire avenue in the long-term.

Lisbon's recent history of shifting from car-dominated streets to better public spaces, from modal shift to active mobility—including its cycleway network expansion—deliver a vision of what the rest of the city and other municipalities can also replicate. Other isolated, incremental, cases in the AML also provide examples of change in the policy process, such as the green-leaning opposition in Oeiras formed in 2021 and gaining ground that same year in the local elections as a significant opposition voice with elected seats in the municipal executive, assembly and three infra-local boroughs. Other incremental signs are also visible in the AML, including car-free streets implemented in the town centres of Cascais, Sintra, Almada and several modest cycleway expansions realised and the placement of basic bicycle parking facilities in different localities.

Considering replicability and the role of the VCC as a concluding moment for gauging change, it is in the sense of the transformations achieved that Lisbon managed to realise VCC 2021, focused on the theme of '*cycle diversity*', of the different approaches to city change in an extremely complex environment with low rates of cycling. The conference itself was a long policy process involving the cyclists' coalition action from the start, well before 2014 preparing the first bid for VCC 2017, awarded to the Dutch conurbation of Arnhem-Nijmegen, and Lisbon in second place. But while Arnhem-Nijmegen has incomparably higher rates of cycling in the city the award is not directly related only to those circumstances; Groningen, Netherlands with higher cycling modal share than Arnhem-Nijmegen also competed, for instance, was not shortlisted, but foremost from "*the culmination of their long-term commitment to all aspects of cycling: utilitarian, leisure, and sport.*" (Berkers & Oldenziel, 2017, p. 53). At the time Lisbon also prepared a comprehensive bid with knowledge of the change needed, and was shortlisted, but in 2017 the city was still far from ready for a VCC. Notably, the Portuguese city of Aveiro also participated in a VCC 2017 bid in 2014, revealing the existence of local epistemic-policy action at play and a path for future research on coalition-building for cycling with local associations, UA, ABIMOTA and the regionally concentrated Portuguese bicycle industry cluster, despite incipient infrastructure. The visiting VCC ECF delegation in 2014—with then ECF President Manfred Neun, Secretary General Bernhard Ensink, and VCC Series and Global Policies Director Marcio Deslandes—surveyed the city with Lisbon municipal experts and activist actors, some of whom were also involved in the 2018 bid for VCC21, taking note on-site of the city's progress but also pointing to improvements needed.

The VCC21 candidacy began to be prepared in the Spring of 2018, and like the previous one prepared in 2014, it was carried out with the participation of many local actors, anonymous citizens, epistemic communities, associations, and the complex municipal governance structures. Deputy Mayor for Mobility Miguel Gaspar and Mayor Fernando Medina brought leadership and openness in preparing the conference with ECF and local associations, with mobility advisor João Camolas leading the process within the municipal structures from the beginning, and Inês Castro Henriques brought together municipal technical staff from various areas. This thesis' author worked on both the 2014 bid for 2017 and the 2018 bid for 2021 from the start. Cyclists' associations had launched the challenge, especially João Bernardino from MUBi, and many others from different areas—citizens, activists, associations, epistemic groups, institutions, industry—who joined throughout this process, increasing in the strength of the cyclist's coalition, with a growing number of actors from different areas working for city change. Project management from António Rapoula (EMEL) assured a clock work coordinated and well organised conference in trying times, during the COVID-19 pandemic. The initial June 2021 date, for instance, was set back to 6-9 September 2021. VCC21 was in many ways a coalition building mechanism.

Lisbon's transformations sped-up with the onset of COVID-19 and the VCC deadline: new pop-up cycleways appeared on major arteries between May 2020 and September 2021, public space recovery continued as planned under the programme '*Uma Praça em Cada Bairro*'—a square in each neighbourhood- public space recovery programme launched in 2013—and reclaim the streets was boosted by new pop-up car-free streets which also appeared with the "*A Rua É Sua*" (The street is yours) programme. The sum of these incremental but quickly implemented actions for change sped up output production to unprecedented levels in Lisbon (ECF, 2020b).

The 26 September 2021 election results reopened a local discussion on the cycling subsystem's status, initially questioning the process developed until then and posing new challenges to the cyclists' coalition. The quick

response —increasing collective action— through cycle protests, communications, and political interventions with the local cabinet and municipal parliament suggest coordination readiness and mobilisation capacity from Lisbon's cyclists' coalition, with at least three of the opposition parties voicing concerns aligned with the subsystem, and the municipal cabinet apparently assessing its campaign positions. Nonetheless, at the end of 2022 it is too early to reflect on the long-lasting impacts of the most recent changes in local politics and policy.

The cyclist's coalition consists of a wide-ranging network of people dealing with different issues and facets of the cycling subsystem and related policy areas, with its participants, activism, epistemic actors, journalists, interactions and alliances with diverse policy actors and brokers all playing a key part of this '*human infrastructure*'. Each policy actor type is fundamental in this coalition, and so are the links they establish, but for policy pressure and change none of these elements is sufficient on its own. Most importantly, the essential core of coalition action lies in the people who cycle, the cycling citizens. Cycling as a policy-oriented and social mobility practice provides different perspectives of the of the city and its mobility system, linking and mobilising greater awareness and collective action through choice. This mobility choice has impact on citizens' and other policy actors' concepts of urban mobility, becoming a socially driven self-reinforcing part of the policy process. Cycling works beyond the minimum critical mass for political pressure, or the safety in numbers for greater appeal, and it is also a greater policy influence issue when numbers begin to correspond.

Bernardo Campos Pereira

Universidade de Aveiro
Departamento de Ciências Sociais, Políticas e do Território

Aveiro, Portugal

December 2022



6. Indicator Table Sources

6.1 Table 6 sources

- 1 City data considering large metropolitan areas in the European Union, *i.e.*, Functional Urban Areas (FUA) with population ≥ 1.5 million inhabitants and < 4 million inhabitants.
Despite the Porto Metropolitan Area's (AMP) FUA has a population under 1.5 million inhabitants, according to the (OECD, 2019b) methodology, it is included since it is Portugal's second largest FUA, and its official metropolitan area is larger than the FUA. Due to the disparity in size, very large metropolitan functional areas, with a population exceeding 4 million people were excluded from this comparison.
- 2 OECD, 2019
- 2a INE, 2021
- 3 EPOMM, 2019, otherwise source indicated when more precise or recent data is available.
- 3a INE, 2022b
- 3c Harms & Kansen, 2018
- 3d Kennisinstituut voor Mobiliteitsbeleid (KiM), 2018
- 3e Benrath, 2019
- 3f Landeshauptstadt Düsseldorf, 2019
- 3g Radentscheid Frankfurt, 2019
- 3h Glasgow City Council, 2016
- 3i Follmer & Gruschwitz, 2019, p. 13
- 3j Kadłubek, Krzywda, & Skibińska, 2016, pp. 332-333
- 3k Manchester City Council, 2012
- 3l Fondazione Filippo Caracciolo, 2013, pp. 12, 45, 152, 162
- 3m Mach, 2017, p. 14
- 3n Haustein, Koglin, Nielsen, & Svensson, 2019, p. 3
- 3o Comune di Torino, 2013, pp. 5, 11-13
- 3p Mobilitätsagentur Wien GmbH, 2020
- 3q Biuro Drogownictwa i Komunikacji Urzędu m.st. Warszawy, 2015
- 3r Sustrans & Birmingham City Council, 2017, pp. 4-5
- 4 Dufour (2010). The PRESTO categories applied to the cities are based on the cycling modal share in the study localities, and are consistent with the BYPAD cycling policy audit recommendations (Dufour, 2010, pp. 5-8), conducted in numerous European cities since 1999 (Asperges, 2008).
- 5 Evidence of the existence of local cyclists' coalition interactions. Actors: activists, researchers, policy entrepreneurs and aligned policy-brokers; Associations: cyclists' associations. Interactions: Specific episodes and/or policy conflict registered questioning automobility's domination of city streets; *i.e.*, bicycle protests, Critical Mass (CM) bicycle rides, grassroots cyclists' initiatives. For Lisbon, reports of impromptu CM rides since the late 1990s are mentioned (Interviewee #4 – Citizen), but regularity is only registered since 2003.
- 5a Massa Crítica Portugal, 2007 and Dissertation interviews (interviewees #2, 3, 4)
- 5b Massa Crítica Portugal, 2007a
- 5c Oldenziel & Albert de la Bruhèze, 2016a
- 5d Kokkini, 2020; PODILATissES, 2019; Anastasopoulos, 2017, p. 2
- 5e BX1, 2019

- 5f Tóth, 2016, pp. 168-171
- 5g ADFC, 2021
- 5h Emanuel, 2016a, p. 83
- 5i Cycling Dublin Campaign, 2017
- 5j Aldred, 2012, pp. 98-100
- 5k ADFC Düsseldorf, 2019a
- 5l Radentscheid Frankfurt, 2019; Critical Mass Frankfurt, 2019
- 5m Cycle Savvy, 2005
- 5n Leeds Cycling Campaign, 2019
- 5o Huré, 2016, pp. 178-179
- 5p Emanuel, Veraart, & Cox, 2016, p. 106
- 5q Collectif Vélos en Ville, 2019
- 5r de la Bruhèze & Oldenziel, 2018
- 5s Napoli Pedala, 2019
- 5t Dell'Amico, 2018
- 5u AutoMat, 2020
- 5v Berkers et al., 2019
- 5w Emanuel, 2016b, pp. 155-156
- 5x Critical Mass Stuttgart, 2010
- 5y Pesce, 2002, p. 53
- 5z Llópez, 2016
- 5za City of Vienna, 2013, pp. 28-29 (survey by Alec Hager)
- 5zb Biuro Drogownictwa i Komunikacji Urzędu m.st. Warszawy, 2015
- 5zc UK Indymedia, 2007
- 6 Events: Episodes of policy feedback in the form of outputs
- 6a Lisbon's first cycleway, inaugurated September 16, 2001, see Chapter 4 – The Lisbon cyclists' coalition, section 4.8 Outputs.
- 6b Ciclovía.pt, 2019
- 6c Charalampakis, 2015, 2020
- 6d ADFC Düsseldorf, 2019b, 2019a
- 6e Lanzendorf & Busch-Geertsema, 2014, pp. 29-30
- 6f Glasgow City Council, 2016
- 6g Henry, 2009
- 6h Pistes Cyclables, 2019
- 6i Luongo, 2001
- 6j Comune di Napoli, 2012
- 6k Comune di Napoli, 2016, pp. 202-212
- 6l Prahou na kole, 2018;
- 6m Richter, 2013
- 6n Landeshauptstadt Stuttgart, 2018
- 6o Comune di Torino, 2013, pp. 5, 11-13
- 6p Boix, 2019
- 6q Stadt Wein, 2017
- 6r Reichard, 2020
- 6s Zielone Mazowsze, 2014, 2015
- 6t Birmingham City Council, 2013
- 7 Câmara Municipal de Lisboa, 2018c, 2021b, p. 9
- 8 Câmara Municipal do Porto, 2021
- 9 COWI & Directorate-General for Mobility and Transport (European Commission), 2017b
- 10 Athanasopoulos & Vlastos, 2018; Vlastos, Milakis, & Athanasopoulos, 2005

- 11 Hass-Klau, 2015, p. 148
- 12 Landeshauptstadt Düsseldorf, 2019
- 13 Stadt Frankfurt am Main, 2021
- 14 Wang, 2018, p. 6; Fahrrad.Hamburg, 2019
- 15 Ames, 2019
- 16 Wigan Council, 2019
- 17 Collectif Vélos en Ville, 2019
- 18 City of Munich, 2007
- 19 Magistrát hlavního města Prahy, 2019, p. 8
- 20 Gemeente Rotterdam, 2016
- 21 Landeshauptstadt Stuttgart, 2020
- 22 Comune di Torino, 2013, pp. 5, 11-13
- 23 Observatorio de la Movilidad Metropolitana, 2019
- 24 Mobilitätsagentur Wien GmbH, 2020
- 25 Sustrans & Birmingham City Council, 2017, pp. 4-5
- 26 IMT, 2014; INE, 2012, 2022b
- 27 COWI & Directorate-General for Mobility and Transport (European Commission), 2017
- 28 Koglin, 2018; Hausteijn, Koglin, Nielsen, & Svensson, 2019, p. 3
- 29 Landeshauptstadt Stuttgart, 2019, 2020
- 30 Medina, 2018
- 31 Iwińska, Blicharska, Pierotti, Tainio, & de Nazelle, 2018, p. 391
- 32 Jones, 2005

6.2 Table 10 sources

- 1 INE, 2021
- 2 INE, 2018
- 2a INE, 2022b
- 2b Lisboa E-Nova, 2022
- 3 Dufour (2010) category applied to the cycling mode share.
- 4 Existence of local cycling coalition actors and their interactions. Actors: activists, researchers, policy entrepreneurs and aligned policy-brokers; Associations: cyclists' associations. Interactions: Specific episodes and/or policy conflict registered questioning automobility's domination of city streets; *i.e.*, bicycle protests, Critical Mass (CM) bicycle rides, grassroots cyclists' initiatives. Reports of CM rides in Lisbon since the late 1990s have been mentioned (Interviewee #4 – Citizen), but no organised or published information was found. A total of at least nine Critical Mass rides have existed in the AML with several encounters being registered over time. Barreiro, Cascais, Parede —a locality in the municipality of Cascais—, Seixal, and Setúbal, existed over time and have been discontinued from analysis of the Massa Crítica Portugal site, blog posts and/or Facebook social network posts. Oeiras and Santa Iria da Azóia —Loures municipality— continued with intermittent encounters, while Lisbon and Almada continue with the monthly rides. Bike-to-school trains in December 2021: 18 in the municipality of Lisbon, with the first one was launched in 2015 (Câmara Municipal de Lisboa, 2021g), and one in Alfragide, a locality in the municipality of Amadora, launched in April 2021 .
- 5 Covenant of Mayors Office, 2021
- 6 ICLEI, 2021b
- 7 ABAE, 2021c

- 8 República Portuguesa | Gabinete do Ministro do Ambiente e da Ação Climática, 2021; República Portuguesa | Ministério do Ambiente e Ação Climática, 2021
- 9 FBCUB, 2020
- 10 Ciclovias.pt, 2021a
- 11 Ciclovias.pt, 2020a, 2020b
- 12 MUBi, 2021
- 13 INE, 2012; IMT, 2014
- 14 Câmara Municipal de Almada, 2021; Massa Crítica Almada, 2011
- 15 Alfragide Sobre Rodas, 2021
- 16 Massa Crítica Portugal, 2011; Bicletada do Barreiro, 2011
- 17 Cascais: Massa Crítica Cascais, 2012; Parede: Cultura no Muro, 2015
- 18 Massa Crítica Portugal, 2007; Câmara Municipal de Lisboa, 2021d
- 19 CML, 2021 (Information provided by the Deputy Mayor for Mobility's office, September 2021)
- 20 Bicletada de Santa Iria, 2011
- 21 Massa Crítica de Oeiras, 2015
- 22 Massa Crítica Portugal, 2010
- 23 Massa Crítica Portugal, 2008

7. References

- [estúdio]P. (2021, July 6). Velo-city 2021: Lisboa recebe o maior evento de mobilidade em bicicleta do mundo. *Público*. Retrieved from <https://www.publico.pt/2021/07/06/estudiop/noticia/velocity-2021-lisboa-recebe-maior-evento-mobilidade-bicicleta-mundo-1968853>
- @urban_future. (2021). Cycling Mode Share Data for 700 Cities in 40 Countries. Retrieved August 10, 2021, from <https://cityclock.org/blogs/cycling-mode-share-data-700-cities-40-countries>
- A Costureira Ciclista. (2013). A Costureira Ciclista. Retrieved December 6, 2021, from <https://www.facebook.com/costureira.ciclista>
- Aall, C. (2001). Norway - LA21 as a means of interpreting and achieving sustainable production and consumption. In W. M. Lafferty (Ed.), *Sustainable Communities in Europe* (pp. 83–106). London, UK: Earthscan. Retrieved from [https://www.docme.su/doc/1269421/william-m.-lafferty---sustainable-communities-in-europe---](https://www.docme.su/doc/1269421/william-m.-lafferty---sustainable-communities-in-europe---...)
- ABAE. (2021a). Indicadores – ECOXXI. Retrieved September 30, 2021, from <https://ecoxxi.abae.pt/sobre/indicadores/>
- ABAE. (2021b). Júri por Indicador – ECOXXI. Retrieved September 30, 2021, from <https://ecoxxi.abae.pt/sobre/comissao-nacional/juri-por-indicador/>
- ABAE. (2021c). Municípios ECOXXI 2021. Retrieved September 30, 2021, from <https://ecoxxi.abae.pt/municipios-ecoxxi-2021/>
- Abarca-Alvarez, F. J., Navarro-Ligero, M. L., Valenzuela-Montes, L. M., & Campos-Sánchez, F. S. (2019). European strategies for adaptation to climate change with the Mayors adapt initiative by self-organizing maps. *Applied Sciences (Switzerland)*, 9(18), 3859. <https://doi.org/10.3390/app9183859>
- ABIMOTA. (2020, May 8). Carta Aberta. Águeda. Retrieved from www.abimota.org
- Adam, L., Jones, T., & te Brömmelstroet, M. (2020). Planning for cycling in the dispersed city: establishing a hierarchy of effectiveness of municipal cycling policies. *Transportation*, 47(2), 503–527. <https://doi.org/10.1007/s11116-018-9878-3>
- Adam, S., & Kriesi, H. (2007). New theories of the policy process. In P. A. Sabatier (Ed.), *Theories of the Policy Process* (pp. 129–154). Boulder, Colorado: Westview Press. Retrieved from <https://edwardwimberley.com/courses/IntroEnvPol/theorypolprocess.pdf#page=135>
- ADFC. (2021). The German Cyclists Association in Cologne. Retrieved January 10, 2022, from <https://koeln.adfc.de/en>
- ADFC Düsseldorf. (2019a). ADFC Düsseldorf. Retrieved from https://www.facebook.com/pg/ADFC.Duesseldorf/about/?ref=page_internal
- ADFC Düsseldorf. (2019b). Wer wir sind - ADFC NRW - Kreisverband Düsseldorf e. V. Retrieved December 4, 2019, from <https://www.adfc-nrw.de/kreisverbaende/kv-duesseldorf/wer-wir-sind.html>
- AFP. (2021, December 1). Austria's Greens halt controversial highway projects. *France 24*. Retrieved from <https://www.france24.com/en/live-news/20211201-austria-s-greens-halt-controversial-highway-projects>
- Agger, A. (2010). Involving citizens in sustainable development: Evidence of new forms of participation in the danish agenda 21 schemes. *Local Environment*, 15(6), 541–552. <https://doi.org/10.1080/13549839.2010.487526>
- Albert de la Bruheze, A. (2000). Bicycle use in twentieth century Western Europe. The comparison of nine cities. *Velomondial.Net*, (October), 5. Retrieved from <http://www.velomondial.net/velomondial2000/PDF/BRUHEZE.PDF>
- Albert de la Bruhèze, A. A., & Veraart, F. C. A. (1999). *Fietsverkeer in praktijk en beleid in de twintigste eeuw : overeenkomsten en verschillen in fietsgebruik in Amsterdam, Eindhoven, Enschede, Zuidoost-Limburg, Antwerpen, Manchester, Kopenhagen, Hannover en Basel*. Den Haag: Ministerie van Verkeer en Waterstaat. Retrieved from <https://research.tue.nl/nl/publications/fietsverkeer-in-praktijk-en-beleid-in-de-twintigste-eeuw-overeenk>
- Albuquerque, R., & Esteves, C. (2020, March 25). Covid-19. Estradas vazias: app de trânsito Waze está quase sem utilizadores. *Expresso*. Retrieved from <https://expresso.pt/coronavirus/2020-03-25-Covid-19.-Estradas-vazias-app-de-transito-Waze-esta-quase-sem-utilizadores>
- Albuquerque, R., & Rosa, S. M. (2020, May 15). Covid-19. Já há mais bicicletas a circular em Lisboa mas ainda são metade do normal. *Expresso*. Retrieved from <https://expresso.pt/sociedade/2020-05-15-Covid-19.-Ja-ha-mais-bicicletas-a-circular-em-Lisboa-mas-ainda-sao-metade-do-normal>
- Aldred, R. (2010). “On the outside”: Constructing cycling citizenship. *Social and Cultural Geography*, 11(1),

- 36–52. <https://doi.org/10.1080/14649360903414593>
- Aldred, R. (2012). The Role of Advocacy and Activism. In J. Parkin (Ed.), *Cycling and Sustainability* (pp. 83–108). Bingley, UK: Emerald Group Publishing. Retrieved from https://books.google.pt/books?id=udHnhvyutykC&pg=PA98&lpg=PA98&dq=Ireland%27s+first+Skyride+took+place+in+Dublin+on+Sunday&source=bl&ots=31GKpzXZcK&sig=ACfU3U1PX7f7xX7qsLw8N_nRmsejJold7Q&hl=pt-PT&sa=X&ved=2ahUKEwj45JbY-PvIAhUOmRQKHZtCvgQ6AEwAHoECAoQAQ#v=
- Aldred, R. (2013). Incompetent or Too Competent? Negotiating Everyday Cycling Identities in a Motor Dominated Society. *Mobilities*, 8(2), 252–271. <https://doi.org/10.1080/17450101.2012.696342>
- Aldred, R., & Jungnickel, K. (2012). Constructing Mobile Places between “Leisure” and “Transport”: A Case Study of Two Group Cycle Rides. *Sociology*, 46(3), 523–539. <https://doi.org/10.1177/0038038511428752>
- Alemão, S. (2018, March 2). Ciclovía na Avenida Guerra Junqueiro, a ligar a Alameda à Praça de Londres, vai mesmo avançar. *O Corvo*. Retrieved from <http://ocorvo.pt/ciclovía-na-avenida-guerra-junqueiro-a-ligar-a-alameda-a-praca-de-londres-vai-mesmo-avancar/>
- Alfragide Sobre Rodas. (2021, April 26). Inauguração Cicloexpresso Alfragide. Retrieved from <https://www.facebook.com/alfragidesobrerodas/posts/107411131494394>
- Allbert de la Bruhèze, A., & Oldenziel, R. (2018). *Cycling Cities: The Munich Experience*. Eindhoven: Foundation for the History of Technology (Eindhoven University of Technology). Retrieved from <http://www.cyclingcities.info/cycling-cities/cycling-cities-munich/>
- Almeida, S. J., Rodrigues, S., & Pincha, J. P. (2021, April 24). Carlos Moedas: “A ciclovía da Almirante Reis é para acabar” | Entrevista com Carlos Moedas. *Público*. Retrieved from <https://www.publico.pt/2021/04/24/politica/noticia/ciclovía-almirante-reis-acabar-1959780>
- Alterman, R. (1997). The challenge of farmland preservation: Lessons from a Six-Nation comparison. *Journal of the American Planning Association*, 63(2), 220–243. <https://doi.org/10.1080/01944369708975916>
- Alves, L. (2014). Maria Bicicleta. Retrieved December 6, 2021, from <https://www.alauraescreve.pt/maria-bicicleta.html>
- Alves, L., & Carvalho, P. (2013). *A Gloriosa Bicicleta - Compêndio de Costumes, Emoções e Desvarios em Duas Rodas*. Alfragide: Leya. Texto Editores. Retrieved from <https://www.leyaonline.com/pt/livros/turismo-e-lazer/desporto/a-gloriosa-bicicleta/>
- Amaral, R. P. de. (2021, January 28). Histórias da História de Cascais - H2C. Retrieved October 31, 2021, from <https://www.facebook.com/ruipaisdeamaral/posts/1561152067607133>
- Ambiente Magazine. (2022, January 3). EMEL faz balanço do seu contributo para uma cidade segura e ambientalmente sustentável. Retrieved January 4, 2022, from <https://www.ambientemagazine.com/emel-faz-balanco-do-seu-contributo-para-uma-cidade-segura-e-ambientalmente-sustentavel/>
- Ames, C. (2019). Brownlee doubles up in Leeds active travel role - The Transport Network. *Transport Network*. Retrieved from <https://www.transport-network.co.uk/Brownlee-doubles-up-in-Leeds-active-travel-role/16120>
- AML. (2016). PAMUS — AML. Lisboa. Retrieved from https://www.aml.pt/susProjects/susWebBackOffice/uploadFiles/wt1wwwpgf_aml_sus_pt_site/componentText/SUS57E28D0BC153A/PAMUS_AML_VOL_I_RELATORIO.PDF
- AML. (2019). Sobre os Novos Passes. Retrieved December 31, 2021, from <https://www.aml.pt/index.php?cMILID=SUS5C743299BA9B1&cMILL=3&mIID=SUS5C743261A63E4&mIN=sobre&mLA=&cMILID1=SUS5787A25518AED&mIID1=3&mIN1=Mobilidade e transportes&cMILID2=SUS5C7431770397C&mIID2=SUS5C743115D5991&mIN2=novos passes&cMILID3=SUS5C743299BA9B1&mI>
- AMP. (2016). *Plano de Ação de Mobilidade Urbana Sustentável da Área Metropolitana do Porto - Relatório Final*. Porto. Retrieved from http://portal.amp.pt/media/documents/2016/12/06/relatorio_final_pamus_amp_MuztgqN.pdf
- Anable, J., & Gatersleben, B. (2005). All work and no play? The role of instrumental and affective factors in work and leisure journeys by different travel modes. *Transportation Research Part A: Policy and Practice*, 39(2-3 SPEC. ISS.), 163–181. <https://doi.org/10.1016/j.tra.2004.09.008>
- Anastasopoulos, N. (2017). Athens revisited: Bottom-up initiatives in spatial and terms. In *3rd International “Changing Cities” Conference* (p. 9). Syros. Retrieved from https://www.academia.edu/download/60931325/Bottom_up_Athens_full_paper_Anastasopoulos20191017-46405-lcwyo1.pdf

- Andersen, T., Bredal, F., Weinreich, M., Jensen, N., Riisgaard-Dam, M., & Nielsen, M. K. (2012). *Collection of Cycle Concepts 2012*. Copenhagen. Retrieved from <http://www.cycling-embassy.dk/wp-content/uploads/2013/12/Collection-of-Cycle-Concepts-2012.pdf>
- André, Mário Rui. (2021, December 23). “Não vai acabar nenhuma ciclovía em nenhuma localidade da cidade.” *Lisboa Para Pessoas*. Retrieved from <https://lisboaparapessoas.pt/2021/12/23/nao-vai-acabar-nenhuma-ciclovía-almirante-reis-lisboa-possivel/>
- André, Mário Rui. (2018, February 27). A história da 1ª ciclovía ilegal de Lisboa. *Shifter*. Retrieved from <https://shifter.pt/2018/02/lisboa-ciclovía-ilegal/>
- André, Mário Rui. (2021, September 28). Descontos na EMEL podem comprometer visão estratégica e metas que PSD subscreveu. *Lisboa Para Pessoas*. Retrieved from <https://lisboaparapessoas.pt/2021/09/28/carlos-moedas-descontos-emel-mobilidade/>
- Angelique, H. L., & Cunningham, K. (2006). Media framing of dissent: The case of the initial anti-nuclear protests following the Three Mile Island accident. *The Australian Community Psychologist*, 18(2), 42–57. Retrieved from https://groups.psychology.org.au/Assets/Files/acp_vol18_no2_aug06.pdf#page=42
- ANSR. (2020). Regulamento de Sinalização do Trânsito (RST). Retrieved November 18, 2021, from <http://www.ansr.pt/Legislacao/RegulamentoSinalizacaoTransito/Pages/default.aspx>
- Anthopoulos, L., Janssen, M., & Weerakkody, V. (2015). Comparing smart cities with different modeling approaches. In *WWW 2015 Companion - Proceedings of the 24th International Conference on World Wide Web* (pp. 525–528). New York, NY, USA: ACM. <https://doi.org/10.1145/2740908.2743911>
- Appiah, F. B. (2021). *Improving Safe Bicycle-Crossings at Unsignalized Intersections through Pavement Markings: Analysis of the City of Portland Innovative Strategy*. Portland State University. Retrieved from https://bikeportland.org/wp-content/uploads/2021/10/PBBOT-crossbike-Final-Thesis_Crossbike.pdf
- Apple. (2020). COVID-19 - Mobility Trends Reports. Retrieved June 9, 2020, from <https://www.apple.com/covid19/mobility>
- Appleyard, D. (1980). Livable Streets: Protected Neighborhoods? *AAPS Annals*, 451, 106–117. <https://doi.org/10.1177/000271628045100111>
- Arce, M. D. G. (2001). Leadership and the aggregation of international collective action. *Oxford Economic Papers*, 53(1), 114–137. <https://doi.org/10.1093/oenp/53.1.114>
- Ashley, C. A., & Bannister, C. D. (1989). Cycling to Work from Wards in a Metropolitan Area. *Traffic Engineering and Control*, 30(6), 297–302.
- Asperges, T. (2003). BYPAD (Bicycle Policy AuDit), a European benchmarking and quality management tool for improving local cycling policy BYPAD (Bicycle Policy AuDit). *BYPAD FULL PAPER – ECOMM 2003*. Leuven: ECOMM - The European Conference on Mobility Management. Retrieved from <http://epomm.org/ecomm2003/ecomm/papers/TimAsperges.pdf>
- Asperges, T. (2008). *Cycling, the European approach Total quality management in cycling policy. Results and lessons of the BYPAD-project*. Brussels. Retrieved from https://radkompetenz.at/wp-content/uploads/2021/03/10_endbericht_bypad.pdf
- Asperges, T., Vanmaele, L., & Lehner-Lierz, U. (2000). *BYPAD: a benchmarking instrument for local cycling policy?* Leuven. Retrieved from <http://www.velomondial.net/velomondial2000/PDF/ASPERGES.PDF>
- Assembleia da República. Lei n.º 72/2013 (2013). Lisboa: Assembleia da República. Retrieved from <https://dre.pt/dre/detalhe/lei/72-2013-499526>
- Assembleia da República. (2013b, May). *Audiência Parlamentar Nº 5-GT-SR-XII*. Lisboa. Retrieved from <https://www.parlamento.pt/ActividadeParlamentar/Paginas/DetalheAudiencia.aspx?BID=95208>
- Assembleia da República. Lei 31/2014 de 30 de maio, Diário da República § (2014). Lisboa: Assembleia da República. Retrieved from <https://dre.pt/pesquisa/-/search/25345938/details/maximized>
- Assembleia da República. Lei 82-D/2014 de 31 de dezembro, Diário da República § (2014). Lisboa: Assembleia da República. Retrieved from <https://dre.pt/home/-/dre/66022084/details/maximized>
- Assembleia da República. Lei n.º 82-D/2014 de 31 de dezembro, Diário da República § (2014). Lisboa: Assembleia da República. Retrieved from <https://dre.pt/web/guest/pesquisa/-/search/66022084/details/normal?q=Fiscalidade+Verde>
- Assembleia Municipal de Lisboa. (2019, September). Proposta 598/CM/2019 - Visão Estratégica para a Mobilidade para a cidade de Lisboa - MOVE Lisboa - até 2030. Lisboa: Assembleia Municipal de Lisboa. Retrieved from <https://www.am-lisboa.pt/301000/1/012888,000561/index.htm>
- Assembleia Municipal de Lisboa. (2020, September 27). Proposta 598/CM/2019 - Visão Estratégica para a Mobilidade para a cidade de Lisboa - MOVE Lisboa - até 2030. Lisboa. Retrieved from <https://www.am-lisboa.pt/301000/1/012888,000561/index.htm>
- Athanasopoulos, K., & Vlastos, T. (2018). Mapping the Geography of Cycling Infrastructure in Greece through

- an Open Participatory Procedure. *Hellenic Geographical Society*, 9. Retrieved from http://www.hellenicgeosociety.org/en/system/files/Athanasopoulos_Geo_of_Bike_Infra_text_new_final.pdf
- Atlanta Regional Commission. (2017). *Envisioning a Regional Trail Network. A feasibility report for an interconnected trail network in metro Atlanta*. Atlanta. Retrieved from <https://cdn.atlantaregional.org/wp-content/uploads/arc-trailsreport-webview.pdf>
- ATML. (2015, March 17). Novo Regime Jurídico de Serviço Público Transporte de Passageiros. Lisboa. Retrieved from <https://app.parlamento.pt/webutils/docs/doc.pdf?path=6148523063446f764c324679626d56304c334e706447567a4c31684a5355786c5a793944543030764e6b4e46543141765247396a6457316c626e527663306c7561574e7059585270646d46446232317063334e686279387a4d4455354e5449345969316b4d>
- Auchapt, D. (2014). Portugal fights for coastal bike lane. Retrieved from <https://ecf.com/news-and-events/news/portugal-fights-coastal-bike-lane>
- Aufheben. (1998). The politics of anti-road struggle and the struggles of anti-road politics: The case of the No M11 Link Road Campaign. In G. McKay (Ed.), *DiY culture : party & protest in Nineties Britain* (pp. 100–128). London: Verso. Retrieved from https://books.google.com/books/about/DiY_Culture.html?hl=pt-PT&id=KaP-bAMAYYC
- Augusto, P. N. R. M. (2017). *O Sistema Integrado de Mobilidade Mobicascais | The Mobility System Mobicascais*. Universidade de Coimbra. Retrieved from https://estudogeral.sib.uc.pt/bitstream/10316/82845/1/O_SISTEMA_INTEGRADO_DE_MOBILIDADE_MOBICASCAIS_1.pdf
- AutoMat. (2020). What we do - AutoMat. Retrieved January 3, 2020, from <https://auto-mat.cz/en/what-we-do>
- Bairro Amarelo. (2021). Bairro Amarelo - Restaurant District Cascais. Retrieved October 30, 2021, from https://www.facebook.com/BairroAmarelo/photos/?ref=page_internal
- Baldwin, M. (2021, September 7). Changing gears towards a greener economy and sustainable tourism. Retrieved from <https://www.velo-city2021.com/en/programme/programme-2021/>
- Balkmar, D. (2020). Cycling politics: imagining sustainable cycling futures in Sweden. *Applied Mobilities*, 5(3), 324–340. <https://doi.org/10.1080/23800127.2020.1723385>
- Baltes, M. R. (1996). Factors Influencing Nondiscretionary Work Trips by Bicycle Determined from 1990 U.S. Census Metropolitan Statistical Area Data. *Transportation Research Record: Journal of the Transportation Research Board*, 1538(1), 96–101. <https://doi.org/10.1177/0361198196153800113>
- Bamberg, S., Ajzen, I., & Schmidt, P. (2003). Choice of Travel Mode in the Theory of Planned Behavior: The Roles of Past Behavior, Habit, and Reasoned Action. *Basic and Applied Social Psychology*, 25(3), 175–187. https://doi.org/10.1207/S15324834BASP2503_01
- Bamberg, S., Fujii, S., Friman, M., & Gärling, T. (2011). Behaviour theory and soft transport policy measures. *Transport Policy*, 18(1), 228–235. <https://doi.org/10.1016/j.tranpol.2010.08.006>
- Banha, I. (2014, November 12). Lisboaetas pediram e vão ter uma nova ciclovía e trilhos em Monsanto. *Diário de Notícias*. Retrieved from <https://www.dn.pt/portugal/lisboetas-pediram-e-vao-ter-uma-nova-ciclovía-e-trilhos-em-monsanto-4234045.html>
- Barberan, A., & Monzon, A. (2016). How did Bicycle Share Increase in Vitoria-Gasteiz? In *Transportation Research Procedia* (Vol. 18, pp. 312–319). Valencia, Spain: Elsevier. <https://doi.org/10.1016/j.trpro.2016.12.042>
- Barbosa, J. C. (2021). *Um Homem de Lisboa. José Sá Fernandes*. Lisboa, Portugal: Vimeo. Retrieved from <https://vimeo.com/643288886/38910cae9b>
- Barbour, N., Zhang, Y., & Mannering, F. (2019). A statistical analysis of bike sharing usage and its potential as an auto-trip substitute. *Journal of Transport and Health*, 12, 253–262. <https://doi.org/10.1016/j.jth.2019.02.004>
- Barone, J. (2013). Discover the Green Side of Lisbon. *National Geographic*. Retrieved from <https://www.nationalgeographic.com/travel/article/discover-the-green-side-of-lisbon>
- Barroso, M. (2017). *O Livro da Bicicleta*. Lisboa: A Esfera dos Livros. Retrieved from <https://www.esferadoslivros.pt/livros/bem-estar/o-livro-da-bicicleta/>
- Bassett, D. R., Pucher, J., Buehler, R., Thompson, D. L., & Crouter, S. E. (2008). Walking, cycling, and obesity rates in Europe, North America, and Australia. *Journal of Physical Activity and Health*, 5, 795–814.
- Batterbury, S. (2003, November 8). Environmental Activism and Social Networks: Campaigning for Bicycles and Alternative Transport in West London. *Annals of the American Academy of Political and Social Science*. SAGE Publications. <https://doi.org/10.1177/0002716203256903>
- Baumann, C., & White, S. (2015). Collaborative Stakeholder Dialogue: A Catalyst for Better Transport Policy

- Choices. *International Journal of Sustainable Transportation*, 9(1), 30–38.
<https://doi.org/10.1080/15568318.2012.720357>
- Baumgartner, F. R. (2013). Ideas and policy change. *Governance*, 26(2), 239–258.
<https://doi.org/10.1111/gove.12007>
- Baumol, W. J., Blinder, A. S., & Scarth, W. M. (1988). *Economics, principles and policy* (Second Can). Toronto: Harcourt Brace Jovanovich.
- Beatley, T. (2000). *Green Urbanism: Learning From European Cities*. Washington, D.C. | Covelo, California: Island Press. Retrieved from
https://books.google.pt/books?hl=en&lr=&id=dIMuQxpjCgsC&oi=fnd&pg=PR2&dq=european+green+capital&ots=rPNW9kGDPn&sig=xKtwYXa1ogozVgamXlQs9zWTwBI&redir_esc=y#v=onepage&q=europe+an+green+capital&f=false
- Beckmann, J. (2001). Automobility - A social problem and theoretical concept. *Environment and Planning D: Society and Space*, 19(5), 593–607. <https://doi.org/10.1068/d222t>
- Bemelmans-Videc, M.-L., Rist, R. C., & Vedung, E. (Eds.). (1998). *Carrots, sticks & sermons : policy instruments and their evaluation*. New Brunswick, N.J.: Transaction Publishers. Retrieved from
https://books.google.pt/books?id=qeajs_EVxYEC&pg=PA76&dq=Bemelmans-Videc,+Marie-Louise,+Ray+C.+Rist,+and+Evert+Vedung,+eds.+1998.+Carrots,+Sticks,+and+Sermons:+Policy+Instruments+and+Their+Evaluation.+New+Brunswick,+NJ:+Transaction+Publishers&hl=pt-PT&sa=
- Benrath, B. (2019, March 31). Through the world on two wheels. *Faz.Net*. Retrieved from
<https://www.faz.net/aktuell/wirtschaft/schneller-schlau/faz-net-schneller-schlau-auf-zwei-raedern-durch-die-welt-16112370.html>
- Bentley, I., Alcock, A., Murrain, P., McGlynn, S., & Smith, G. (1985). *Responsive Environments. A manual for designers*. London: Architectural Press. <https://doi.org/https://doi.org/10.4324/9780080516172>
- Berkers, E., Botma, F., & Oldenziel, R. (2018). *Cycling Cities: The Hague Experience*. Eindhoven: Foundation for the History of Technology (Eindhoven University of Technology). Retrieved from
<http://www.cyclingcities.info/cycling-cities/cycling-cities-hague-experience/>
- Berkers, E., & Oldenziel, R. (2017). *Cycling Cities: The Arnhem and Nijmegen Experience - Cycling Cities*. Eindhoven: Foundation for the History of Technology (Eindhoven University of Technology). Retrieved from
<http://www.cyclingcities.info/2017/06/12/new-publication-cycling-cities-arnhem-nijmegen-experience/>
- Berkers, E., Schipper, F., Bek, P., & Oldenziel, R. (2019). *Cycling Cities: The Rotterdam Experience - Cycling Cities*. Eindhoven: Foundation for the History of Technology (Eindhoven University of Technology). Retrieved from
<http://www.cyclingcities.info/your-city-next/cycling-cities-rotterdam-experience/>
- Bernick, M., & Cervero, R. (1997). *Transit Villages in the 21st Century*. McGraw-Hill (Vol. 95). New York: McGraw-Hill. Retrieved from
https://books.google.com/books/about/Transit_Villages_in_the_21st_Century.html?hl=pt-PT&id=x0UFAQAIAAJ
- Bertolini, L., & le Clercq, F. (2003). Urban development without more mobility by car? Lessons from Amsterdam, a multimodal urban region. *Environment and Planning A*, 35(4), 575–589.
<https://doi.org/10.1068/a3592>
- Betsill, M. M., & Bulkeley, H. (2004). Transnational networks and global environmental governance: The cities for climate protection program. *International Studies Quarterly*, 48(2), 471–493.
<https://doi.org/10.1111/j.0020-8833.2004.00310.x>
- Bey, H. (1985). *The Temporary Autonomous Zone, Ontological Anarchy, Poetic Terrorism*. Brooklyn, NY: Autonomedia. Retrieved from https://hermetic.com/bey/taz_cont
- BHRF. (2016). Published evidence sceptical of helmet effectiveness or promotion. Retrieved from
<https://www.cyclehelmets.org/1146.html>
- Bicicletada de Santa Iria. (2011, April 5). 1ª Bicicletada - as fotografias. Retrieved from <https://bicicletada-santairia.blogspot.com/2011/04/1-bicicletada-as-fotografias.html>
- Bicicletada do Barreiro. (2011). Massa Crítica Barreiro. Retrieved November 21, 2021, from
<http://massabarreiro.blogspot.com/>
- Bicycle Innovation Lab. (2011). The Reverse Traffic Pyramid. Retrieved from
<https://bicycleinnovationlab.dk/cykelbiblioteket/>
- Bielak, Z. (2015). *From Pedal to People. The Social Effects of Biking* (Summer Faculty-Led Program in Copenhagen, Denmark SOCI 310 No. SOCI 310: Urban Sustainability and Livability).
<https://doi.org/10.13140/RG.2.2.30923.18721>
- Bijker, W. E. (1995). *Of bicycles, bakelites, and bulbs: Toward a theory of sociotechnical change*. Cambridge,

- Massachusetts: MIT Press. Retrieved from [https://books.google.com/books?hl=en&lr=&id=lsbmwN8-m1cC&oi=fnd&pg=PP11&dq=Bijker,+W.+\(1995\)+Of+Bicycles,+Bakelites,+and+Bulbs:+Toward+a+Theory+of+Sociotechnical+Change,+Inside+Technology+\(Cambridge:+MIT+Press\).&ots=4S9NVb-qXQ&sig=yryF-doa8AX7hd0VKSeBnr1](https://books.google.com/books?hl=en&lr=&id=lsbmwN8-m1cC&oi=fnd&pg=PP11&dq=Bijker,+W.+(1995)+Of+Bicycles,+Bakelites,+and+Bulbs:+Toward+a+Theory+of+Sociotechnical+Change,+Inside+Technology+(Cambridge:+MIT+Press).&ots=4S9NVb-qXQ&sig=yryF-doa8AX7hd0VKSeBnr1)
- Bike Collectives Network. (2014). Bike Collectives Network | About. Organizations. Wiki. Think Tank. Retrieved January 5, 2022, from <https://www.bikecollectives.org/#think-tank-register>
- Bike Portland. (2021, October 27). What's behind city's confidence in "crossbikes"? This research. Retrieved November 23, 2021, from <https://bikeportland.org/2021/10/27/whats-behind-citys-confidence-in-crossbikes-this-research-340429>
- Bikelberia. (2014, August). Lisbon Bike Map. Lisboa: Bikelberia. Retrieved from <https://lisbonbikemap.com/pt/mapa/>
- Birmingham City Council. (2013). *Cycle City Ambition Grants - Birmingham Cycle Revolution*. Birmingham, UK. Retrieved from https://www.birmingham.gov.uk/downloads/file/7805/cycle_city_ambition_grant_application_form
- Biuro Drogownictwa i Komunikacji Urzędu m.st. Warszawy. (2015). *Warszawski raport rowerowy 2015*. Warsaw. Retrieved from [http://www.transport.um.warszawa.pl/sites/default/files/Raport rowerowy 2015.pdf](http://www.transport.um.warszawa.pl/sites/default/files/Raport%20rowerowy%202015.pdf)
- Blickstein, S., & Hanson, S. (2001). Critical mass: Forging a politics of sustainable mobility in the information age. *Transportation*, 28(4), 347–362. <https://doi.org/10.1023/A:1011829701914>
- Blondiau, T., Van Zeebroeck, B., & Haubold, H. (2016). Economic Benefits of Increased Cycling. *Transportation Research Procedia*, 14, 2306–2313. <https://doi.org/https://doi.org/10.1016/j.trpro.2016.05.247>
- Bloomberg Associates. (2021). Janette Sadik-Khan. Retrieved July 26, 2021, from <https://associates.bloomberg.org/team/janette-sadik-khan/>
- Blue, E. (2014). *Bikenomics : How Bicycling Can Save the Economy*. (J. Biel & L. Hage, Eds.). Portland: Microcosm Publishing. Retrieved from https://books.google.pt/books?id=JBB4CAAQBAJ&printsec=frontcover&dq=bikenomics&hl=pt-PT&sa=X&ved=0ahUKEwiB_pCPqtHbAhWBNxQKHYOqB-UQ6AEIKDAA#v=onepage&q=bikenomics&f=false
- Boaventura, Inês, & Borges, L. (2016, May 10). Contra o buzinao, ciclistas fazem protesto silencioso no Marquês de Pombal | Lisboa | PÚBLICO. *Público*. Retrieved from <https://www.publico.pt/2016/05/10/local/noticia/contra-o-buzinao-ciclistas-fazem-protesto-silencioso-no-marques-de-pombal-1731509>
- Boaventura, Inês. (2005, April 24). Câmara de Lisboa desiste de criar 238 quilómetros de ciclovias. *Público*. Retrieved from <https://www.publico.pt/2005/04/24/jornal/camara-de-lisboa-desiste-de-criar-238-quilometros-de-ciclovias-17521>
- Boaventura, Inês. (2014, November 11). Câmara de Lisboa. Não faltam pistas cicláveis entre os 13 vencedores do Orçamento Participativo de Lisboa. *Público*. Retrieved from <https://www.publico.pt/2014/11/11/local/noticia/nao-faltam-pistas-ciclaveis-entre-os-13-vencedores-do-orcamento-participativo-de-lisboa-1675876>
- Boix, A. (2019, May 13). Caos & colapso en València: la lucha por el carril-bici que asombró a Europa. *Valencia Plaza*. Retrieved from <https://valenciaplaza.com/caos-colapso-en-valencia-la-lucha-por-el-carril-bici-que-asombro-a-europa>
- Bôle-Richard, A. (2010). Putting one foot in front of the other in Lisbon's streets and starting again: half way between reality and the imaginary. In M. J. Ramos & M. J. Alves (Eds.), *The Walker and The City* (pp. 119–144). Lisboa: Associação de Cidadãos Auto-Mobilizados (ACA-M). Retrieved from https://www.aca-m.org/publicacoes_e_documentos/the-walker-and-the-city/
- Bookchin, M. (1995). *Social Anarchism or Lifestyle Anarchism: An Unbridgeable Chasm Anarchism: An Unbridgeable Chasm*. Edinburgh, Scotland: AK Press. Retrieved from www.spunk.org
- Boonstra, A. (2008). A Case Study On Inter-Organizational Systems and Power. In M. M. C.-C. Goran D. Putnik (Ed.), *Encyclopedia of Networked and Virtual Organizations* (pp. 153–160). Hershey, PA: IGI Global. <https://doi.org/10.4018/978-1-59904-885-7.ch020>
- Boonstra, J. (2004). Conclusion: Some Reflections and Perspectives on Organizing, Changing, and Learning. In *Dynamics of Organizational Change and Learning* (pp. 447–475). John Wiley & Sons, Ltd. <https://doi.org/10.1002/9780470753408.ch22>
- BooST. (2021a). BooST – Boosting Starter Cycling Cities. Retrieved April 5, 2021, from <https://boost.up.pt/en/>
- BooST. (2021b, July 6). PhD Workshop: Research in Starter Cycling City Contexts. Retrieved from

- https://boost.up.pt/wp-content/uploads/2021/06/PhD-Workshop_PROGRAMME.pdf
- Borden, I. (1998). A Performative Critique of the City: the Urban Practice of Skateboarding, 1958-1998. In *The 3Cities Project* (p. 10). Nottingham. Retrieved from <https://pdfcoffee.com/the-urban-practice-of-skateboarding-pdf-free.html>
- Börzel, T. A. (2002). Pace-setting, foot-dragging, and fence-sitting: Member State responses to Europeanization. *Journal of Common Market Studies*, 40(2), 193–214. <https://doi.org/10.1111/1468-5965.00351>
- Bové, K. (2019). The Seven Hills. In M. Oshaug (Ed.), *Bikevibe Lisbon* (pp. 140–141). Oslo: Workhorse. Retrieved from <https://bikevibe.no/issues>
- Brailsford, L. (2015). *Cyclists behaving badly - Understanding cyclist disobedience in Amsterdam*. Netherlands: Everywhere Studio. Retrieved from <https://www.youtube.com/watch?v=XypDTdd4qr0>
- Branagan, M. (2014). The Australian Movement against Uranium Mining: Its Rationale and Evolution. *International Journal of Rural Law and Policy*, 1(1), 1–12. <https://doi.org/10.5130/ijrlp.i1.2014.3852>
- Brand, C., Dons, E., Anaya-Boig, E., Avila-Palencia, I., Clark, A., de Nazelle, A., ... Int Paris, L. (2021). The climate change mitigation effects of daily active travel in cities. *Transportation Research Part D: Transport and Environment*, 93(102764), 1–18. <https://doi.org/10.1016/j.trd.2021.102764>
- Brand, K. W. (1999). Dialectics of institutionalisation: The transformation of the environmental movement in Germany. *Environmental Politics*, 8(1), 35–58. <https://doi.org/10.1080/09644019908414437>
- Braun, L. M. M., Rodriguez, D. A. A., Cole-Hunter, T., Ambros, A., Donaire-Gonzalez, D., Jerrett, M., ... de Nazelle, A. (2016). Short-term planning and policy interventions to promote cycling in urban centers: Findings from a commute mode choice analysis in Barcelona, Spain. *Transportation Research Part A: Policy and Practice*, 89, 164–183. <https://doi.org/10.1016/j.tra.2016.05.007>
- Brey, R., Castillo-Manzano, J. I., Castro-Nuño, M., López-Valpuesta, L., Marchena-Gómez, M., & Sánchez-Braza, A. (2017). Is the widespread use of urban land for cycling promotion policies cost effective? A Cost-Benefit Analysis of the case of Seville. *Land Use Policy*, 63, 130–139. <https://doi.org/10.1016/j.landusepol.2017.01.007>
- Broach, J., Dill, J., & Gliebe, J. (2012). Where do cyclists ride? A route choice model developed with revealed preference GPS data. *Transportation Research Part A: Policy and Practice*, 46(10), 1730–1740. <https://doi.org/10.1016/j.tra.2012.07.005>
- Broadly, M. (1981). Mullan, Bob, “Stevenage Ltd: Aspects of the Planning and Politics of Stevenage New Town, 1945-78” (Book Review). *Town Planning Review*, 52(3), 353–354. <https://doi.org/10.3828/tpr.52.3.g501555h84404176>
- Brooks, W. B. (1918). On Creating a Usable Past. *The Dial*, 337–341.
- Brouwer, S., & Huitema, D. (2018). Policy entrepreneurs and strategies for change. *Regional Environmental Change*, 18(5), 1259–1272. <https://doi.org/10.1007/s10113-017-1139-z>
- Brown, A. J. (2015). *Power struggles: the strategies and tactics of the anti-nuclear movement in contemporary Tokyo*. University of Wollongong. Retrieved from <https://muse.jhu.edu/article/761145/summary>
- Bruntlett, M., & Bruntlett, C. (2018). *Building the Cycling City: The Dutch Blueprint for Urban Vitality*. Washington, Covelo, London: Island Press. Retrieved from <https://books.google.pt/books?id=f-FdDwAAQBAJ&printsec=frontcover&dq=Bruntlett+Bruntlett&hl=pt-PT&sa=X&ved=0ahUKEwj097HnqJvgAhUwyUKHQ1VBi8Q6AEIKTAA#v=onepage&q=Bruntlett+Bruntlett&f=false>
- Buehler, R., Heinen, E., & Nakamura, K. (2021). Bicycle parking. In R. Buehler & J. Pucher (Eds.), *Cycling for Sustainable Cities* (pp. 103–117). Cambridge, Massachusetts: MIT Press. <https://doi.org/https://doi.org/10.7551/mitpress/11963.003.0010>
- Buehler, R., & Pucher, J. (2011). Sustainable transport in Freiburg: Lessons from germany’s environmental capital. *International Journal of Sustainable Transportation*, 5(1), 43–70. <https://doi.org/10.1080/15568311003650531>
- Buehler, R., & Pucher, J. (2012a). Big City Cycling in Europe, North America, and Australia. In J. Pucher & R. Buehler (Eds.), *City Cycling* (pp. 287–318). Cambridge, Massachusetts: MIT Press. Retrieved from <https://www.scopus.com/results/results.uri?src=dm&sort=plf-f&st1=%22Big+City+Cycling%22+AND+Pucher%2C+J&st2=&sid=849794176432cd9c2c89cba86e1f7237&sot=b&sdt=b&sl=47&s=TITLE-ABS-KEY%28%22Big+City+Cycling%22+AND+Pucher%2C+J%29&cl=t&offset=1&ss=plf-f&ws=r-f&p>
- Buehler, R., & Pucher, J. (2012b). International Overview: Cycling Trends in Western Europe, North America, and Australia. In J. Pucher & R. Buehler (Eds.), *City Cycling* (pp. 9–30). Cambridge: MIT Press. Retrieved from

- https://books.google.pt/books?hl=en&lr=&id=226mCyz9JaEC&oi=fnd&pg=PA9&dq=Ralph+Buehler+John+Pucher+An+International+Overview&ots=lcUxe2pP9L&sig=ZBDnC2WuGRAsKaM4vW0dWKP9sU0&redir_esc=y#v=onepage&q=Ralph+Buehler+John+Pucher+An+International+Over
- Buehler, R., & Pucher, J. (2021a). COVID-19 Impacts on Cycling, 2019–2020. *Transport Reviews*, 41(4), 393–400. <https://doi.org/10.1080/01441647.2021.1914900>
- Buehler, R., & Pucher, J. (2021b). *Cycling for Sustainable Cities*. (R. Buehler & J. Pucher, Eds.), *Cycling for Sustainable Cities*. Cambridge, Massachusetts: MIT Press. <https://doi.org/10.7551/mitpress/11963.001.0001>
- Buehler, R., & Pucher, J. (2021c). Cycling to a More Sustainable Transport Future. In R. Buehler & J. Pucher (Eds.), *Cycling for Sustainable Cities* (pp. 425–440). Cambridge, Massachusetts: MIT Press. <https://doi.org/https://doi.org/10.7551/mitpress/11963.003.0025>
- Buehler, R., Pucher, J., & Altshuler, A. (2017). Vienna's path to sustainable transport. *International Journal of Sustainable Transportation*, 11(4), 257–271. <https://doi.org/10.1080/15568318.2016.1251997>
- Buehler, T., & Handy, S. (2008). Fifty Years of Bicycle Policy in Davis, California. *Transportation Research Record: Journal of the Transportation Research Board*, 2074, 52–57. <https://doi.org/10.3141/2074-07>
- Bulkeley, H., & Castán Broto, V. (2013). Government by experiment? Global cities and the governing of climate change. *Transactions of the Institute of British Geographers*, 38(3), 361–375. <https://doi.org/10.1111/j.1475-5661.2012.00535.x>
- Bullard, R. (2004). Highway robbery: transportation racism & new routes to equity. In R. Bullard, G. Johnson, & A. Torres (Eds.), *Highway Robbery: Transportation Racism & New Routes to Equity* (pp. 15–32). Cambridge, Massachusetts: South End Press. Retrieved from [https://books.google.com/books?hl=en&lr=&id=NB_IJoyiF2cC&oi=fnd&pg=PA1&dq=Bullard,+R.+\(2004\)+The+anatomy+of+transportation+racism,+in:+R.+Bullard,+G.+Johnson+%26+A.+Torres+\(Eds.\),+Highway+Robbery,+pp.+15-32+\(Cambridge:+South+End+Press\).&ots=GZTKcl2wK&sig=](https://books.google.com/books?hl=en&lr=&id=NB_IJoyiF2cC&oi=fnd&pg=PA1&dq=Bullard,+R.+(2004)+The+anatomy+of+transportation+racism,+in:+R.+Bullard,+G.+Johnson+%26+A.+Torres+(Eds.),+Highway+Robbery,+pp.+15-32+(Cambridge:+South+End+Press).&ots=GZTKcl2wK&sig=)
- Bulmer, S., & Padgett, S. (2004). Policy transfer in the European Union: An institutionalist perspective. *British Journal of Political Science*, 35(1), 103–126. <https://doi.org/10.1017/S0007123405000050>
- Burgen, S. (2018). “For me, this is paradise”: life in the Spanish city that banned cars. *The Guardian*. Retrieved from <https://www.theguardian.com/cities/2018/sep/18/paradise-life-spanish-city-banned-cars-pontevedra>
- Burk, D. (2017). Infrastructure, social practice, and environmentalism: The case of bicycle-commuting. *Social Forces*, 95(3), 1209–1236. <https://doi.org/10.1093/sf/sow100>
- Busch, H. (2016). *Entangled Cities - Transnational Municipal Climate Networks and Urban Governance*. Lund University. <https://doi.org/10.13140/RG.2.2.23704.39684>
- BX1. (2019). C'était Mieux Maintenant : le vélo et Bruxelles, une histoire qui a presque 200 ans. Brussels, Belgium: BX1 Médias de Bruxelles. Retrieved from <https://bx1.be/news/le-velo-et-bruxelles-une-histoire-qui-a-presque-200-ans/>
- BYPAD. (2019a). BYPAD Bicycle Policy Audit. Certified Cities and Regions. Retrieved October 1, 2021, from https://www.bypad.org/stories/certified_cities_regions
- BYPAD. (2019b). BYPAD History. Retrieved October 1, 2021, from <https://www.bypad.org/about/history>
- Câmara Municipal de Almada. Deliberação de Reunião de Câmara de 21/09/2005 (2005). Almada: Câmara Municipal de Almada. Retrieved from <https://www.cm-almada.pt/viver/ambiente-energia-e-smart-cities/mobilidade-suave>
- Câmara Municipal de Almada. (2005b, September). Proposta de Rede Ciclável Hieraquizada do Concelho de Almada - Memória Descritiva. Almada. Retrieved from <https://www.cm-almada.pt/viver/ambiente-energia-e-smart-cities/mobilidade-suave>
- Câmara Municipal de Almada. (2021). Mobilidade Suave. Retrieved October 28, 2021, from <https://www.cm-almada.pt/viver/ambiente-energia-e-smart-cities/mobilidade-suave>
- Câmara Municipal de Cascais. (2015a). *Componentes do Plano de Ação para a Mobilidade Urbana Sustentável*. Cascais. Retrieved from <http://portugalfotografiaaerea.blogspot.pt/>
- Câmara Municipal de Cascais. (2015b). Plano Diretor Municipal de Cascais. Cascais, Portugal. Retrieved from https://www.cascais.pt/sites/default/files/anexos/gerais/new/pdm-em_vigor.pdf
- Câmara Municipal de Cascais. (2016, August). Ciclovía São João - Carcavelos. Retrieved June 17, 2021, from <https://www.cascais.pt/anexo/cicloviasao-joao-carcavelos-4-estacoes>
- Câmara Municipal de Cascais. (2021a). OP 2021 - Projeto 55 - Ciclovía urbana entre a Parede e Carcavelos. Cascais. Retrieved from <https://drive.google.com/file/d/1NSSrOwXIMyNsBoBhk5fWYDreHT6sET0P/view>
- Câmara Municipal de Cascais. (2021b, April 10). Rede ciclável cresce em Cascais. Retrieved October 30,

2021, from <https://www.cascais.pt/noticia/rede-ciclavel-cresce-em-cascais>

Câmara Municipal de Cascais. (2021c, April 19). A rua amarela alargou-se à Estrada da Rebelva. Retrieved October 30, 2021, from <https://www.facebook.com/346668692583/posts/10158090796447584/>

Câmara Municipal de Cascais. (2022, March 10). Há novos Quiosques MobiCascais. Retrieved November 23, 2022, from <https://mobi.cascais.pt/noticia/ha-novos-quiocques-mobicascais>

Câmara Municipal de Lisboa. (2005). *LISBOA: O desafio da mobilidade*. Lisboa. Retrieved from <http://www.cm-lisboa.pt/fileadmin/VIVER/Urbanismo/urbanismo/livros/mobilidade.pdf>

Câmara Municipal de Lisboa. (2012). Plano Diretor Municipal de Lisboa. Lisboa, Portugal. Retrieved from http://www.cm-lisboa.pt/fileadmin/VIVER/Urbanismo/urbanismo/planeamento/pdm/vigor2/publicacao_pdm.pdf

Câmara Municipal de Lisboa. (2015, March 12). Terceira fase da ZER dia 15 de janeiro. Retrieved October 28, 2021, from <https://www.lisboa.pt/atualidade/noticias/detalhe/terceira-fase-da-zer-dia-15-de-janeiro>

Câmara Municipal de Lisboa. (2016). Declive Longitudinal da Rede Viária. Retrieved October 21, 2021, from <http://dados.cm-lisboa.pt/dataset/declive-longitudinal-da-rede-viaria>

Câmara Municipal de Lisboa. (2017, April 24). Vamos pedalar por Lisboa, a nossa equipa. Retrieved from <https://www.lisboa.pt/atualidade/noticias/detalhe/vamos-pedalar-por-lisboa-a-nossa-equipa>

Câmara Municipal de Lisboa. (2018a). European Green Capital - Lisbon 2020 Application. Lisboa: European Commission. Retrieved from <https://ec.europa.eu/environment/europeangreencapital/winning-cities/2020-lisbon/15210-2/>

Câmara Municipal de Lisboa. (2018b). Lisboa: o Desenho da Rua. (J. B. Santos, Ed.). Lisboa: Câmara Municipal de Lisboa. Departamento de Espaço Público. Retrieved from <http://www.cm-lisboa.pt/viver/urbanismo/espaco-publico>

Câmara Municipal de Lisboa. (2018c). *Velo-City Bid Lisboa 2021*. (E. M. S. A. Empresa Municipal de Mobilidade e Estacionamento de Lisboa, Ed.). Lisbon: Câmara Municipal de Lisboa.

Câmara Municipal de Lisboa. Deliberação n.º 151/AML/2020.; 2.º SUPLEM Boletim Municipal Câmara Municipal de Lisboa § (2020). Lisboa: Assembleia Municipal de Lisboa. Retrieved from https://bmpesquisa.cm-lisboa.pt/pls/OKUL/app_bm.download_my_file?p_file=3388#search=

Câmara Municipal de Lisboa. (2020b). *Zona de Emissões Reduzidas | Avenida-Baixa-Chiado*. Lisboa. Retrieved from https://zer.lisboa.pt/Relatorio_ZER.pdf

Câmara Municipal de Lisboa. (2020c, October). MOVE Lisboa - Visão estratégica para a Mobilidade 2030. Lisboa: Câmara Municipal de Lisboa. Retrieved from https://www.lisboa.pt/fileadmin/cidade_temas/mobilidade/documentos/BrochuraMOVE_2030.pdf

Câmara Municipal de Lisboa. (2020d, December 15). Vale de Alcântara. Retrieved November 24, 2021, from <https://www.lisboa.pt/cidade/ambiente/estrutura-ecologica/corredores-verdes/vale-de-alcantara>

Câmara Municipal de Lisboa. (2021a). A Rua é Sua. Retrieved October 30, 2021, from <https://www.lisboa.pt/a-rua-e-sua>

Câmara Municipal de Lisboa. (2021b). *Como Pedala Lisboa. Rumo a uma cidade mais sustentável*. Lisboa. Retrieved from https://www.lisboa.pt/fileadmin/cidade_temas/mobilidade/documentos/Como_Pedala_Lisboa.pdf

Câmara Municipal de Lisboa. (2021c). Evolução do Planeamento Urbano de Lisboa. Retrieved August 23, 2021, from <https://www.lisboa.pt/cidade/urbanismo/planeamento-urbano/evolucao>

Câmara Municipal de Lisboa. (2021d). Piloto Lx. Retrieved December 10, 2021, from <http://eco-public.com/public2/?id=100028002#>

Câmara Municipal de Lisboa. (2021e). Programa Lisboa Sem Rodinhas. Retrieved December 6, 2021, from <https://www.lisboa.pt/cidade/mobilidade/escolar/lisboa-sem-rodinhas>

Câmara Municipal de Lisboa. (2021f). Programa Mãos ao Ar Lisboa. Retrieved December 6, 2021, from <https://www.lisboa.pt/cidade/mobilidade/maos-ao-ar-lisboa>

Câmara Municipal de Lisboa. (2021g). Programa municipal de comboios de bicicletas de Lisboa. Retrieved September 13, 2021, from <https://www.lisboa.pt/cidade/mobilidade/escolar/comboios-de-bicicleta>

Câmara Municipal de Lisboa. (2021h). Zona de Emissões Reduzidas (ZER). Retrieved October 28, 2021, from <https://informacoeseservicos.lisboa.pt/servicos/detalhe/zona-de-emissoes-reduzidas-zer>

Câmara Municipal de Lisboa. (2021i, July 7). Instalados 34 sensores de contagem de bicicletas em Lisboa. Retrieved October 18, 2021, from <https://www.lisboa.pt/atualidade/noticias/detalhe/instalados-34-sensores-de-contagem-de-bicicletas-em-lisboa>

Câmara Municipal de Lisboa | WBCDS. (2019, October 15). Pacto de Mobilidade Empresarial para a Cidade de Lisboa | Corporate Mobility Pact for the City of Lisbon. Lisboa: Câmara Municipal de Lisboa | World Business Council for Sustainable Development (WBCSD). Retrieved from

- https://www.lisboa.pt/fileadmin/atualidade/noticias/user_upload/pacto_mobilidade_empresarial_cidade_Lisboa.pdf
- Câmara Municipal de Oeiras. (2015). Plano Diretor Municipal de Oeiras. Oeiras, Portugal. Retrieved from <https://pdm.cm-oeiras.pt/>
- Câmara Municipal de Torres Vedras. (2020). Modos Suaves – Mobilidade Torres Vedras. Retrieved November 20, 2022, from <https://www.mobilidade-tvedras.pt/modos-suaves/>
- Câmara Municipal do Porto. (2021). Bicicleta e outros velocípedes. Retrieved December 18, 2021, from <https://mobilidade.cm-porto.pt/modos-suaves/bicicleta-e-outros-velocipedes>
- Camisola Amarela. (2014, May 29). Abertura RCicla & Gremio. *Vimeo*. Lisboa. Retrieved from <https://vimeo.com/96800760>
- Campos, M. R. (2015). Lisboa - breve história dos Planos Urbanísticos. Lisboa. Retrieved from <https://docplayer.com.br/55936627-Lisboa-breve-historia-dos-planos-urbanisticos.html>
- Cansino, J. M., Sánchez-Braza, A., & Sanz-Díaz, T. (2018). Policy instruments to promote electro-mobility in the EU28: A comprehensive review. *Sustainability (Switzerland)*, 10(7), 2507. <https://doi.org/10.3390/su10072507>
- Capucho, J. (2016, July 15). Lisboa - Das ciclovias ao teleférico do Cristo-Rei. As propostas dos lisboetas. *Diário de Notícias*. Retrieved from <https://www.dn.pt/sociedade/interior/das-ciclovias-ao-teleferico-do-cristo-rei-as-propostas-dos-lisboetas-5285546.html>
- Carlsson, C. (2002). *Cycling Under the Radar—Assertive Desertion*. Oakland: AK Press. Retrieved from http://www.chriscarlsson.com/chris/cmbook_cycling_under_radar.pdf
- Carlsson, C., Elliott, L., & Camarena, A. (2012). *Shift Happens! Critical Mass at 20*. San Francisco: Full Enjoyment Books. Retrieved from https://books.google.pt/books?id=gW2aMQEACAAJ&dq=Shift+Happens+Chris+Carlsson&hl=pt-PT&sa=X&ved=0ahUKEwjTquzcptHbAhVmzlkKHa_sBTUQ6AEIKDAA
- Carlsson, L. (2000). Policy networks as collective action. *Policy Studies Journal*, 28(3), 502–520. <https://doi.org/10.1111/j.1541-0072.2000.tb02045.x>
- Carlsson, L. (2017). Policy Science at an Impasse: A Matter of Conceptual Stretching? *Politics & Policy*, 45(2), 148–168. <https://doi.org/10.1111/polp.12196>
- Caro, R. A. (1974). *The Power Broker: Robert Moses and the Fall of New York*. New York: Alfred A. Knopf.
- Carter, D. P., Weible, C. M., Siddiki, S. N., & Basurto, X. (2016). Integrating core concepts from the institutional analysis and development framework for the systematic analysis of policy designs: An illustration from the US National Organic Program regulation. *Journal of Theoretical Politics*, 28(1), 159–185. <https://doi.org/10.1177/0951629815603494>
- Carter, N., da Silva, F. N., & Magalhães, F. (2000). Local agenda 21: Progress in Portugal. *European Urban and Regional Studies*, 7(2), 181–186. <https://doi.org/10.1177/096977640000700207>
- Carvalho, M. A. (2013, August 10). Mapa dos declives de Lisboa. Retrieved August 10, 2021, from <https://menos1carro.blogs.sapo.pt/263482.html>
- Cass, N., Schwanen, T., & Shove, E. (2018). Infrastructures, intersections and societal transformations. *Technological Forecasting and Social Change*, 137, 160–167. <https://doi.org/10.1016/j.techfore.2018.07.039>
- Cassiano, A. (2022, September 21). Oeiras. A "revolução" de Isaltino que começa com 14 parques de estacionamento. *Diário de Notícias*. Retrieved from <https://www.dn.pt/local/oeiras-a-revolucao-de-isaltino-que-comeca-com-14-parques-de-estacionamento-15182041.html>
- Castillo-Manzano, J. I., & Sánchez-Braza, A. (2013). Can anyone hate the bicycle? The hunt for an optimal local transportation policy to encourage bicycle usage. *Environmental Politics*, 22(6), 1010–1028. <https://doi.org/10.1080/09644016.2012.740936>
- Castro, F. (2021). Governo dá 3,8 milhões para ciclovias em Lisboa e para ligar Fundação à Guarda. *ECO*. Retrieved from <https://eco.sapo.pt/2021/05/26/governo-da-38-milhoes-para-ciclovias-em-lisboa-e-para-ligar-fundao-a-guarda/>
- CCDRLVT. (2010a). *PROTAML - Sistema de Transportes - Diagnóstico Sectorial*. Lisboa. Retrieved from <http://www.ccdr-lvt.pt/pt/plano-regional-de-ordenamento-do-territorio-da-area-metropolitana-de-lisboa/54.htm>
- CCDRLVT. (2010b, November). Plano Regional de Ordenamento do Território da Área Metropolitana de Lisboa. Proposta Técnica Final. Lisboa. Retrieved from <http://www.ccdr-lvt.pt/pt/plano-regional-de-ordenamento-do-territorio-da-area-metropolitana-de-lisboa/54.htm>
- Cervero, R., & Duncan, M. (2003). Walking, Bicycling, and Urban Landscapes: Evidence from the San Francisco Bay Area. *American Journal of Public Health*, 93(9), 1478–1483.

- <https://doi.org/10.2105/AJPH.93.9.1478>
- Charalampakis, M. (2015, November 26). Forgotten in the drawer of the Ministry the bike path Gazi - Kifissia. *Ta Nea*. Retrieved from <https://www.tanea.gr/2015/11/26/lifearts/orthopetalies/orthopetalies-119-ksexasmenos-sto-syrtari-toy-yпойrgeioy-o-podilatodromos-gkazi-kifisia/>
- Charalampakis, M. (2020, June 4). The bike path that can change Athens. *Ta Nea*. Retrieved from <https://www.tanea.gr/2020/06/04/lifearts/orthopetalies/o-podilatodromos-pou-mporei-na-allaksei-tin-athina/>
- Chenoweth, J., Anderson, A. R., Kumar, P., Hunt, W. F., Chimbwandira, S. J., & Moore, T. L. C. (2018). The interrelationship of green infrastructure and natural capital. *Land Use Policy*, 75, 137–144. <https://doi.org/10.1016/j.landusepol.2018.03.021>
- Christopoulos, D. C. (2008). Political entrepreneurs : network structure and power. *Political Studies Association Leadership Specialist Group Meeting, University of Leeds*, 1–17. Retrieved from https://www.researchgate.net/profile/Dimitrios_Christopoulos2/publication/265495932_Political_entrepreneurs_network_structure_and_power/links/54abeb7a0cf25c4c472fbafa.pdf
- Christopoulos, D., & Ingold, K. (2015). Exceptional or just well connected? Political entrepreneurs and brokers in policy making. *European Political Science Review*, 7(3), 475–498. <https://doi.org/10.1017/S1755773914000277>
- Ciclaveiro. (2021). Casa da bicicleta. Retrieved December 17, 2021, from <http://casadabicicleta.pt/>
- Ciclododa. (2020, April 8). Recomendação da Cicloficina dos Anjos sobre soluções de mobilidade em bicicleta durante a pandemia COVID-19. Lisboa. Retrieved from <https://cicloficina.pt/wp-content/uploads/2020/04/CICLODA-COVID-recomendacao-CML.pdf>
- Ciclododa. (2021). Ciclododa - Projectos Passados e Presentes. Retrieved January 5, 2022, from <https://ciclododa.cicloficina.pt/>
- CicloExpresso. (2021). Sobre o Projeto. Retrieved December 6, 2021, from <https://cicloexpresso.pt/sobre>
- Cicloficina. (2013). Cicloficina. Ferramentas para a produção do uso quotidiano da bicicleta. Retrieved January 5, 2022, from <https://cicloficina.pt/sobre/>
- Cicloficina. (2015, July 7). Comissão Europeia premeia Cicloficina dos Anjos, FPCUB fica com o prémio. Retrieved December 6, 2021, from <https://cicloficina.pt/2015/07/07/a-cicloficina-dos-anjos-a-fpcub-e-um-premio-da-comissao-europeia/>
- Ciclovias.pt. (2019). Ciclovias do Porto. Retrieved January 11, 2022, from <https://www.ciclovias.pt/ciclovias/1norte/3porto/porto/porto.php>
- Ciclovias.pt. (2020a). Amadora: Ciclovias do Interface Amadora Este - Santa Cruz/Damaia. Retrieved November 20, 2021, from <https://www.ciclovias.pt/ciclovias/3lisboa/1lisboa/amadora/a33011301.php>
- Ciclovias.pt. (2020b). Ciclovias de LOURES. Retrieved November 20, 2021, from <https://www.ciclovias.pt/ciclovias/3lisboa/1lisboa/loures/loures.php>
- Ciclovias.pt. (2021). Ciclovias - Estatísticas/Site Statistics. Retrieved December 6, 2021, from <https://www.ciclovias.pt/estatisticas.html>
- Ciclovias na Marginal. (2014, May 28). Oeiras está de parabéns! Retrieved from <https://www.facebook.com/ciclovias.marginal/photos/a.1484997375062922/1494456340783692>
- Ciclovias na Marginal. (2019, May 15). Ciclovias Algés - Alfragide. Retrieved December 2, 2021, from <https://www.facebook.com/ciclovias.marginal/photos/a.1484997375062922/2422092814686702>
- Ciclovias na Marginal. (2021, May 22). Sabias que se as Propostas 34 do OP Oeiras e 11 do OP Cascais ganham vamos ter uma ciclovias entre o centro de Paço de Arcos e o centro da Parede? Retrieved December 2, 2021, from <https://www.facebook.com/ciclovias.marginal/photos/a.1484997375062922/3046606145568696>
- Ciclovias.pt. (2021). Sobre o Ciclovias.pt. Lisboa. Retrieved from <https://www.ciclovias.pt/sobre.html>
- Ciclovias.pt. (2022a). Ciclovias.pt - Ciclovias de Portugal. Retrieved from <https://www.ciclovias.pt/>
- Ciclovias.pt. (2022b). Contadores de bicicletas de Lisboa. Retrieved from <https://www.ciclovias.pt/contadores/?loc=3>
- City of Munich. (2007, June). The Munich Cycle Network. New signposting for cyclists. Munich: City of Munich. Retrieved from www.muenchen.de/mobil
- City of Vienna. (2013). *Sound of Cycling. Urban Cycling Cultures. Velo-city Vienna 2013 Conference Magazine* (Vol. Velo-City). Vienna: City of Vienna. Retrieved from http://velo-city2013.com/wp-content/uploads/Velo-city-2013_Conference-Magazine_THE-SOUND-OF-CYCLING_ENG_web.pdf
- CIUHCT. (2022). Hi-BicLab. Laboratório de História para Mobilidades Urbanas Sustentáveis: Políticas cicláveis de Lisboa :: CIUHCT. Retrieved November 26, 2022, from <https://ciuhct.org/investigacao/hi-biclab-laboratorio-de-historia-para-mobilidades-urbanas-sustentaveis-politicas-ciclaveis-de-lisboa>

- Clarke, C. (2015, January). Evaluation of Australia's bicycle helmet laws. *The Sports Science Summit*, 40. Retrieved from https://www.researchgate.net/publication/275338909_Evaluation_of_Australia's_bicycle_helmet_laws
- Coenen, F. (2009). Local agenda 21: 'Meaningful and effective' participation? In *Public Participation and Better Environmental Decisions: The Promise and Limits of Participatory Processes for the Quality of Environmentally Related Decision-making* (pp. 165–182). Springer Netherlands. https://doi.org/10.1007/978-1-4020-9325-8_10
- Coligação Evoluir Oeiras. (2021, September 20). As Gavetas Participativas de Oeiras Valley. *Coligação Evoluir Oeiras*. Oeiras, Portugal: YouTube. Retrieved from <https://www.youtube.com/watch?v=zzMnWYjhfbw>
- Collectif Vélos en Ville. (2019). Aménagement Cyclable. Retrieved December 16, 2019, from <http://www.velosenville.org/index.php/amenagement-cyclable>
- Colville-Andersen, M. (2021, January 6). Lynetteholm - Copenhagen's MEGAPROJECT Folly. *The Life-Sized City*. Copenhagen, Denmark: DB Com Media, Montréal, Québec, Canada. Retrieved from <https://www.youtube.com/watch?v=K4icpF0S5BM>
- Comissão para a Reforma da Fiscalidade Verde. (2014a). *ANEXO III - Sistematização e análise dos contributos recebidos em sede de consulta pública*. Lisboa. Retrieved from <https://www.historico.portugal.gov.pt/pt/o-governo/arquivo-historico/governos-constitucionais/gc19/os-ministerios/maote/quero-saber-mais/sobre-o-ministerio/consulta-publica-fiscalidade-verde/consulta-publica-fiscalidade-verde.aspx>
- Comissão para a Reforma da Fiscalidade Verde. (2014b). *Anteprojecto de Reforma da Fiscalidade Verde*. Lisboa. Retrieved from <https://www.historico.portugal.gov.pt/pt/o-governo/arquivo-historico/governos-constitucionais/gc19/os-ministerios/maote/quero-saber-mais/sobre-o-ministerio/consulta-publica-fiscalidade-verde/consulta-publica-fiscalidade-verde.aspx>
- Comissão para a Reforma da Fiscalidade Verde. (2014c). Contributos da consulta pública sobre a Fiscalidade Verde. Retrieved October 5, 2021, from <https://www.historico.portugal.gov.pt/pt/o-governo/arquivo-historico/governos-constitucionais/gc19/os-ministerios/maote/quero-saber-mais/sobre-o-ministerio/consulta-publica-fiscalidade-verde/contributos-fiscalidade-verde.aspx>
- Comune di Napoli. (2012). Inaugurata la pista ciclabile di Napoli. Retrieved January 2, 2020, from <http://www.comune.napoli.it/flex/cm/pages/ServeBLOB.php/L/IT/IDPagina/19883>
- Comune di Napoli. (2016). *Comune di Napoli - Piano Urbano della Mobilità Sostenibile (PUMS) - ANALISI DEL SISTEMA DI MOBILITÀ*. Naples. Retrieved from <http://www.comune.napoli.it/flex/cm/pages/ServeBLOB.php/L/IT/IDPagina/28525>
- Comune di Torino. (2013). *Piano della mobilità ciclabile (BICIPLAN)*. Turin. Retrieved from http://www.comune.torino.it/trasporti/bm~doc/all1_piano-della-mobilit-ciclabile_emend.pdf
- Concello de Pontevedra. (2016). + *Modelo Urbano Pontevedra 2016 - 2022. Estrategia de Desarrollo Urbano Sostenible e Integrado de Pontevedra*. Pontevedra. Retrieved from https://www.pontevedra.gal/web2016/wp-content/uploads/2016/01/URBAN_Mais-Modelo-Pontevedra.pdf
- Concello de Pontevedra. (2017). Fewer cars more city. Pontevedra: Concello de Pontevedra. Retrieved from www.pontevedra.gal
- Copenhagenize.eu. (2020). Copenhagenize Design Co. Retrieved June 20, 2021, from <https://copenhagenize.eu/>
- Covenant of Mayors Office. (2022). Covenant initiative. Retrieved from <https://www.covenantofmayors.eu/about/covenant-initiative/covenant-in-figures.html>
- COWI. (2009). *Københavns Kommune Samfundsøkonomiske analyser af cykeltiltag - metode og cases Rapport*. Copenhagen. Retrieved from <https://projects.cowiportal.com/>
- COWI, & Directorate-General for Mobility and Transport (European Commission). (2017a). *Support study on data collection and analysis of active modes use and infrastructure in Europe*. Luxembourg. <https://doi.org/10.2832/497896>
- COWI, & Directorate-General for Mobility and Transport (European Commission). (2017b). *Support study on data collection and analysis of active modes use and infrastructure in Europe Final Report*. Luxembourg. <https://doi.org/10.2832/762677>
- Cox, P. (2015a). *Cycling, environmentalism and change in 1970s Britain* (Vol. 1). Munich, Germany. Retrieved from <https://chesterrep.openrepository.com/handle/10034/554155>
- Cox, P. (2015b). Social movement activism, social change and bicycling in the UK. Retrieved from <https://chesterrep.openrepository.com/handle/10034/602376>

- Cox, P. (2020). Theorising infrastructure: a politics of spaces and edges. In P. Cox & T. Koglin (Eds.), *The Politics of Cycling Infrastructure: Spaces and (In)Equality* (pp. 15–34). Bristol: Policy Press. Retrieved from https://books.google.pt/books?id=hZ_LDwAAQBAJ&dq=Peter+Cox,+2020+automobility&lr=&source=gb_s_navlinks_s
- Cox, P., & Bunte, H. (2018). Social practices and the importance of context. In K. Grafl, B. Heike, K. Dziekan, H. Haubold, & M. Neun (Eds.), *Framing the Third Cycling Century* (pp. 122–131). Dessau-Roßlau: Umweltbundesamt (UBA) - Federal German Environment Agency. Retrieved from https://www.umweltbundesamt.de/sites/default/files/medien/1410/publikationen/181128_uba_fb_third_cycling_century_bf_small.pdf
- Critical Mass Frankfurt. (2019). Critical Mass Frankfurt. Retrieved December 4, 2019, from https://www.facebook.com/pg/criticalmass.frankfurt/about/?ref=page_internal
- Critical Mass Stuttgart. (2010). Critical Mass Stuttgart.
- CROW. (2011, March). Manual de Diseño para el Tráfico de Bicicletas. (R. de; Groot & Herwijnen, Eds.). Ede: CROW. Retrieved from www.crow.nl/shop
- CROW. (2016). *Design manual for bicycle traffic*. (R. de Groot & Herwijnen, Eds.). Ede: CROW. Retrieved from <https://crowplatform.com/product/design-manual-for-bicycle-traffic/>
- CRR. (2009). Les aménagements cyclables - Fiches Techniques. Brussels. Retrieved from [http://mobilite.wallonie.be/files/eDocsMobilite/Centre de doc/publications de la planification de la mobilité/guide cyclable/Fiches.pdf](http://mobilite.wallonie.be/files/eDocsMobilite/Centre%20de%20doc/publications%20de%20la%20planification%20de%20la%20mobilit%C3%A9/guide%20cyclable/Fiches.pdf)
- Cultura no Muro. (2015, November). A 1ª bicicletada foi assim, dia 11 de Dezembro há mais! Retrieved from <https://www.facebook.com/CulturaNoMuro/posts/799356390173320>
- Curtius, M. (1998). How the Greens Got the Blues. *Los Angeles Times*. Retrieved from <https://www.latimes.com/archives/la-xpm-1998-oct-09-mn-30806-story.html>
- Cycle Savvy. (2005, August 25). Critical Mass Fri. 26 Aug. Glasgow. Retrieved December 5, 2019, from <http://cyclesavey.blogspot.com/>
- cyclehelmets.org. (2020). Mandatory bicycle helmet law in Western Australia. Retrieved from <http://www.cycle-helmets.com/index.html>
- cyclehelmets.org. (2021). Mandatory bike helmet laws: latest research. Retrieved from http://www.cycle-helmets.com/helmet_statistics.html
- Cycling Dublin Campaign. (2017). Who are Dublin Cycling Campaign? Retrieved November 21, 2019, from <https://www.dublincycling.com/cycling/who-are-dublin-cycling-campaign>
- Cycling Fallacies. (2016, June). Falácias Sobre a Bicicleta. Retrieved December 6, 2021, from <https://cyclingfallacies.com/pt/>
- Cyert, R. M., & March, J. G. (1963). *A behavioral theory of the firm*. Pittsburgh: Carnegie Institute of Technology. Retrieved from <https://books.google.pt/books?id=MXjDxwEACAAJ&dq=cyert+march+1963&hl=pt-PT&sa=X&ved=0ahUKEwjWqrXr4YrIAhVfDmMBHdzRD48Q6AEIMjAB>
- Daigh, M. (2017, October 6). The Myth of the Scofflaw Cyclist. Retrieved November 23, 2021, from <https://streets.mn/2017/10/06/the-myth-of-the-scofflaw-cyclist/>
- de Maesschalck, F. (2011). The politicisation of suburbanisation in Belgium: Towards an Urban-suburban divide. *Urban Studies*, 48(4), 699–717. <https://doi.org/10.1177/0042098010366764>
- de Sousa, A. A., Sanches, S. P., & Ferreira, M. A. G. (2014). Perception of Barriers for the Use of Bicycles. *Procedia - Social and Behavioral Sciences*, 160, 304–313. <https://doi.org/10.1016/j.sbspro.2014.12.142>
- De Vos, J. (2015). The influence of land use and mobility policy on travel behavior: A comparative case study of flanders and the netherlands. *Journal of Transport and Land Use*, 8(1), 171–190. <https://doi.org/10.5198/jtlu.2015.709>
- Debord, G. (1957). *Report on the Construction of Situations And on the International Situationist Tendency's Conditions of Organization and Action*. (K. Knabb, Ed.), *Situationist International Anthology (Revised and Expanded Edition, 2006)*. Berkeley, CA. Retrieved from http://lust-for-life.org/Lust-For-Life/_Textual/GuyDebord_ReportOnTheConstructionOfSituations-AndOnTheInternationalSituationistTendencyConditionsOfOrganizationAndAction_1957_16pp/GuyDebord_ReportOnTheConstructionOfSituations-AndOnTheInternationalSituatio
- Debord, G. (1959). *Situationist theses on traffic*. *theanarchistlibrary.org*. Retrieved from <http://theanarchistlibrary.org/library/guy-debord-situationist-theses-on-traffic>
- Debord, G. (1983). *The Society of the Spectacle*. (F. Perlman & J. Supak, Eds.) (1983rd ed.). Detroit, MI: Black & Red. Retrieved from http://library.nothingness.org/articles/SI/en/pub_contents/4

- Dekker, H.-J. (2022). *Cycling Pathways. The Politics and Governance of Dutch Cycling Infrastructure, 1920-2020. Cycling Pathways*. Amsterdam University Press, Amsterdam.
<https://doi.org/10.5117/9789463728478>
- Dekoster, J., & Schollaert, U. (1999). *Cycling: the way ahead for towns and cities*. European Commission.
<https://doi.org/10.1038/5000250>
- Dell'Amico, M. (2018, January 26). Aumentano le piste, calano i ciclisti, le idee di Napoli Pedala. *Wired.It*. Retrieved from https://www.wired.it/lifestyle/mobilita/2018/01/26/aumentano-le-piste-calano-ciclisti-napoli-pedala/?refresh_ce=
- Dill, J. (2009). Bicycling for Transportation and Health: The Role of Infrastructure. *Journal of Public Health Policy*, 30, S95–S110. <https://doi.org/10.1057/jphp.2008.56>
- Dill, J., & Carr, T. (2003). Bicycle Commuting and Facilities in Major U.S. Cities: If You Build Them, Commuters Will Use Them. *Transportation Research Record*, 1828(1828), 116–123.
<https://doi.org/10.3141/1828-14>
- Dill, J., & McNeil, N. (2012). Four types of cyclists? Examination of typology for better understanding of bicycling behavior and potential. *Transportation Research Record: Journal of the Transportation Research Board*, 2387, 129–138. Retrieved from <https://journals.sagepub.com/doi/abs/10.3141/2387-15>
- Dill, J., Monsere, C. M., & McNeil, N. (2012). Evaluation of bike boxes at signalized intersections. *Accident Analysis and Prevention*, 44(1), 126–134. <https://doi.org/10.1016/j.aap.2010.10.030>
- Dill, J., & Voros, K. (2007). Factors Affecting Bicycling Demand: Initial Survey Findings from the Portland, Oregon, Region. *Transportation Research Record: Journal of the Transportation Research Board*, 2031, 9–17. <https://doi.org/10.3141/2031-02>
- Dinis, P. (2014). *Intervenções em espaço público*. Lisbon: Câmara Municipal de Lisboa. Retrieved from <http://www.cm-lisboa.pt/fileadmin/VIVER/Urbanismo/urbanismo/planeamento/termosaprovados/campus/apresentacao.pdf>
- Distrito. (2017, July 21). Barreiro – 60 novos autocarros movidos a gás natural renovam a totalidade da frota dos TCB – Distrito Online. *Distrito - Notícias Da Região de Setúbal*. Retrieved from <https://www.districtonline.pt/barreiro-60-novos-autocarros-movidos-a-gas-natural-renovam-a-totalidade-da-frota-dos-tcb/>
- Dolowitz, D. P., & Marsh, D. (2000). Learning from Abroad: The Role of Policy Transfer in Contemporary Policy-Making. *Governance*, 13(1), 5–23. <https://doi.org/10.1111/0952-1895.00121>
- Donnerer, D. (2016). *The role of cities in climate and energy policies: the case of the Covenant of Mayors*. Aarhus University.
- dos Santos, A. P. (2013). Ciclovía Alma Lisboa - Uma Ciclovía na Ponte 25 de Abril. Retrieved January 2, 2022, from <https://peticaopublica.com/pview.aspx?pi=P2013N70468>
- Dowding, K. (1995). Model or Metaphor? A Critical Review of the Policy Network Approach. *Political Studies*, 43(1), 136–158. <https://doi.org/10.1111/j.1467-9248.1995.tb01705.x>
- Druckman, J. N., & Lupia, A. (2000). Preference formation. *Annual Review of Political Science*, 3, 1–24. <https://doi.org/10.1146/annurev.polisci.3.1.1>
- Dufour, D. (Ligtermoet & P. N. (2010, February). PRESTO Cycling Policy Guide: General Framework. European Commission. Retrieved from https://ec.europa.eu/energy/intelligent/projects/sites/iee-projects/files/projects/documents/presto_policy_guide_general_framework_en.pdf
- ECC. (2017). The Challenge. Retrieved January 10, 2022, from <https://cyclingchallenge.eu/ecc2017>
- ECF. (2012). Safety in Numbers. Brussels: European Cyclists' Federation (ECF). Retrieved from https://ecf.com/sites/ecf.com/files/ECF_FACTSHEET4_V3_cterree_SafetyNumb.pdf
- ECF. (2013). Victory for cycling in Portugal: Government approves new road code. Retrieved June 15, 2021, from <https://www.ecf.com/news-and-events/news/victory-cycling-portugal-government-approves-new-road-code>
- ECF. (2020a). Velo-city: the Global Cycling Summit. Retrieved June 19, 2021, from <https://ecf.com/projects/velo-city>
- ECF. (2020b, July 8). COVID-19 Cycling Measures Tracker. Retrieved from <https://ecf.com/dashboard>
- ECF. (2021a). Money for bikes: Tax incentives and purchase premiums for cycling in Europe. Retrieved October 4, 2021, from <https://ecf.com/resources/financial-incentives>
- ECF. (2021b, March 9). Cycling in National COVID-19 Recovery Plans: Now Is the Time to Act. Retrieved March 17, 2021, from <https://ecf.com/news-and-events/news/cycling-national-covid-19-recovery-plans-now-time-act>

- ECF, & WCA. (2016). *Cycling delivers on the Global Goals*. Brussels. Retrieved from <https://www.ecf.com/groups/cycling-delivers-global-goals>
- Eckerberg, K. (2001). Sweden - Problems and prospects at the leading edge of LA21 implementation. In W. M. Lafferty (Ed.), *Sustainable Communities in Europe* (pp. 15–39). London, UK: Earthscan. Retrieved from <https://www.docme.su/doc/1269421/william-m.-lafferty---sustainable-communities-in-europe---...>
- Eco-Counter. (2020). Counting when it counts: Understand the impact of the pandemic on cycling. Retrieved June 8, 2020, from <https://www.eco-compteur.com/en/covid19-dashboard/>
- Eco-Counter. (2021). Bike Count Display Interactive Map. Retrieved December 10, 2021, from <https://data.eco-counter.com/ParcPublic/?id=4586&fbclid=IwAR3AsR5URq3McwJOGdUNqZmrJ4zhjwQZvNmrAmjSEqKvuH5Na2CvXdt4is#>
- Ecovias de Portugal. (2021). Ecovias. Retrieved December 6, 2021, from <https://ecovias.wixsite.com/home/about>
- Eindhoven University of Technology (TU/e). (2021). Ruth Oldenziel — Eindhoven University of Technology research portal. Retrieved July 27, 2021, from <https://research.tue.nl/en/persons/ruth-oldenziel>
- Elsenaar, P. M. W., & Fanoy, J. A. (1993). Urban transport and sustainable development in the Netherlands. *ITE Journal (Institute of Transportation Engineers)*, 63(8), 9–13. Retrieved from <https://trid.trb.org/view/378707>
- Elvik, R. (2009). The non-linearity of risk and the promotion of environmentally sustainable transport. *Accident Analysis and Prevention*, 41(4), 849–855. <https://doi.org/10.1016/j.aap.2009.04.009>
- Elvik, R. (2021). Cycling Safety. In R. Buehler & J. Pucher (Eds.), *Cycling for Sustainable Cities* (pp. 57–80). Cambridge, Massachusetts: MIT Press. <https://doi.org/10.7551/MITPRESS/11963.003.0008>
- Emanuel, M. (2016a). Copenhagen: Branding the Cycling City. In R. Oldenziel, M. Emanuel, A. Albert de la Bruhèze, & F. Veraart (Eds.), *Cycling Cities: The European Experience* (pp. 77–87). Eindhoven, the Netherlands: Foundation for the History of Technology (Eindhoven University of Technology).
- Emanuel, M. (2016b). Stockholm: Where Public Transit Eclipses Cycling. In R. Oldenziel, M. Emanuel, A. Albert de la Bruhèze, & F. Veraart (Eds.), *Cycling Cities: The European Experience* (pp. 149–159). Eindhoven: Foundation for the History of Technology (Eindhoven University of Technology).
- Emanuel, M. (2019). From victim to villain cycling, traffic policy, and spatial conflicts in Stockholm, circa 1980. *Transfers*, 9(2), 1–26. <https://doi.org/10.3167/TRANS.2019.090202>
- Emanuel, M., Veraart, F., & Cox, P. (2016). Manchester: Cycling at a Standstill. In R. Oldenziel, M. Emanuel, A. Albert de la Bruhèze, & F. Veraart (Eds.), *Cycling Cities: The European Experience* (pp. 101–111). Eindhoven: Foundation for the History of Technology (Eindhoven University of Technology).
- EMEL. (2017). Sobre a gira - GIRA - Bicicletas de Lisboa. Retrieved August 10, 2021, from <https://www.gira-bicicletasdelisboa.pt/sobre-a-gira/>
- EMEL. (2020, February 11). GIRA com mais bicicletas. Retrieved August 10, 2021, from <https://www.emel.pt/pt/noticias/gira-com-mais-bicicletas/>
- EPOMM. (2020). TEMS - The EPOMM Modal Split Tool. Retrieved January 18, 2018, from <http://www.epomm.eu/tems/cities.phtml>
- Erdmenger, C. (1998). Local Environment The International Journal of Justice and Sustainability From business to municipality-and back. *Local Environment*, 3(3), 371–379. <https://doi.org/10.1080/13549839808725573>
- Estado do Rio de Janeiro - Secretaria de Estado de Transportes. (2014). *PDTU - Plano Diretor de Transporte Urbano da Região Metropolitana do Rio de Janeiro*. Rio de Janeiro. Retrieved from <http://www.central.rj.gov.br/pdtu/sobre-o-plano.html>
- Estrada Viva. (2021, March 1). Consulta Pública Plano de Recuperação e Resiliência Económica. Lisbon. Retrieved from <https://drive.google.com/file/d/1f7nyH8RvD8b9CKRlv3YY7wkesPLX-u8k/view>
- European Commission. (2021). EU Mission: Climate-Neutral and Smart Cities. Retrieved December 26, 2021, from https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/missions-horizon-europe/climate-neutral-and-smart-cities_en
- European Greens. (2010). Greens in coalition in Vienna. Retrieved from <https://europeangreens.eu/news/greens-coalition-vienna>
- European Greens. (2020). Municipal elections in France: Green Wave rolls over French cities. Retrieved from <https://europeangreens.eu/content/municipal-elections-france-green-wave-rolls-over-french-cities>
- Evans, J., Karvonen, A., & Raven, R. (2018). The experimental city. In *The Experimental City* (1st ed., pp. 1–12). London: Routledge. <https://doi.org/10.4324/9781315719825-1>

- Evoluir Oeiras. (2021a). Proposta 34 - um eixo de mobilidade activa. Retrieved June 17, 2021, from <https://evoluiroeiras.pt/orcamento-participativo/>
- Evoluir Oeiras. (2021b, February 11). Participação pública e governança em Oeiras - evoluir oeiras. Retrieved December 2, 2021, from <https://evoluiroeiras.pt/participacao-publica-e-governanca-em-oeiras/>
- Fahlenbrach, K., Klimke, M., & Scharloth, J. (2016). *Protest cultures: A companion*. *Protest Cultures: A Companion* (Vol. 17). New York; Oxford: Berghahn Books. <https://doi.org/10.1080/03071022.2017.1290357>
- Fahrrad.Hamburg. (2019). Velo routes in Hamburg. Retrieved December 5, 2019, from <https://fahrrad.hamburg/en/service/velo-routes/>
- FBCUB. (2020, August 26). Prémio Nacional da Mobilidade em Bicicleta 2020. Retrieved November 20, 2021, from <https://www.fpcub.pt/2020/08/premio-nacional-da-mobilidade-em-bicicleta-2020>
- Feddes, F., & de Lange, M. (2019). *Bike City Amsterdam: How Amsterdam Became the Cycling Capital of the World*. Amsterdam: Uitgeverij Bas Lubberhuizen. Retrieved from https://books.google.pt/books?hl=en&lr=&id=XmaDwAAQBAJ&oi=fnd&pg=PT9&dq=Feddes+and+de+Lange,+2019&ots=cEh0mOjwcj&sig=Yt4h9IYN5BrX91GfqvBjyz6wOPs&redir_esc=y#v=onepage&q=Feddes+and+de+Lange%2C+2019&f=false
- Feddes, F., de Lange, M., te Brömmelstroet, M., Feddes, F., de Lange, M., & te Brömmelstroet, M. (2020). Hard work in paradise. The contested making of Amsterdam as a cycling city. In P. Cox & T. Koglin (Eds.), *The Politics of Cycling Infrastructure* (pp. 133–156). Bristol: Bristol University Press. <https://doi.org/10.1332/policypress/9781447345152.003.0008>
- Félix, R. (2020). Traffic axes analysed for cycling in Lisbon, Portugal and segments covered. Lisboa.
- Félix, R., Cambra, P., & Moura, F. (2020). Build it and give 'em bikes, and they will come: The effects of cycling infrastructure and bike-sharing system in Lisbon. *Case Studies on Transport Policy*, 8(2), 672–682. <https://doi.org/10.1016/j.cstp.2020.03.002>
- Félix, R. M. (2012). *Gestão da Mobilidade em Bicicleta. Necessidades, factores de preferência e ferramentas de suporte ao planeamento e gestão de redes. O caso de Lisboa*. Universidade de Lisboa, Lisboa. Retrieved from <https://fenix.tecnico.ulisboa.pt/cursos/met/dissertacao/2353642399049>
- Félix, R. M. (2013). Declives da rede viária de Lisboa. Retrieved October 21, 2021, from <http://web.tecnico.ulisboa.pt/~rosamfelix/gis/declives/DeclivesLisboa.html>
- Félix, R., Moura, F., & Clifton, K. J. (2019). Maturing urban cycling: Comparing barriers and motivators to bicycle of cyclists and non-cyclists in Lisbon, Portugal. *Journal of Transport & Health*, 15, 17. <https://doi.org/https://doi.org/10.1016/j.jth.2019.100628>
- Ferreira, P. (2021, November 10). Ainda Bem que Faz Essa Pergunta. (P. Ferreira & J. Magalhães, Eds.). Lisboa, Portugal: Rádio Observador. Retrieved from <https://observador.pt/programas/ainda-bem-que-faz-essa-pergunta/>
- Ferrell, J. (2001). *Tearing down the streets: Adventures in urban anarchy*. New York, NY: Palgrave. Retrieved from [https://books.google.com/books?hl=en&lr=&id=WbuCo7eqvE0C&oi=fnd&pg=PP8&dq=Ferrell,+J.+\(2001\)+Tearing+Down+the+Streets:+Adventures+in+Urban+Anarchy+\(New+York:+Palgrave\).&ots=90WFHp4sTM&sig=U-b-0khhKrr_1eoOugDaSu3crcM](https://books.google.com/books?hl=en&lr=&id=WbuCo7eqvE0C&oi=fnd&pg=PP8&dq=Ferrell,+J.+(2001)+Tearing+Down+the+Streets:+Adventures+in+Urban+Anarchy+(New+York:+Palgrave).&ots=90WFHp4sTM&sig=U-b-0khhKrr_1eoOugDaSu3crcM)
- FHWA. (1992). *Reasons why bicycling and walking are and are not being used more extensively as travel modes. National Bicycling and Walking Study*. Washington, DC. Retrieved from <https://trid.trb.org/view/386083>
- FHWA. (1994). *Traffic Calming, Auto-Restricted Zones and Other Traffic Management Techniques --- Their Effects on Bicycling and Pedestrians* (National Bicycling and Walking Study No. Case Study No. 19). Washington, D.C. Retrieved from https://safety.fhwa.dot.gov/PED_BIKE/docs/case19.pdf
- Figueredo, A. P., & Vale, D. S. (2018). BikeFriendlyIndex – Um índice para avaliação da amigabilidade de um concelho para a utilização da bicicleta enquanto modo de transporte urbano. Retrieved January 8, 2022, from <https://www.bikefriendlyindex.com/>
- Fischer, M., & Sciarini, P. (2015). Unpacking reputational power: Intended and unintended determinants of the assessment of actors' power. *Social Networks*, 42, 60–71. <https://doi.org/10.1016/j.socnet.2015.02.008>
- Florida, R. (2002). The Rise of the Creative Class. *The Washington Monthly*, 15–25. Retrieved from https://www.os3.nl/_media/2011-2012/richard_florida_-_the_rise_of_the_creative_class.pdf
- Florida, R., Gulden, T., & Mellander, C. (2008). The rise of the mega-region. *Cambridge Journal of Regions, Economy and Society*, 1(3), 459–476. <https://doi.org/10.1093/cjres/rsn018>

- FLOW.eu. (2018). FLOW Publications. Retrieved November 10, 2020, from <http://h2020-flow.eu/resources/publications/>
- Flynn, A. (2016). Regulating Critical Mass: Performativity and City Streets. *Windsor Review of Legal and Social Issues*, 37, 98–117. Retrieved from https://www.academia.edu/34637530/Regulating_Critical_Mass_Performativity_and_City_Streets?auto=download
- FMH | ACL. (2016). Passeio Comemorativo - Dia Internacional dos Monumentos e Sítios 16 de Abril 2016. Lisboa: Faculdade de Motricidade Humana (FMH) da Universidade de Lisboa (UL) | Associação de Ciclismo de Lisboa (ACL).
- Focus BC. (2019). Lisboa | City as a Platform. Retrieved February 7, 2022, from <https://lisboa.city-platform.com/portal/>
- Follmer, R., & Gruschwitz, D. (2019). *Mobilität in Deutschland - Kurzreport*. Bonn, Berlin. Retrieved from www.mobilitaet-in-deutschland.de
- Fondazione Filippo Caracciolo. (2013). *Muoversi meglio in città per muovere l'Italia*. Automobile Club d'Italia. Rome. Retrieved from http://www.fondazione-caracciolo.aci.it/index.php?id=30&tx_ttnews%5Btt_news%5D=138&cHash=f60685c976e328d6883d3199916e0727
- Fontes, C. (2010, September). Notícias do Ciclismo. Retrieved July 11, 2018, from <http://www.filorbis.pt/cultura/bike01.html>
- Forester, J. (1984). *Effective cycling* (5th ed.). MIT Press. Retrieved from <https://mitpress.mit.edu/books/effective-cycling-fifth-edition>
- Foundation for the History of Technology. (2016a). Cycling Cities. Your City Next? Retrieved from <http://www.cyclingcities.info/your-city-next/>
- Foundation for the History of Technology. (2016b). *SUM Research Program - Cycling Cities*. Eindhoven. Retrieved from <http://www.cyclingcities.info/research/>
- Foundation for the History of Technology. (2019). Cycling Cities: The Lisbon Experience - Cycling Cities. Retrieved December 7, 2021, from <http://www.cyclingcities.info/your-city-next/cycling-cities-lisbon-experience/>
- Fox, C. J., & Miller, H. T. (1994). *Postmodern Public Administration: Towards Discourse* (1st ed.). London: SAGE Publications.
- FPCUB. (2007a). *Eleições em Lisboa e a Promoção do Uso da Bicicleta*. Lisboa. Retrieved from <https://www.fpcub.pt/2007/06/eleicoes-em-lisboa-e-a-promocao-do-uso-da-bicicleta>
- FPCUB. (2007b, August 19). Um Marginal na Marginal. Retrieved December 6, 2021, from <https://www.fpcub.pt/2007/08/um-marginal-na-marginal>
- FPCUB. (2011). Estacionamento para Bicicletas. Lisboa: Federação Portuguesa de Ciclismo e Utilizadores de Bicicleta (FPCUB). Retrieved from <https://www.fpcub.pt/estacionamento>
- FPCUB. (2013a). Novo Código da Estrada com melhorias para Utilizadores de Bicicleta. Retrieved June 15, 2021, from <https://www.fpcub.pt/2013/07/novo-codigo-da-estrada-com-melhorias-para-utilizadores-de-bicicleta>
- FPCUB. (2013b, March 8). Parecer da Federação Portuguesa de Ciclismo e Utilizadores de Bicicleta (FPCUB) à Proposta de Lei do Governo para Alterações do Código da Estrada. Retrieved December 5, 2021, from <https://www.fpcub.pt/2013/03/parecer-da-federacao-portuguesa-de-ciclismo-e-utilizadores-de-bicicleta-fpcub-a-proposta-de-lei-do-governo-para-alteracoes-do-codigo-da-estrada>
- FPCUB. (2021a). EuroVelo 1: Atlantic Coast Route | Eurovelo Portugal. Retrieved January 30, 2021, from <https://euroveloportugal.com/pt/route/eurovelo-1>
- FPCUB. (2021b, March 1). Plano de Recuperação e Resiliência. Contributos e Posição Pública. Lisbon. Retrieved from <https://www.fpcub.pt/2021/03/bicicleta-ausente-do-plano-de-recuperacao-e-resiliencia-as-13-recomendacoes-da-fpcub>
- Francis. (2015). *Laudato si'*. *Encyclical Letter*. Vatican: Libreria Editrice Vaticana. Retrieved from https://www.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco_20150524_enciclica-laudato-si.html
- Francisco, S. (2016, September 16). Lisboa vai ter 200 km para pedalar e quer ir de Oeiras a Vila Franca. *Diário de Notícias*. Retrieved from <https://www.dn.pt/sociedade/lisboa-vai-ter-200-km-para-pedalar-e-quer-ir-de-oeiras-a-vila-franca-5400639.html>
- Franco, M. L. M. (2011). *A Estrutura Ecológica Regional e os Planos Regionais de Ordenamento do Território Caso de Estudo – Área Metropolitana de Lisboa*. Universidade de Lisboa. Retrieved from <https://www.repository.utl.pt/handle/10400.5/4027>

- Franklin, U. M. (1990). *The Real World of Technology* (1992nd ed.). Concord, Ontario: House of Anansi Press. Retrieved from <https://www.cbc.ca/radio/ideas/the-1989-cbc-massey-lectures-the-real-world-of-technology-1.2946845>
- Freeman, J. L. (1965). *The Political Process: Executive Bureau-Legislative Committee Relations* (Rev. ed., Vol. Political). New York: Random House.
- Freitas, C., Castro, M., & Machado, P. (2011). *O meu Livro de Bicicletas*. Almada: Agência Municipal de Almada (AGENEAL), Câmara Municipal de Almada.
- Fünfgeld, H. (2015, February 1). Facilitating local climate change adaptation through transnational municipal networks. *Current Opinion in Environmental Sustainability*. Elsevier B.V. <https://doi.org/10.1016/j.cosust.2014.10.011>
- Furness, Z. (2007). Critical mass, urban space and vélomobility. *Mobilities*, 2(2), 299–319. <https://doi.org/10.1080/17450100701381607>
- Furness, Z. (2010a). Critical Mass Rides Against Car Culture. In *Cycling-Philosophy for Everyone: A Philosophical Tour de Force* (pp. 134–145). <https://doi.org/10.1002/9781444324679.ch13>
- Furness, Z. (2010b). *One Less Car: Bicycling and the Politics of Automobility*. Philadelphia: Temple University Press. Retrieved from <https://books.google.pt/books?id=WV4QSnRqNwEC&printsec=frontcover&dq=One+Less+Car&hl=pt-PT&sa=X&ved=0ahUKEwjnturcotHbAhUMOhQKHbkSC80Q6AEIKDAA#v=onepage&q=One Less Car&f=false>
- Furth, P. G. (2012). Bicycling Infrastructure for Mass Cycling: A Transatlantic Comparison. In John Pucher; Ralph Buehler (Ed.), *City Cycling* (Vol. 30, pp. 105–139). Cambridge, Massachusetts: MIT Press. Retrieved from <https://www.scopus.com/results/results.uri?src=dm&sort=plf-f&st1=%22Bicycling+Infrastructure+for+Mass+Cycling%22&st2=&sid=f7f7ece0254e0d8429cab48f6f6b0d89&sot=b&sdt=b&sl=58&s=TITLE-ABS-KEY%28%22Bicycling+Infrastructure+for+Mass+Cycling%22%29&cl=t&offset=1>
- Galvão, J., & Rosa, R. (2009, October 7). Estado actual das CICLOVIAS de LISBOA. Retrieved October 29, 2021, from <http://nezclinias.blogspot.com/2009/10/estado-actual-das-ciclovias-de-lisboa.html>
- Galvão, J., & Rosa, R. (2010). Novos troços das Ciclovias de Lisboa. Retrieved October 29, 2021, from <http://nezclinias.blogspot.com/2010/05/novos-trocos-das-ciclovias-de-lisboa-30.html>
- Galvão, J., & Rosa, R. (2014, January 27). Ciclovias de Lisboa Escalpelizadas 2013/2014. *Nézclinias a Pedais e Outros Que Tais*. Retrieved from <http://nezclinias.blogspot.com/2014/01/ciclovias-de-lisboa-escalpelizadas.html>
- Gamson, W. A. (1975). *The Strategy of Social Protest*. Homewood, Ill.: Dorsey Press. <https://doi.org/10.2307/2148303>
- García-Herrera, R., & García-Meneses, P. M. (2020). Social Cycling: Critical Mass Through a Mobile App. *Frontiers in Sustainable Cities*, 2, 36. <https://doi.org/10.3389/frsc.2020.00036>
- Garrard, J. (2021). Women and Cycling: Addressing the Gender Gap. In R. Buehler & J. Pucher (Eds.), *Cycling for Sustainable Cities* (pp. 197–217). Cambridge, Massachusetts: MIT Press. <https://doi.org/https://doi.org/10.7551/mitpress/11963.001.0001>
- Garrard, J., Conroy, J., Winters, M., Pucher, J., & Rissel, C. (2021). Older Adults and Cycling. In R. Buehler & J. Pucher (Eds.), *Cycling for Sustainable Cities* (pp. 237–255). Cambridge, Massachusetts: MIT Press. <https://doi.org/https://doi.org/10.7551/mitpress/11963.003.0017>
- Garrard, J., Handy, S., & Dill, J. (2012). Women and Cycling. In J. Pucher & R. Buehler (Eds.), *City Cycling* (pp. 211–234). Cambridge, Massachusetts: MIT Press. <https://doi.org/10.1080/01441647.2013.782592>
- Garrard, J., Rissel, C., Bauman, A., & Giles-Corti, B. (2021). Cycling and Health. In R. Buehler & J. Pucher (Eds.), *Cycling for Sustainable Cities* (pp. 35–55). Cambridge, Massachusetts: MIT Press. <https://doi.org/https://doi.org/10.7551/mitpress/11963.003.0007>
- Gaspar, J., & Simões, J. M. (2006). O Ordenamento à Escala Regional. In C. A. Medeiros (Ed.), *Geografia de Portugal - Planeamento e Ordenamento do Território* (pp. 279–306). Lisboa: Círculo de Leitores. Retrieved from <http://id.bnportugal.gov.pt/bib/bibnacional/1389888>
- Gaspar, M. (2021, September 28). “12 min da Rua de São Juliao ao Chile. ...” *Twitter*. Lisboa. Retrieved from <https://twitter.com/mifgaspar/status/1442922602058563586>
- Gatersleben, B., & Appleton, K. M. (2007). Contemplating cycling to work: Attitudes and perceptions in different stages of change. *Transportation Research Part A: Policy and Practice*, 41(4), 302–312. <https://doi.org/10.1016/j.tra.2006.09.002>
- Geels, F. W. (2004). From sectoral systems of innovation to socio-technical systems: Insights about dynamics and change from sociology and institutional theory. *Research Policy*, 33(6–7), 897–920.

- <https://doi.org/10.1016/j.respol.2004.01.015>
- Geels, F. W., Dudley, G., & Kemp, R. (2012). Findings, Conclusions and Assessments of Sustainability Transitions in Automobility. In *Automobility in Transition? A Socio-Technical Analysis of Sustainable Transport* (1st ed., pp. 335–373). New York: Routledge.
- Geels, F. W., & Schot, J. (2007). Typology of sociotechnical transition pathways. *Research Policy*, 36(3), 399–417. <https://doi.org/10.1016/j.respol.2007.01.003>
- Gehl, J. (2006a). *La humanización del espacio urbano. La vida social entre los edificios* (2009th ed.). Barcelona: Editorial Reverte. Retrieved from https://www.reverte.com/libro/eua-09-la-humanizacion-del-espacio-urbano_81190/
- Gehl, J. (2006b). *Life Between Buildings: Using Public Space* (2011th ed.). Washington D.C.: Island Press. Retrieved from https://d1wqtxts1xzle7.cloudfront.net/49875924/Jan_Gehl-Life_Between_Buildings_Using_Public_Space-Island_Press_2011.pdf?1477469352=&response-content-disposition=inline%3B+filename%3Djan_Gehl-Life_Between_Buildings.pdf&Expires=1591274650&Signature=ImJfFRO
- Gehl, J., & Gemzøe, L. (1996). *Public spaces - public life*. Copenhagen: Danish Architectural Press and the Royal Danish Academy of Fine Arts, School of Architecture.
- Geller, R., & Marqués, R. (2021). Implementation of Pro-bike Policies in Portland and Seville. In R. Buehler & J. Pucher (Eds.), *Cycling for Sustainable Cities* (pp. 371–399). Cambridge, Massachusetts: MIT Press. <https://doi.org/https://doi.org/10.7551/mitpress/11963.003.0023>
- Gemeente Rotterdam. (2016). Fietsen heeft voorrang in Rotterdam. Rotterdam: Gemeente Rotterdam. Retrieved from https://www.persberichtenrotterdam.nl/uploads/Factsheet_Fietsen_NL.pdf
- Georgiev, P. (2018). *How to get rid of dirty diesels on city roads. Analysis of diesel restriction measures in European cities to date*. Brussels. Retrieved from <https://www.eea.europa.eu/publications/air-quality-in-europe-2016>
- Gerike, R., De Nazelle, A., Nieuwenhuijsen, M., Panis, L. I., Anaya, E., Avila-Palencia, I., ... Götschi, T. (2016). Physical Activity through Sustainable Transport Approaches (PASTA): A study protocol for a multicentre project. *BMJ Open*, 6(1), e009924. <https://doi.org/10.1136/bmjopen-2015-009924>
- Gerlak, A. K., & Heikkilä, T. (2011). Building a theory of learning in collaboratives: Evidence from the everglades restoration program. *Journal of Public Administration Research and Theory*, 21(4), 619–644. <https://doi.org/10.1093/jopart/muq089>
- Gesing, F. (2017). The new Global Covenant of Mayors for Climate & Energy and the politics of municipal climate data. *Zentra Working Papers in Transnational Studies*, (No. 71 / 2017), 36. Retrieved from https://www.researchgate.net/publication/326517650_The_new_Global_Covenant_of_Mayors_for_Climate_Energy_and_the_politics_of_municipal_climate_data
- Giannakourou, G. (2005). Transforming spatial planning policy in Mediterranean countries: Europeanization and domestic change. *European Planning Studies*, 13(2), 319–331. <https://doi.org/10.1080/0365431042000321857>
- Giddens, A. (1984). *The Constitution of Society: Outline of the theory of structuration*. Berkeley: University of California Press. Retrieved from https://books.google.pt/books?id=x2bf4g9Z6ZwC&dq=Giddens,+A.,+1984.+The+Constitution+of+Society+Berkeley.+University+of+California+Press.&lr=&source=gbs_navlinks_s
- Glasgow City Council. (2016). *Glasgow's Strategic Plan for Cycling 2016 - 2025*. Glasgow. Retrieved from https://www.google.com/search?safe=active&biw=1600&bih=757&sxsrf=ACYBGNQOy_PFrIpoCsJX3Pa6PK1HdWURUw%3A1575547952650&ei=MPToXcKZJ4aZlwTR7LXgBg&q=Glasgow%27s+Strategic+Plan+for+Cycling+2016+-+2025&oq=Glasgow%27s+Strategic+Plan+for+Cycling+2016+-+2025&gs_l=p
- Golbuff, L., & Aldred, R. (2011). *CYCLING POLICY IN THE UK: A historical and thematic overview*. UEL Sustainable Mobilities Research Group. London: University of East London (UEL). Retrieved from <https://westminsterresearch.westminster.ac.uk/item/8zw06/cycling-policy-in-the-uk-a-historical-and-thematic-overview>
- Golub, A., Hoffmann, M. L., Lugo, A. E., & Sandoval, G. F. (2016). *Bicycle Justice and Urban Transformation: Biking for all? Transport Reviews*. Oxon: Routledge. <https://doi.org/10.1080/01441647.2017.1311965>
- González, A. M. (1999). *Expertos en sobrevivir. Ensayos ético-políticos*. Pamplona: Ediciones Universidad de Navarra. EUNSA.
- Goodman, A. (2005). Critical Mass Bike Rides Face Police Crackdown. *Democracy Now!* Retrieved from https://www.democracynow.org/2005/12/27/critical_mass_bike_rides_face_police

- Goodwin, J., & Jasper, J. M. (2015). *The Social Movements Reader: Cases and Concepts*. (J. Goodwin & J. M. Jasper, Eds.) (Third Edit). West Sussex, UK: John Wiley & Sons, Ltd. Retrieved from [https://books.google.pt/books?id=HjbcBAAQBAJ&lpg=PA3&dq=Goodwin and Jasper \(eds.\) \(2015\) The Social Movements reader&lr&hl=pt-PT&pg=PA4#v=onepage&q=Goodwin and Jasper \(eds.\) \(2015\) The Social Movements reader&f=false](https://books.google.pt/books?id=HjbcBAAQBAJ&lpg=PA3&dq=Goodwin and Jasper (eds.) (2015) The Social Movements reader&lr&hl=pt-PT&pg=PA4#v=onepage&q=Goodwin and Jasper (eds.) (2015) The Social Movements reader&f=false)
- Google. (2020). COVID-19 Community Mobility Reports. Retrieved June 1, 2020, from <https://www.google.com/covid19/mobility/>
- Gössling, S. (2013). Urban transport transitions: Copenhagen, city of cyclists. *Journal of Transport Geography*, 33, 196–206. <https://doi.org/10.1016/j.jtrangeo.2013.10.013>
- Gössling, S., Choi, A., Dekker, K., & Metzler, D. (2019). The Social Cost of Automobility, Cycling and Walking in the European Union. *Ecological Economics*, 158, 65–74. <https://doi.org/10.1016/j.ecolecon.2018.12.016>
- Grafl, K., Bunte, H., Dziekan, K., Haubold, H., & Neun, M. (2018). *Framing the third cycling century. Bridging the gap between research and practice*. (K. Grafl, B. Heike, K. Dziekan, H. Haubold, & M. Neun, Eds.). Dessau-Roßlau: Umweltbundesamt (UBA) - Federal German Environment Agency. Retrieved from https://www.umweltbundesamt.de/sites/default/files/medien/1410/publikationen/181128_uba_fb_third_cycling_century_bf_small.pdf
- Graupner, H. (2021, September 23). German election: Why the next government wants to overhaul transport. *DW*. Retrieved from <https://www.dw.com/en/german-election-why-the-next-government-wants-to-overhaul-transport/a-58753744>
- Graver, N. (2021, June 15). Why Lisbon simply cannot resist the charms of cargo bikes. *Velo-City 2021 Lisboa (Blog)*. Retrieved from <https://www.velo-city2021.com/en/blog/how-cargo-bikes-are-winning-hearts-and-minds-in-lisbon/#>
- Green, J., Steinbach, R., Datta, J., & Edwards, P. (2010). *Cycling in London: a study of social and cultural factors in transport mode choice: a final report to Smarter Travel Unit, Transport for London*. London, UK. Retrieved from https://www.researchgate.net/publication/292047113_Cycling_in_London_a_study_of_social_and_cultural_factors_in_transport_mode_choice_a_final_report_to_Smarter_Travel_Unit_Transport_for_London
- Griffith, E. S. (1939). *The Impasse of Democracy. A study of the modern government in action*. New York: Harrison-Hilton Books Inc. <https://doi.org/https://doi.org/10.1002/ncr.4110290124>
- Gronow, A., & Ylä-Anttila, T. (2016). Cooptation of ENGOs or Treadmill of Production? Advocacy Coalitions and Climate Change Policy in Finland. *Policy Studies Journal*. <https://doi.org/10.1111/psj.12185>
- Grove, N., & Pflieger, M. (1973). Bicycles Are Back - and Booming. *National Geographic*, 143(5), 670–681.
- Guerra, J., Schmidt, L., & Lourenço, L. B. (2019). From Local Agenda 21 to a localized Agenda 2030—the Portuguese and Brazilian cases in perspective. *Community Development*, 50(3), 352–367. <https://doi.org/10.1080/15575330.2019.1599405>
- Gutierrez, S. (2006). Street Gangs Using Internet for Violent Bragging Rites. *Seattle Post-Intelligencer*. Retrieved from <https://www.seattlepi.com/local/article/Street-gangs-using-Internet-for-violent-bragging-1208477.php>
- Haas, P. M. (1992). Introduction: Epistemic communities and international policy coordination. *International Organization*, 46(1), 1–35. <https://doi.org/10.1017/S0020818300001442>
- Habraken, R., Meijs, L., Schulpen, L., & Temmink, C. (2013). Development in Practice Dutch civil society at crossroads. *Taylor & Francis*, 23(5–6), 742–754. <https://doi.org/10.1080/09614524.2013.801398>
- Hacker, J. S., & Pierson, P. (2014). After the “Master Theory”: Downs, Schattschneider, and the Rebirth of Policy-Focused Analysis. *Perspectives on Politics*, 12, 643–662. <https://doi.org/10.2307/43281056>
- Haines, H. (1984). Black Radicalization and the Funding of Civil Rights: 1957-1970. *Social Problems*, 32(1), 31–43. <https://doi.org/10.2307/800260>
- Hall, P. A. (1993). Policy Paradigms, Social Learning, and the State: The Case of Economic Policymaking in Britain. *Comparative Politics*, 25(3), 275. <https://doi.org/10.2307/422246>
- Hallett, G. (1988). *Land and Housing Policies in Europe and the USA*. (G. Hallett, Ed.), *Land and Housing Policies in Europe and the USA* (2021 Ed.). London: Routledge. <https://doi.org/10.4324/9781003170235>
- Handy, S., Heinen, E., & Krizek, K. J. (2012). Cycling in Small Cities. In J. Pucher & R. Buehler (Eds.), *City Cycling* (pp. 257–286). Cambridge, MA: MIT Press. <https://doi.org/10.7551/mitpress/9434.003.0015>
- Handy, S., van Wee, B., & Kroesen, M. Promoting Cycling for Transport: Research Needs and Challenges, 34 *Transport Reviews* § (2014). Routledge. <https://doi.org/10.1080/01441647.2013.860204>
- Harms, L., Bertolini, L., & te Brömmelstroet, M. (2014). Spatial and social variations in cycling patterns in a

- mature cycling country exploring differences and trends. *Journal of Transport and Health*, 1(4), 232–242. <https://doi.org/10.1016/j.jth.2014.09.012>
- Harms, L., & Kansen, M. (2018). *Cycling Facts*. The Hague: Netherlands Ministry of Infrastructure and Water Management. Retrieved from file:///C:/Users/Bernardo/Desktop/PhD_PublicPolicy/!PhD_Dissertação/!PhD_Dissertação_Texto/Disser-tation_3_The_Cyclists'_Advocacy_Coalition/Cycling+facts+2018.pdf
- Harrington, E., & Hsu, D. (2018). Roles for government and other sectors in the governance of green infrastructure in the U.S. *Environmental Science and Policy*, 88, 104–115. <https://doi.org/10.1016/j.envsci.2018.06.003>
- Hass-Klau, C. (2015). Walking in Germany: Is there progress. In *The Pedestrian and the City* (1st ed., pp. 129–148). Oxon, New York: Routledge. <https://doi.org/https://doi.org/10.4324/9780203067390>
- Haustein, S., Koglin, T., Nielsen, T. A. S., & Svensson, Å. (2019). A comparison of cycling cultures in Stockholm and Copenhagen. *International Journal of Sustainable Transportation*. <https://doi.org/10.1080/15568318.2018.1547463>
- Hayden, D. (1984). *Redesigning the American dream : the future of housing, work, and family life* (2002nd ed.). New York: W. W. Norton / Norton Architecture. Retrieved from <https://wnorton.com/books/9780393730944/>
- Headrick, A. C. (1994, February 8). Bicycle Blitzkrieg: The Malayan Campaign and the Fall of Singapore. *Naval War College*, p. 26. Retrieved from https://books.google.com/books?hl=en&lr=&id=oRxxCwAAQBAJ&oi=fnd&pg=PT4&dq=bicycle+blitzkrieg&ots=TITKcdo9nw&sig=TFupnrC3yBqjKM8L_LSmcx1WhQ
- Hecló, H. (1974). *Modern Social Politics in Britain and Sweden: From Relief to Income Maintenance.*, 274. <https://doi.org/10.2307/2063218>
- Hecló, H. (1978). Issue networks and the executive establishment. In A. King (Ed.), *The New American Political System* (pp. 87–124). Washington D.C.: American Enterprise Institute.
- Heesch, K. C., Giles-Corti, B., & Turrell, G. (2015). Cycling for transport and recreation: Associations with the socio-economic, natural and built environment. *Health and Place*, 36, 152–161. <https://doi.org/10.1016/j.healthplace.2015.10.004>
- Heichel, S., Pape, J., & Sommerer, T. (2005). Is there convergence in convergence research? An overview of empirical studies on policy convergence. *Journal of European Public Policy*, 12(5), 817–840. <https://doi.org/10.1080/13501760500161431>
- Heikkilä, T., & Weible, C. M. (2017). Unpacking the intensity of policy conflict: a study of Colorado's oil and gas subsystem. *Policy Sciences*, 50(2), 179–193. <https://doi.org/10.1007/s11077-017-9285-1>
- Heinen, E., & Handy, S. (2012). Similarities in Attitudes and Norms and the Effect on Bicycle Commuting: Evidence from the Bicycle Cities Davis and Delft. *International Journal of Sustainable Transportation*, 6(5), 257–281. <https://doi.org/10.1080/15568318.2011.593695>
- Heinen, E., van Wee, B., & Maat, K. (2010). Commuting by bicycle: An overview of the literature. *Transport Reviews*, 30(1), 59–96. <https://doi.org/10.1080/01441640903187001>
- Hellemeier, C., & Soltaniehha, M. (2010). *Implementation and Results of the Traffic Circulation Plan in the City of Groningen of Human Geography, Urban and Regional Planning in Europe*. Stockholm: Stockholm University, Department of Human Geography, Urban and Regional Planning in Europe.
- Henry, A. D. (2011). Ideology, Power, and the Structure of Policy Networks. *Policy Studies Journal*, 39(3), 361–383. <https://doi.org/10.1111/j.1541-0072.2011.00413.x>
- Henry, T. (2009, July 21). Leeds set for cycle path expansion | road.cc. *Road.CC*. Retrieved from <https://road.cc/content/news/5797-leeds-set-cycle-path-expansion>
- Herce Vallejo, M. (2010). *Infraestructuras y medio ambiente: Urbanismo, territorio y redes de servicios. I*. Retrieved from <https://books.google.com/books?hl=en&lr=&id=In-azUNeLT4C&oi=fnd&pg=PA9&dq=Herce+Vallejo,+Manuel,+editor.+2010.+Infraestructuras+y+Medio+Ambiente+I.+Urbanismo,+territorio+y+redes+de+servicios.+Colección+Gestión+de+la+Ciudad+3.+Editorial+UOC,+Barcelona.&ots>
- Hjern, B., & Porter, D. O. (1981). Implementation Structures: A New Unit of Administrative Analysis. *Organization Studies*, 2(3), 265–277. <https://doi.org/https://doi.org/10.1177/017084068100200301>
- Hjuler, S. B., & Bondam, K. (2020, September). Cycle Superhighways: How we built an inter-municipal network in Denmark. Retrieved January 17, 2022, from https://www.c40knowledgehub.org/s/article/How-we-built-an-inter-municipal-cycle-superhighway-network-across-the-Capital-Region-of-Denmark?language=en_US
- Hobbs, F. D. (Frederick D. (1979). *Traffic planning and engineering* (2nd ed.). Oxford: Pergamon Press.

- <https://doi.org/https://doi.org/10.1016/C2013-0-03015-0>
- Holcombe, R. G. (2002). Political entrepreneurship and the democratic allocation of economic resources. *Review of Austrian Economics*, 15(2–3), 143–159. <https://doi.org/10.1023/a:1015758419984>
- Horacek, T. M., White, A. A., Byrd-Bredbenner, C., Reznar, M. M., Olfert, M. D., Morrell, J. S., ... Thompson-Snyder, C. A. (2014). PACES: A physical activity campus environmental supports audit on university campuses. *American Journal of Health Promotion*, 28(4), e104–e117. <https://doi.org/10.4278/ajhp.121212-QUAN-604>
- Horton, D. (2002). Lancaster Critical Mass: Does It Still Exist? (Lancaster, UK). In C. Carlsson (Ed.), *Critical Mass, Bicycling's Defiant Celebration* (pp. 60–67). Oakland: AK Press. Retrieved from <https://books.google.pt/books?id=iVpHsLMgiCcC&dq>
- Horton, D. (2006). Environmentalism and the bicycle. *Environmental Politics*, 15(1), 41–58. <https://doi.org/10.1080/09644010500418712>
- Horton, D. (2009). Social Movements and the Bicycle. Lancaster, England. Retrieved from <https://thinkingaboutcycling.wordpress.com/social-movements-and-the-bicycle/>
- Horton, D. (2013). Cycling around Lisbon | Thinking About Cycling. Lancaster, England. Retrieved from <https://thinkingaboutcycling.wordpress.com/2013/03/15/cycling-around-lisbon/#comment-36009>
- Horton, D., & Jones, T. (2015). Rhetoric and Reality: Understanding the English Cycling Situation. In P. Cox (Ed.), *Cycling Cultures* (pp. 63–77). Chester: University of Chester. Retrieved from <https://books.google.com/books?hl=en&lr=&id=Rg6sCQAAQBAJ&oi=fnd&pg=PA63&dq=horton+jones+2015+rhetoric&ots=WYAMFQJxZz&sig=KudxbqO-1D0t9NYmxnoDktLRT40>
- Horwood, K. (2011). Green infrastructure: Reconciling urban green space and regional economic development: Lessons learnt from experience in England's north-west region. *Local Environment*, 16(10), 963–975. <https://doi.org/10.1080/13549839.2011.607157>
- Houston Parks Board. (2020). Bayou Greenways 2020: 150-mile Network of Connected Trails along Houston's Bayous. Retrieved January 30, 2021, from <https://houstonparksboard.org/about/bayou-greenways-2020>
- Howlett, M. (1994). Policy Paradigms and Policy Change: Lessons from the Old and New Canadian Policies Towards Aboriginal Peoples. *Policy Studies Journal*, 22(4), 631–649. <https://doi.org/10.1111/j.1541-0072.1994.tb01494.x>
- Huang, Z., Loo, B. P. Y., & Axhausen, K. W. (2023). Travel behaviour changes under Work-from-home (WFH) arrangements during COVID-19. *Travel Behaviour and Society*, 30, 202–211. <https://doi.org/10.1016/j.tbs.2022.09.006>
- Hunt, J. D., & Abraham, J. E. (2007). Influences on bicycle use. *Transportation*, 34(4), 453–470. <https://doi.org/10.1007/s11116-006-9109-1>
- Huntington, S. P. (1991). *The third wave : democratization in the late twentieth century*. Norman: University of Oklahoma Press. Retrieved from https://books.google.es/books?id=IMjyTFG04JYC&printsec=frontcover&dq=The+Third+Wave+Samuel+Huntington&hl=pt-PT&sa=X&ved=0ahUKEwjW_4fwxY_aAhVKWRQKHTP8BcQQ6AEIKDAA#v=onepage&q=The Third Wave Samuel Huntington&f=false
- Huré, M. (2013). *Les réseaux transnationaux du vélo : Gouverner les politiques du vélo en ville : De l'utopie associative à la gestion par les grandes firmes urbaines (1965-2010)*. Université Lyon 2 Lumière. Retrieved from <https://www.archives-ouvertes.fr/tel-03596342/>
- Huré, M. (2016). Lyon: The Bicycle Goes Corporate. In R. Oldenziel, M. Emanuel, A. Albert de la Bruhèze, & F. Veraart (Eds.), *Cycling Cities: The European Experience* (pp. 173–183). Eindhoven: Foundation for the History of Technology (Eindhoven University of Technology).
- ICLEI. (2021a). European Sustainable Cities Platform. Retrieved March 3, 2021, from <https://sustainablecities.eu/sustainable-cities-platform/>
- ICLEI. (2021b). ICLEI Europe - Our Members. Retrieved from <https://iclei-europe.org/our-members/>
- ICLEI. (2021c). Our impact. Modal Split. Retrieved August 20, 2021, from <https://sustainablemobility.iclei.org/our-impact/>
- Illich, I. (1973). *Tools for Conviviality*. Berkeley, CA: Heyday Books. Retrieved from https://monoskop.org/images/2/24/Illich_Ivan_Tools_for_Conviviality_1973.pdf
- IMT. (2012). CiclAndo - Plano Nacional de Promoção da Bicicleta e Outros Modos Suaves. Lisboa: Instituto da Mobilidade e dos Transportes, I.P. (IMT). Retrieved from <http://www.imt-ip.pt/sites/IMTT/Portugues/Planeamento/DocumentosdeReferencia/PlanoNacionalBicicleta/Paginas/PlanoNacionalBicicletaOutrosModosSuaves.aspx>

- IMT. (2014). *Mobilidade em cidades médias*. Lisboa. Retrieved from http://www.imt-ip.pt/sites/IMTT/Portugues/Observatorio/Relatorios/MobilidadeCidadesMedias/Documents/IMT_Mobilidade_em_Cidades_Medias_vrevista_atualizada.pdf
- IMT. (2020). *Relatório das Atividades desenvolvidas no Projeto U-bike Portugal*. Lisboa. Retrieved from <https://www.imt-ip.pt/sites/IMTT/Portugues/Noticias/Paginas/RelatorioDasAtividadesDesenvolvidasNoProjetoU-bikePortugal.aspx>
- IMT. (2021). *Estratégia Nacional para a Mobilidade Ativa Ciclável – 1º Relatório de Progresso, Sumário Executivo*. Lisboa. Retrieved from <http://www.imt-ip.pt/sites/IMTT/Portugues/Noticias/Paginas/EstrategiaNacionalMobilidadeAtivaCiclavel11082021.aspx>
- IMTT. (2011a). Pacote da Mobilidade. Território, Acessibilidade e Gestão da Mobilidade. Lisboa: Instituto da Mobilidade e dos Transportes Terrestres, I.P. (IMTT). Retrieved from <http://www.imt-ip.pt/sites/IMTT/Portugues/Planeamento/DocumentosdeReferencia/PacotedaMobilidade/Paginas/QuadrodeReferenciaparaPlanosdeMobilidadeAcessibilidadeeTransportes.aspx>
- IMTT. (2011b, March). Acalmia de Tráfego - Zonas 30 e Zonas Residenciais ou de Coexistência. Lisboa. Retrieved from https://www.imt-ip.pt/sites/IMTT/Portugues/Planeamento/DocumentosdeReferencia/PacotedaMobilidade/Documents/Pacote da Mobilidade/Acalmia de Tráfego_Março 2011.pdf
- IMTT. (2011c, March). Rede Ciclável - Princípios de Planeamento e Desenho. Lisboa. Retrieved from http://www.imt-ip.pt/sites/IMTT/Portugues/Planeamento/DocumentosdeReferencia/PacotedaMobilidade/Documents/Pacote da Mobilidade/Rede Ciclável_Princípios de Planeamento e Desenho_Março 2011.pdf
- INE. (2012). *Censos 2011: Resultados Definitivos*. Lisboa. Retrieved from https://censos.ine.pt/xportal/xmain?xpid=CENSOS&xpgid=ine_censos_publicacao_det&contexto=pu&PUBLICACOESpub_boui=73212469&PUBLICACOESmodo=2&selTab=tab1&pcensos=61969554
- INE. (2018). *Mobilidade e funcionalidade do território nas Áreas Metropolitanas do Porto e de Lisboa: 2017*. Lisboa. Retrieved from https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_publicacoes&PUBLICACOESpub_boui=349495406&PUBLICACOESmodo=2&&fbclid=IwAR2QzUZK0mUSEdKySZe1HqmObbIKWR62vlyVhtVAAxrQhyNllna-DDfp2bk&xlang=pt
- INE. (2021). Plataforma de divulgação dos Censos 2021 – Resultados Preliminares. Retrieved July 30, 2021, from https://ine.pt/scripts/db_censos_2021.html
- INE. (2022a). *Censos - Resultados definitivos - 2021*. Lisboa. Retrieved from https://censos.ine.pt/xportal/xmain?xpgid=censos21_dados_finais&xpid=CENSOS21&xlang=pt
- INE. (2022b). *Censos 2021 - Resultados Definitivos - Plataforma de Divulgação. Movimentos Pendulares - NUT II*. Lisboa. Retrieved from https://censos.ine.pt/xportal/xmain?xpgid=censos21_populacao&xpid=CENSOS21
- Ingold, K. (2011). Network Structures within Policy Processes: Coalitions, Power, and Brokerage in Swiss Climate Policy. *Policy Studies Journal*, 39(3), 435–459. <https://doi.org/10.1111/j.1541-0072.2011.00416.x>
- Ingold, K., & Leifeld, P. (2016). Structural and Institutional Determinants of Influence Reputation: A Comparison of Collaborative and Adversarial Policy Networks in Decision Making and Implementation. *Journal of Public Administration Research and Theory*, 26(1), 1–18. <https://doi.org/10.1093/jopart/muu043>
- Ingold, K., & Varone, F. (2012). Treating policy brokers seriously: Evidence from the climate policy. *Journal of Public Administration Research and Theory*, 22(2), 319–346. <https://doi.org/10.1093/jopart/mur035>
- Isaac, L., McDonald, S., & Lukasik, G. (2006, July). Takin' it from the streets: How the sixties mass movement revitalized unionization. *American Journal of Sociology*. <https://doi.org/10.1086/502692>
- Isetti, G., Ferraretto, V., Stawinoga, A. E., Gruber, M., & DellaValle, N. (2020). Is caring about the environment enough for sustainable mobility? An exploratory case study from South Tyrol (Italy). *Transportation Research Interdisciplinary Perspectives*, 6, 100148. <https://doi.org/10.1016/j.trip.2020.100148>
- ITDP. (2018). *The Bikeshare Planning Guide*. New York, NY. Retrieved from <https://www.itdp.org/2018/06/13/the-bike-share-planning-guide-2/>
- ITF. (2013). *Cycling, Health and Safety*. Paris: OECD Publishing. <https://doi.org/https://doi.org/10.1787/9789282105955-en>
- ITF. (2021). *Stimulating Post-Pandemic Recovery through Infrastructure Investment*. Paris: International

- Transport Forum / OECD. Retrieved from <https://www.itf-oecd.org/sites/default/files/infrastructure-investment-covid-19.pdf>
- Iwińska, K., Blicharska, M., Pierotti, L., Tainio, M., & de Nazelle, A. (2018). Cycling in Warsaw, Poland – Perceived enablers and barriers according to cyclists and non-cyclists. *Transportation Research Part A: Policy and Practice*, 113, 291–301. <https://doi.org/10.1016/j.tra.2018.04.014>
- Jacobs, J. (1961). *The death and life of great American cities*. New York: Random House. Retrieved from <https://www.worldcat.org/title/death-and-life-of-great-american-cities/oclc/500754>
- Jacobs, J. (1984). *Cities and the Wealth of Nations. Principles of Economic Life*. New York: Vintage. Random House.
- Jacobsen, P. L. (2003). Safety in numbers: More walkers and bicyclists, safer walking and bicycling. *Injury Prevention*, 9(3), 205–209. <https://doi.org/10.1136/ip.9.3.205>
- Jacobsen, P. L. (2015). Safety in numbers: More walkers and bicyclists, safer walking and bicycling. *Injury Prevention*, 21(4), 271–275. <https://doi.org/10.1136/ip.9.3.205rep>
- Jalali, C. (2014). For Whom the Bailout Tolls? The Implications of the 2013 Local Elections for the Portuguese Party System. *South European Society and Politics*, 19(2), 235–255. <https://doi.org/10.1080/13608746.2014.913340>
- Jalali, C. (2017). *Partidos e Sistemas Partidários*. Lisboa: Fundação Francisco Manuel dos Santos. Retrieved from <https://books.google.es/books?id=B-LLDgAAQBAJ&dq=Partidos+e+Sistemas+Partidários+Jalali&hl=pt-PT&sa=X>
- Jalali, C. (2018). *Mechanisms of linkage between citizens and public policy* (Citizens, Preferences, and Public Policy No. 40427- CPPP). Aveiro.
- Jenkins-Smith, H. C., Nohrstedt, D., Weible, C. M., & Sabatier, P. A. (2014). The Advocacy Coalition Framework: Foundations, Evolution, and Ongoing Research. In *Theories of the Policy Process* (pp. 183–223). Boulder, CO: Westview Press.
- Jenkins-Smith, H. C., & Sabatier, P. A. (1994). Evaluating the Advocacy Coalition Framework. *Journal of Public Policy*, 14(02), 175. <https://doi.org/10.1017/S0143814X00007431>
- Jensen, J. S., Cashmore, M., & Elle, M. (2017). Reinventing the bicycle: how calculative practices shape urban environmental governance. *Environmental Politics*, 26(3), 459–479. <https://doi.org/10.1080/09644016.2017.1311089>
- Jones, B., & Baumgartner, F. R. (2005). *The Politics of Attention: How Government Prioritizes Problems*. Chicago: University of Chicago Press. Retrieved from https://books.google.pt/books?hl=en&lr=&id=HPYdDVu_ghMC&oi=fnd&pg=PR7&dq=Jones+Baumgartner+2005&ots=nRgWmin6sB&sig=h-3ZN7hYVuFMupo45jc4emNmsOw&redir_esc=y#v=onepage&q=Jones+Baumgartner+2005&f=false
- Jones, M. D., & McBeth, M. K. (2010). A narrative policy framework: Clear enough to be wrong? *Policy Studies Journal*, 38(2), 329–353. <https://doi.org/10.1111/j.1541-0072.2010.00364.x>
- Jones, P. (2005). Performing the city: A body and a bicycle take on Birmingham, UK. *Social and Cultural Geography*, 6(6), 813–830. <https://doi.org/10.1080/14649360500353046>
- Jordan, G. (1990). Sub-Governments, Policy Communities and Networks: Refilling the Old Bottles? *Journal of Theoretical Politics*, 2(3), 319–338. <https://doi.org/10.1177/0951692890002003004>
- Jordan, G., & Schubert, K. (1992). A preliminary ordering of policy network labels. *European Journal of Political Research*, 21(1–2), 7–27. <https://doi.org/10.1111/j.1475-6765.1992.tb00286.x>
- Jordan, P. (2013). *In the City of Bikes: The Story of the Amsterdam Cyclist*. New York, NY: Harper Collins. Retrieved from https://books.google.pt/books?id=QqyGCuLN5_kC&printsec=frontcover&dq=In+the+City+of+Bikes&hl=pt-PT&sa=X&ved=2ahUKEwiz6Pu96sJtAhUa5uAKHcSGC1wQ6AEwAHoECAUQAq#v=onepage&q=In+the+City+of+Bikes&f=false
- Jornal de Notícias. (2005, July 4). Concelho tem 250 novas “Bicas” disponíveis. *Jornal de Notícias*. Retrieved from <https://www.jn.pt/arquivo/2005/concelho-tem-250-novas-bicas-disponiveis-502066.html?id=502066>
- Jornal i. (2014a, May 5). Rcicla/Grémio. Duas rodas e uma chávena quente, por favor. Retrieved from <https://ionline.sapo.pt/artigo/327202/rcicla-gremio-duas-rodas-e-uma-chavena-quente-por-favor-?>
- Jornal i. (2014b, July 23). ANSR atribui falta de funcionários à mudança da sede para o Tagus Park. *Jornal I*. Retrieved from https://ionline.sapo.pt/artigo/285703/ansr-atribui-falta-de-funcionarios-a-mudanca-da-sede-para-o-tagus-park-?seccao=Portugal_i
- Junceiro. (2019). Loures quer criar mega rede ciclável com Lisboa e Odivelas. *Motor24*. Retrieved from <https://www.motor24.pt/motores/loures-quer-criar-mega-rede-ciclavel-com-lisboa-e-odivelas/666856/>

- Junk, W. M., & Rasmussen, A. (2018, July 4). Framing by the Flock: Collective Issue Definition and Advocacy Success. *Comparative Political Studies*, p. 001041401878404.
<https://doi.org/10.1177/0010414018784044>
- Junta Autónoma de Estradas. (1938). *Estatística do Trânsito 1937-38*. Lisboa.
- Junta Autónoma de Estradas. (1950). *Estatística do Trânsito 1949-50*. Lisboa.
- Junta Autónoma de Estradas. (1955). *Estatística do Trânsito nas Estradas Nacionais de Portugal 1955*. Lisboa.
- Junta Autónoma de Estradas. (1960). *Estatística do Trânsito nas Estradas Nacionais de Portugal 1960*. Lisboa.
- Junta Autónoma de Estradas. (1965). *Estatística do Trânsito nas Estradas Nacionais de Portugal 1965*. Lisboa.
- Junta Autónoma de Estradas. (1970). *Estatística do Trânsito nas Estradas Nacionais de Portugal 1970*. Lisboa.
- Kadłubek, M., Krzywda, D., & Skibińska, W. (2016). The Degree of Sustainable Development of Public Transport in Major Polish Cities. In M. H. Bilgin & H. Danis (Eds.), *Entrepreneurship, Business and Economics - Vol. 1 Proceedings of the 15th Eurasia Business and Economics Society Conference* (pp. 327–346). Istanbul, San Francisco: Springer International Publishing AG Switzerland.
https://doi.org/10.1007/978-3-319-27570-3_26
- Kager, R., & Harms, L. (2017). *Synergies from Improved Cycling-Transit Integration*. Paris. Retrieved from <https://www.coursera.org/learn/unraveling-the-cycling-city/supplement/wnRil/synergies-from-improved-cycling-transit-integration>
- Kahlmeier, S., Götschi, T., Cavill, N., Fernandez, A. C., Brand, C., Rueda, D. R., ... Racioppi, F. (2017). Health economic assessment tools (HEAT) for walking and for cycling: Methods and user guide on physical activity, air pollution, injuries and carbon impact assessments. *Health Economic Assessment Tools (HEAT) for Walking and for Cycling: Methods and User Guide on Physical Activity, Air Pollution, Injuries and Carbon Impact Assessments*. Copenhagen: World Health Organization | WHO Regional Office for Europe. Retrieved from http://www.euro.who.int/__data/assets/pdf_file/0010/352963/Heat.pdf?ua=1
- Karndacharuk, A., & Wilson & Roger Dunn, D. J. (2014). A Review of the Evolution of Shared (Street) Space Concepts in Urban Environments. *Transport Reviews*, 34(2), 190–220.
<https://doi.org/10.1080/01441647.2014.893038>
- Karner, A., Golub, A., Martens, K., & Robinson, G. (2018). Transportation and Environmental Justice: History and emerging practice. In *The Routledge Handbook of Environmental Justice*. Retrieved from https://www.researchgate.net/profile/Alex_Karner/publication/325540110_Transportation_and_Environmental_Justice_History_and_Emerging_Practice/links/5b13e81d0f7e9b4981075e0f/Transportation-and-Environmental-Justice-History-and-Emerging-Practice.pdf
- Katz, B., & Nowak, J. (2018). *The New Localism: How Cities Can Thrive in the Age of Populism*. Washington, D.C.: Brookings Institution Press. Retrieved from <https://www.jstor.org/stable/10.7864/j.ctt1vw0rdb>
- Kemperman, A., & Timmerman, H. (2009). Influences of built environment on walking and cycling by latent segments of aging population. *Transportation Research Record*, 2134(1), 1–9.
<https://doi.org/10.3141/2134-01>
- Kennisinstituut voor Mobiliteitsbeleid (KiM). (2018). Mobiliteitsbeeld 2017 | Mobiliteitsbeeld en Kerncijfers Mobiliteit. Retrieved January 7, 2020, from <https://www.kimnet.nl/mobiliteitsbeeld/mobiliteitsbeeld-2017>
- Kenyon, S., Lyons, G., & Rafferty, J. (2002). Transport and social exclusion: Investigating the possibility of promoting inclusion through virtual mobility. *Journal of Transport Geography*, 10(3), 207–219.
[https://doi.org/10.1016/S0966-6923\(02\)00012-1](https://doi.org/10.1016/S0966-6923(02)00012-1)
- Kern, K. (2014). Climate governance in the EU multi-level system: the role of cities. In I. Weibust, N. Paterson, & J. Meadowcroft (Eds.), *Multilevel environmental governance: managing water and climate change in Europe and North America* (pp. 111–130). Cheltenham, UK: Edward Elgar Publishing.
<https://doi.org/10.4337/9780857939258.00016>
- Kern, K. (2019). Cities as leaders in EU multilevel climate governance: embedded upscaling of local experiments in Europe. *Environmental Politics*, 28(1), 125–145.
<https://doi.org/10.1080/09644016.2019.1521979>
- Kern, K., & Bulkeley, H. (2009). Cities, Europeanization and multi-level governance: Governing climate change through transnational municipal networks. *Journal of Common Market Studies*, 47(2), 309–332.
<https://doi.org/10.1111/j.1468-5965.2009.00806.x>
- Kerwin, C., & Furlong, S. (2018). *Rulemaking: How government agencies write law and make policy* (5th ed.).

- Thousand Oaks, CA: SAGE | CQ Press. Retrieved from <https://books.google.com/books?hl=en&lr=&id=001bDwAAQBAJ&oi=fnd&pg=PP1&dq=Kerwin,+Cornelius+M.,+and+Scott+R.+Furlong.+1994.+Rulemaking:+How+Government+Agencies+Write+Law+and+Make+Policy.+Washington,+DC:+CQ+Press.&ots=jlTSdpO6l7&sig=G2Po8J6SoyAWp3W355M7FTR>
- Kingdon, J. W. (1984). *Agendas, alternatives, and public policies*. Boston: Little, Brown and Company. Retrieved from <https://www.worldcat.org/title/agendas-alternatives-and-public-policies/oclc/10277820>
- Kingdon, J. W. (1995). *Agendas, Alternatives, and Public Policies* (Second Edi). New York: Addison-Wesley Educational Publishers Inc.
- Kingdon, J. W. (2003). *Agendas, Alternatives, and Public Policies* (Second Edi). New York: Longman | Addison-Wesley Educational Publishers Inc.
- Kingsley, P. (2010). When can kids cycle on their own? *The Guardian*. Retrieved from <https://www.theguardian.com/environment/2010/jul/05/kids-cycling>
- Kirlin, J. J. (1996). The big questions of public administration in a democracy. *Public Administration Review*, 56(No. 5 (Sep.-Oct., 1996), 416–423. <https://doi.org/10.2307/977040>
- Klein, J. L., & Tremblay, D. G. (2010). Social actors and their role in metropolitan governance in Montréal: Towards an inclusive coalition? *GeoJournal*, 75(6), 567–579. <https://doi.org/10.1007/s10708-009-9270-0>
- Knutsson, H. (2017). Advocacy Coalition Learning. Biases and Heuristics in Policy Implementation. *Journals.Lub.Lu.Se, 119 · 2017* (Statsvetenskaplig tidskrift · Årgång), 163–183. Retrieved from <http://journals.lub.lu.se/index.php/st/article/view/16782>
- Koglin, T. (2018). Spatial dimensions of the marginalisation of cycling. Cardiff, UK: Royal Geographical Society with IBG, Annual Conference (August, 2018). Retrieved from https://www.researchgate.net/publication/327435947_Spatial_dimensions_of_the_marginalisation_of_cycling
- Koglin, T., te Brömmelstroet, M., & van Wee, B. (2021). Cycling in Copenhagen and Amsterdam. In R. Buehler & J. Pucher (Eds.), *Cycling for Sustainable Cities* (pp. 347–370). Cambridge, Massachusetts: MIT Press. <https://doi.org/https://doi.org/10.7551/mitpress/11963.003.0022>
- Kohn, R. S. (1965). *Bicycle Troops*. Washington D.C.
- Kokkini, M. (2020, May 31). Bike Culture: Πού συχνάζουν οι ποδηλατικές ομάδες της πόλης; *LiFO*. Retrieved from <https://www.lifo.gr/tropos-zois/urban/bike-culture-poy-syhnazoyn-oi-podilatikes-omades-tis-polis>
- Komanoff, C. (2005). The Need for More Cyclists. *Bicycle Education Leadership Conference / League of American Bicyclists*. New York, NY. Retrieved from http://www.komanoff.net/bicycle/need_more_cyclists.php
- Kona, A., Melica, G., Koffi, B., Iancu, A., Zancanella, P., Rivas Calvete, S., ... G. Monforti-Ferrario, F. J.-M. (2016). *Covenant of Mayors: Greenhouse Gas Emissions Achievements and Projections*. *conventiaprimarylor.eu*. Luxembourg: Publications Office of the European Union. <https://doi.org/10.2790/351463>
- Konrad, M. (2011). One Less Car: Bicycling and the Politics of Automobility. *Contemporary Sociology: A Journal of Reviews*, 40(2), 179–180. <https://doi.org/10.1177/0094306110396847t>
- Kraay, J. H. (1986). Woonerven and other experiments in the Netherlands. *Built Environment*, 12(1–2), 20–29. Retrieved from https://www.jstor.org/stable/23286772?seq=1#page_scan_tab_contents
- Krähmer, K., & Santangelo, M. (2018). Gentrification without gentrifiers? Tourism and Real Estate Investment in Lisbon. *Sociabilidades Urbanas - Revista de Antropologia e Sociologia*, 11(6), 151–165. Retrieved from <https://core.ac.uk/download/pdf/234925260.pdf>
- Krehbiel, K. (1998). *Pivotal Politics: A Theory of U.S. Lawmaking*. Chicago, IL: University of Chicago Press. Retrieved from [https://books.google.pt/books?hl=en&lr=&id=UL5-5GW9kQkC&oi=fnd&pg=PR9&dq=Krehbiel,+K.+\(1998\).+Pivotal+politics:+A+theory+of+US+lawmaking.+Chicago,+IL:+The+University+of+Chicago+Press.&ots=blp4xyODyr&sig=HOFINqYR5kkX_HDkDoQKFZGXEDU&redir_esc=y#v=onepage&q&](https://books.google.pt/books?hl=en&lr=&id=UL5-5GW9kQkC&oi=fnd&pg=PR9&dq=Krehbiel,+K.+(1998).+Pivotal+politics:+A+theory+of+US+lawmaking.+Chicago,+IL:+The+University+of+Chicago+Press.&ots=blp4xyODyr&sig=HOFINqYR5kkX_HDkDoQKFZGXEDU&redir_esc=y#v=onepage&q&)
- Kuhnert, S. (2001). An evolutionary theory of collective action: Schumpeterian entrepreneurship for the common good. *Constitutional Political Economy*. Bloomington, Indiana: Kluwer Academic Publishers. <https://doi.org/10.1023/A:1016677020228>
- Kuipers, G. (2013, February). The rise and decline of national habitus: Dutch cycling culture and the shaping of national similarity. *European Journal of Social Theory*. <https://doi.org/10.1177/1368431012437482>
- L3P. (2022). Sobre. Retrieved January 7, 2022, from <https://laboratorio3p.web.ua.pt/index.php/sobre>
- L3P - Laboratório de Planeamento e Políticas Públicas. (2020). Urban mobility post covid | Mobilidade urbana pós covid – Google Os Meus Mapas. Retrieved June 4, 2020, from

- [https://www.google.com/maps/d/edit?fbclid=IwAR0VAE_1OzycxABMJvmUGnv4h3GgPzLiPgWPaLpwJEJfVsQWGML4kgb_qFw&mid=1vOXAmAUjPDPzjZ-
eaByigcNdm5zLrw81&ll=11.815792189332807%2C0&z=2](https://www.google.com/maps/d/edit?fbclid=IwAR0VAE_1OzycxABMJvmUGnv4h3GgPzLiPgWPaLpwJEJfVsQWGML4kgb_qFw&mid=1vOXAmAUjPDPzjZ-
eaByigcNdm5zLrw81&ll=11.815792189332807%2C0&z=2)
- Lafferty, W. M. (2001). *Sustainable Communities in Europe*. (W. M. Lafferty, Ed.). London, UK: Earthscan. Retrieved from <https://www.docme.eu/doc/1269421/william-m.-lafferty---sustainable-communities-in-europe---...>
- Lafferty, W. M., & Coenen, F. (2001). Conclusions and perspectives. In W. M. Lafferty (Ed.), *Sustainable Communities in Europe* (pp. 266–304). London, UK: Earthscan. Retrieved from <https://www.docme.eu/doc/1269421/william-m.-lafferty---sustainable-communities-in-europe---...>
- Landeshauptstadt Düsseldorf. (2019). Cycling in Düsseldorf. Retrieved December 2, 2019, from <https://www.duesseldorf.de/international/letour/cycling-in-duesseldorf.html>
- Landeshauptstadt Stuttgart. (2018). Stuttgarter Radforum - Stadt Stuttgart. Retrieved January 8, 2020, from <https://www.stuttgart.de/item/show/270441/1>
- Landeshauptstadt Stuttgart. (2019). Radfahrer an den Stuttgarter Zählstellen nach Jahreszeiten. Retrieved January 8, 2020, from <https://statistik.stuttgart.de/statistiken/tabellen/12113/jb12113.php>
- Landeshauptstadt Stuttgart. (2020). Fahrrad - Stadt Stuttgart. Retrieved January 8, 2020, from <https://www.stuttgart.de/fahrrad>
- Lanzendorf, M., & Busch-Geertsema, A. (2014). The cycling boom in large German cities-Empirical evidence for successful cycling campaigns. *Transport Policy*, 36, 26–33. <https://doi.org/10.1016/j.tranpol.2014.07.003>
- Larsen, J. (2017). The making of a pro-cycling city: Social practices and bicycle mobilities. *Environment and Planning A*, 49(4), 876–892. <https://doi.org/10.1177/0308518X16682732>
- Leeds Cycling Campaign. (2019). Leeds Cycling Campaign - About. Retrieved December 16, 2019, from https://www.facebook.com/pg/LeedsCyclingCampaign/about/?ref=page_internal
- Lefebvre, H. (1968). *The Right to the City*. (E. Kofman, E. Lebas, & (Translators), Eds.) (1996 Engli). The Anarchist Library. Retrieved from <https://theanarchistlibrary.org/library/henri-lefebvre-right-to-the-city>
- Lemon, J. (2018). Changes in participation, demographics and hazard associated with mandatory bicycle helmets in New South Wales, Australia. *Journal of Transport and Health*, 9, 195–202. <https://doi.org/10.1016/j.jth.2018.03.011>
- Lerch, V. (2022, February 15). @LerchVeronique. *Twitter*. Lisboa. Retrieved from <https://twitter.com/LerchVeronique/status/1493698603759591438/photo/1>
- Leung, A., & Mannos, A. (2011). Bicycling is for everyone : The connections between cycling in developing countries and low-income cyclists of color in the U.S. Retrieved January 10, 2020, from <https://la.streetsblog.org/2011/06/01/bicycling-is-for-everyone-the-connections-between-cycling-in-developing-countries-and-low-income-cyclists-of-color-in-the-u-s/>
- Liebmann, G. W. (1996). Three Good Community-building Ideas from Abroad. *American Enterprise*, 7(6), 72. Retrieved from <https://search.ebscohost.com/login.aspx?direct=true&AuthType=ip,shib&db=bth&AN=9612172187&lang=pt-pt&site=ehost-live&scope=site>
- Liebmann, G. W. (2004). *Neighborhood futures: Citizen rights and local control. Neighborhood Futures: Citizen Rights and Local Control*. New Brunswick, New Jersey: Transaction Publishers. <https://doi.org/10.4324/9781351308885>
- Liefferink, D., & Wurzel, R. (2018). Governing Climate Change. Policentricity in action? In A. Jordan, D. Huitema, H. van Asselt, & J. Forster (Eds.), *Legitimacy and Accountability in Polycentric Climate Governance* (pp. 135–151). Cambridge, UK: Cambridge University Press. <https://doi.org/10.1017/9781108284646>
- Light Mobie. (2022). Light Mobie - Electric soft mobility for cities. Retrieved from <https://lightmobie.pt/en/bike-sharing-products/>
- Lipsky, M. (1980). *Street-Level Bureaucracy: Dilemmas of the Individual in Public Services*. New York: Russel Sage Foundation. Retrieved from <https://books.google.pt/books?id=mu6FAwAAQBAJ&printsec=frontcover&dq=Lipsky,+Michael.+1980.+Street-Level+Bureaucracy:+Dilemmas+of+the+Individual+in+Public+Services&hl=pt-PT&sa=X&ved=0ahUKEwiowfbizoLIAhUd5uAKHcWFBTYQ6AEIKTAA#v=onepage&q=Lipsky%2C+Michael.>
- Lisboa E-Nova. (2022). Observatórios Lisboa. Retrieved from <https://observatorios-lisboa.pt/>
- Lisboa Para Pessoas. (2022a, January 4). Reduzir a Avenida de Ceuta a metade e criar um corredor BUS e ciclável – eis a proposta do Livre. *Lisboa Para Pessoas*. Retrieved from

- <https://lisboaparapessoas.pt/2022/01/04/avenida-de-ceuta-pessoas-proposta-livre/>
Lisboa Para Pessoas. (2022b, September 23). Entre a gratuidade e a integração no Navegante: a GIRA foi discutida pela CML. *Lisboa Para Pessoas*. Retrieved from <https://lisboaparapessoas.pt/2022/09/23/gira-gratuidade-passe-navegante-residentes-lisboa/>
- Lisboa Para Pessoas. (2022c, November 22). TTSL podia quadruplicar bicicletas nos cacilheiros já hoje mas vai esperar pela nova frota. *Lisboa Para Pessoas*. Retrieved from <https://lisboaparapessoas.pt/2022/11/22/ttsl-bicicletas-cacilheiros-almada/>
- Litman, T. (2013). Planning Principles and Practices. *Victoria Transport Policy Institute*, 35. Retrieved from <http://www.vtpi.org/planning.pdf>
- Litman, T. (2019). Breaking the Cycle of Automobile Dependency. Retrieved January 10, 2020, from <https://www.planetizen.com/blogs/104620-breaking-cycle-automobile-dependency>
- Litman, T. A. (1995). Land use impact costs of transportation. *World Transport Policy & Practice*, 1(4), 9–16. <https://doi.org/10.1108/13527619510101981>
- Litman, T. A. (2004, January). Evaluating Transportation Land Use Impacts. Victoria, British Columbia. Retrieved from https://www.researchgate.net/publication/255632796_Evaluating_Transportation_Land_Use_Impacts
- Litman, T., & Steele, W. R. (2017). *www.vtpi.org Land Use Impacts on Transport. Victoria Transport Policy Institute*, 88. Retrieved from <http://vtpi.org/landtravel.pdf>
- Liu, G., te Brömmelstroet, M., Krishnamurthy, S., & van Wesemael, P. (2019). Practitioners' perspective on user experience and design of cycle highways. *Transportation Research Interdisciplinary Perspectives*, 1. <https://doi.org/10.1016/j.trip.2019.100010>
- Llópez, A. (2016). Historia de una peatonalización. Retrieved January 10, 2020, from <https://valenciaenbici.org/historia-de-una-peatonalizacion/>
- Lock, D. (1980). Urban policy and the new towns. *Town & Country Planning*, 49(10), 344–345. Retrieved from <https://www.scopus.com/record/display.uri?eid=2-s2.0-0019138901&origin=resultslist&sort=plf-f&src=s&st1=%22Stevenage%22+AND+%22policy%22&st2=&sid=1f7a0ab90bbe53b8c57be25835619a09&sot=b&sdt=b&sl=39&s=TITLE-ABS-KEY%28%22Stevenage%22+AND+%22policy%22%29&relp>
- Lois, D., López-Sáez, M., & Rondinella, G. (2016). Qualitative analysis on cycle commuting in two cities with different cycling environments and policies. *Universitas Psychologica*, 15(2), 175–194. <https://doi.org/10.11144/Javeriana.upsy15-2.qacc>
- Lombardi, M., Paziienza, P., & Rana, R. (2016). The EU environmental-energy policy for urban areas: The Covenant of Mayors, the ELENA program and the role of ESCos. *Energy Policy*, 93, 33–40. <https://doi.org/10.1016/j.enpol.2016.02.040>
- Lorimer, J. (1978). *The Developers*. Toronto: James Lorimer & Company, Publishers.
- Loureiro, D. T. C. (2017). *Sustainable Mobility Evaluation at Cascais: The Impact of Bike Share on the Environment, Using Carbon Footprint*. Universidade do Porto, Porto. Retrieved from <http://www.fe.up.pt>
- Loureiro, I., Pereira, E., Costa, N., Ribeiro, P., & Arezes, P. (2018). Global city: Index for industry sustainable development. In *Advances in Intelligent Systems and Computing* (Vol. 600, pp. 294–302). Springer Verlag. https://doi.org/10.1007/978-3-319-60450-3_28
- Lourenço, A. (2009). Diário de Lisboa. Retrieved December 6, 2021, from <http://lisboadiarios.blogspot.com/>
- Lourenço, A. (2014). Uma Lisboa Ciclista. Lisboa. Retrieved from <https://www.facebook.com/umalisboaciclista/>
- Lourenço, A. (2021). Lisbon Cycling. Retrieved December 6, 2021, from <https://lisboncycling.com/>
- Lowi, T. (1970). Decision making vs. policy making: Towards an antidote for technocracy. *Public Administration Review*, 30(3), 314–325. Retrieved from <https://www.jstor.org/stable/974053>
- Lowi, T. J. (1964). American Business, Public Policy, Case-Studies, and Political Theory. *World Politics*, 16(4), 677–715. Retrieved from <https://www.cambridge.org/core/journals/world-politics/article/american-business-public-policy-casestudies-and-political-theory/6621C1B577BB52D00AFBD70F82B94C2D>
- Lowi, T. J. (1972). Four systems of policy, politics, and choice. *Public Administration Review*, 32(No. 4 (Jul.-Aug., 1972)), 298–310. Retrieved from <https://www.jstor.org/stable/974990>
- Lucas, K. (2012). Transport and social exclusion: Where are we now? *Transport Policy*, 20, 105–113. <https://doi.org/10.1016/j.tranpol.2012.01.013>
- Lugo, A. E. (2012). How critical mass built the LA bike movement. In A. C. C. Carlsson, L. Elliott (Ed.), *Shift Happens! Critical Mass at 20* (pp. 41–46). San Francisco: Full Enjoyment Books.
- Lugo, A. E. (2013). CicLAvia and human infrastructure in Los Angeles: Ethnographic experiments in equitable bike planning. *Journal of Transport Geography*, 30, 202–207. <https://doi.org/10.1016/j.jtrangeo.2013.04.010>

- Luongo, R. (2001). Pistes cyclables: du néant aux petits progrès. *Le Provence*. Retrieved from <http://marseilleleveloutile.fubicy.org/presse/0106LaProvence.jpg>
- Lusa. (2007, August 1). Sá Fernandes aceitou pelouro do Ambiente e Espaços Verdes. *RTP Notícias*. Retrieved from https://www.rtp.pt/noticias/pais/sa-fernandes-aceitou-pelouro-do-ambiente-e-espacos-verdes_n48271
- Lusa. (2008a, March 16). Investigador diz que Lisboa é mais um grande planalto do que a cidade das sete colinas. *Público*. Retrieved from <https://www.publico.pt/2008/03/16/local/noticia/investigador-diz-que-lisboa-e-mais-um-grande-planalto-do-que-a-cidade-das-sete-colinas-1322778>
- Lusa. (2008b, September 14). Lisboa é cem por cento ciclável e colinas são mitos, defende investigador. *Público*. Retrieved from <https://www.publico.pt/2008/09/14/local/noticia/lisboa-e-cem-por-cento-ciclavel-e-colinas-sao-mitos-defende-investigador-1342683>
- Lusa. (2020a). Sete quilómetros de ciclovía ligam Batalha a Ourém. *Médio Tejo*. Retrieved from <https://www.medio-tejo.net/sete-quilometros-de-ciclovía-ligam-batalha-a-ourem/>
- Lusa. (2020b, June 3). Câmara de Oeiras insiste em travessia rodoviária sobre o Tejo entre Algés e Trafaria. *Público*. Retrieved from <https://www.publico.pt/2020/06/03/local/noticia/camara-oeiras-insiste-travessia-rodoviaria-tejo-alges-trafaria-1919231>
- Lusa. (2020c, October 2). Medina recua e remete restrições ao trânsito na Baixa de Lisboa para próximo mandato. *Público*. Retrieved from <https://www.publico.pt/2020/10/02/local/noticia/medina-recua-remete-restricoes-transito-baixa-lisboa-proximo-mandato-1933749>
- Lusa. (2021a, October 19). Um milhar de pessoas manifestou-se em defesa da ciclovía da Almirante Reis. *Público*. Retrieved from <https://www.publico.pt/2021/10/19/local/noticia/milhar-pessoas-manifestam-se-lisboa-defesa-ciclovía-almirante-reis-1981740>
- Lusa. (2021b, November 18). BE denuncia suspensão de apoios ao uso da bicicleta em Lisboa mas Câmara diz ser “falso” – Observador. *Observador*. Retrieved from <https://observador.pt/2021/11/18/be-denuncia-suspensao-de-apoios-ao-uso-da-bicicleta-em-lisboa-mas-camara-diz-ser-falso/>
- Lwasa, S., Buyana, K., Kasaija, P., & Mutyaba, J. (2018). Scenarios for adaptation and mitigation in urban Africa under 1.5 °C global warming. *Current Opinion in Environmental Sustainability*, 30, 52–58. <https://doi.org/10.1016/j.cosust.2018.02.012>
- Lydon, M. (2012). *Tactical Urbanism 2. Short-Term Action || Long-Term Change*. (M. Lydon, Ed.). Miami. New York: Street Plans. Next Generation of New Urbanism. Retrieved from <http://tacticalurbanismguide.com/guides/tactical-urbanism-volume-2/>
- Ma, L., & Dill, J. (2015). Associations between the objective and perceived built environment and bicycling for transportation. *Journal of Transport and Health*, 2(2), 248–255. <https://doi.org/10.1016/j.jth.2015.03.002>
- Mach, J. (2017). Survey on Cycling in Prague. Prague: Interreg Europe. Retrieved from https://www.interregeurope.eu/fileadmin/user_upload/tx_tevprojects/library/file_1500355329.pdf
- Macluhan, M. (1964). *Understanding Media: The Extensions of Man* (1st ed.). New York: Signet (New American Library).
- Macmillan, A., Connor, J., Witten, K., Kearns, R., Rees, D., & Woodward, A. (2014). The Societal Costs and Benefits of Commuter Bicycling: Simulating the Effects of Specific Policies Using System Dynamics Modeling. *Environmental Health Perspectives*, 122(4), 335–344. <https://doi.org/10.1289/ehp.1307250>
- Magistrát hlavního města Prahy. (2019). *Indikátory dopravního systému ze statistik a průzkumů*. Prague. Retrieved from <http://www.poladprahu.cz/en/clanek/118/publication-of-documents-pertaining-to-p>
- Magone, J. (2000). The transformation of the Portuguese political system: European regional policy and democratization in a small EU member state. *South European Society and Politics*, 5(2), 119–140. <https://doi.org/10.1080/13608740508539605>
- Magyar Kerékpárosklub. (2013, March 1). VOCA - Report of the Lisbon Meeting Bicycle. Budapest. Retrieved from <https://kerekpárosklub.hu/hirek/cikk/voca---lisszaboni-meeting-beszamoloja>
- Mahoney, J. (2000). Path dependence in historical sociology. *Theory and Society*, 29(4), 507–548. <https://doi.org/10.1023/A:1007113830879>
- Majone, G. (1980). Policies as theories. *Omega*, 8(2), 151–162. [https://doi.org/10.1016/0305-0483\(80\)90019-5](https://doi.org/10.1016/0305-0483(80)90019-5)
- Mallen, E. (2005, October 9). Don't you wish you were riding one? *The Michigan Daily*. Retrieved from <https://www.michigandaily.com/content/elliott-mallen-dont-you-wish-you-were-riding-one>
- Malpica, P. (2010). Los ciclistas en Sevilla como nuevo grupo urbano emergente. In *XI Congreso de Sociología*. Pamplona. Retrieved from <https://docplayer.es/9362723-Los-ciclistas-en-sevilla-como-nuevo-grupo-urbano-emergente.html>
- Manchester City Council. (2012). *Cycling strategy*. Manchester, U.K. Retrieved from

- https://www.manchester.gov.uk/downloads/download/5720/cycling_strategy
- Manton, R., Hynes, S., & Clifford, E. (2016). Greenways as a tourism resource: a study of user spending and value. *Tourism Planning and Development*, 13(4), 427–448.
<https://doi.org/10.1080/21568316.2015.1136835>
- March, J. G. (2010). *The Ambiguities of Experience*. Ithaca, New York: Cornell University Press. Retrieved from
https://books.google.pt/books?hl=en&lr=&id=VBBADwAAQBAJ&oi=fnd&pg=PR5&dq=March,+J.+G.,+2010.+Ambiguities+of+experience.+Cornell+University+Press.&ots=uRWj5PWZU1&sig=rpdfglGhiSRzf0MoSOawtlrK9N4&redir_esc=y#v=onepage&q=March%2C+J.+G.%2C+2010.+Ambiguities+of
- Maria Bicicleta. (2014). Maria Bicicleta. Retrieved December 6, 2021, from <https://mariabicicleta.tumblr.com/>
- Marini-Bettolo, G. B. (Ed.). (1989). *A Modern Approach to the Protection of the Environment*. Città del Vaticano: Pontificia Academia Scientiarum. Retrieved from
<http://www.pas.va/content/accademia/en/publications/scriptavaria/protectionoftheenvironment.html>
- Markvica, K., & Rudloff, C. (2018). Get families to cycle more often by providing a family-friendly tricycle package. In K. Grafl, B. Heike, K. Dziekan, H. Haubold, & M. Neun (Eds.), *Framing the Third Cycling Century* (pp. 45–53). Dessau-Roßlau: Umweltbundesamt (UBA) - Federal German Environment Agency. Retrieved from
https://www.umweltbundesamt.de/sites/default/files/medien/1410/publikationen/181128_uba_fb_third_cycling_century_bf_small.pdf
- Marletto, G. (2014). Car and the city: Socio-technical transition pathways to 2030. *Technological Forecasting and Social Change*, 87, 164–178. <https://doi.org/10.1016/j.techfore.2013.12.013>
- Marqués, R., Hernández-Herrador, V., & Calvo-Salazar, M. (2014). Sevilla: A successful experience of bicycle promotion in a mediterranean context. *WIT Transactions on Ecology and the Environment*, 191, 769–781. <https://doi.org/10.2495/SC140651>
- Marqués, R., Hernández-Herrador, V., Calvo-Salazar, M., & García-Cebrián, J. A. (2015). How infrastructure can promote cycling in cities: Lessons from Seville. *Research in Transportation Economics*, 53, 31–44. <https://doi.org/10.1016/j.retrec.2015.10.017>
- Marrana, J., & Serdoura, F. (2016). A Bicicleta como “novo” modo de mobilidade em Lisboa. In *Pluris 2016. 7º Congresso Luso Brasileiro para o Planeamento Urbano, Regional, Integrado e Sustentável. Contrastes, Contradições e Complexidades* (pp. 14–28). Maceió.
<https://doi.org/10.22533/at.ed.4592029062>
- Marrana, J., & Serdoura, F. (2017). Cycling Policies and Strategies: The Case of Lisbon Gestão Urbanística View project Viva A Cidade: A qualidade do espaço público, à luz da modelagem da informação View project Cycling Policies and Strategies: The Case of Lisbon. In *6th International Conference on Urban Design, Transportation, Architectural and Environmental Engineering (UTAAE-17)* (pp. 224–230). Istanbul. <https://doi.org/10.17758/URST.U0917311>
- Marsden, G., Frick, K. T., May, A. D., & Deakin, E. (2010). How do cities approach policy innovation and policy learning? A study of 30 policies in Northern Europe and North America. *Transport Policy*, 18(3), 501–512. <https://doi.org/10.1016/j.tranpol.2010.10.006>
- Marsden, Greg, & Reardon, L. (2017). Questions of governance: Rethinking the study of transportation policy. *Transportation Research Part A: Policy and Practice*, 101, 238–251.
<https://doi.org/10.1016/j.tra.2017.05.008>
- Marsh, D., & Rhodes, R. (1992). *Policy Networks in British Government. Policy Networks in British Government*. Oxford: Clarendon Press. Retrieved from <https://eprints.soton.ac.uk/336564/>
- Marshall, A. (2005). Europeanization at the urban level: Local actors, institutions and the dynamics of multi-level interaction. *Journal of European Public Policy*, 12(4), 668–686.
<https://doi.org/10.1080/13501760500160292>
- Marshall, W. E., Piatkowski, D., & Johnson, A. (2017). Scofflaw bicycling: Illegal but rational. *Journal of Transport and Land Use*, 10(1). <https://doi.org/10.5198/jtlu.2017.871>
- Martens, K. (2004). The bicycle as a feeding mode: experiences from three European countries. *Transportation Research Part D: Transport and Environment*, 9(4), 281–294.
<https://doi.org/10.1016/j.trd.2004.02.005>
- Martens, K., Golub, A., & Hamre, A. (2021). Social Justice and Cycling. In R. Buehler & J. Pucher (Eds.), *Cycling for Sustainable Cities* (pp. 257–279). Cambridge, Massachusetts: MIT Press.
<https://doi.org/https://doi.org/10.7551/mitpress/11963.003.0018>
- Martins, J. M. (2020). Personal communication regarding a comparison of cycling moving counts and fixed counts.

- Massa Crítica Almada. (2011, June 24). 1ª Bicicletada em Almada. Retrieved from <https://www.facebook.com/bici.almada/posts/201139649932755>
- Massa Crítica Cascais. (2012, June 13). Mapa da 1ª Massa Crítica de Cascais Realizada a 13 Junho 2012. Retrieved from <https://www.facebook.com/photo?fbid=292601217503088&set=a.115265778569967>
- Massa Crítica de Oeiras. (2015, April 27). Massa Crítica Oeiras 2015/04/24. Retrieved from <https://www.facebook.com/massacriticoeiras/posts/1026181750728722>
- Massa Crítica Portugal. (2007a, June 14). A primeira bicicletada do Porto. Retrieved December 18, 2021, from <https://massacriticapt.net/node/1109>
- Massa Crítica Portugal. (2007b, September). Sobre a Massa Crítica. Retrieved November 22, 2021, from <http://www.massacriticapt.net/sobre-a-massa-cr-tica>
- Massa Crítica Portugal. (2008, April 22). Dia da Terra Biciclista em Setúbal. Retrieved November 22, 2021, from <http://www.massacriticapt.net/blogue/dia-da-terra-biciclista-em-set-bal>
- Massa Crítica Portugal. (2010, September 24). Massa Crítica no Seixal. Retrieved from <https://massacriticapt.net/node/1226>
- Massa Crítica Portugal. (2011, October 31). 4ª Biciletada do Barreiro. Retrieved November 21, 2021, from <https://massacriticapt.net/node/1560>
- Matland, R. E. (1995). Synthesizing the implementation literature: The ambiguity-conflict model of policy implementation. *Journal of Public Administration Research and Theory*, 5(2), 145–174. <https://doi.org/10.1093/oxfordjournals.jpart.a037242>
- Matti, S., & Sandström, A. (2011). The Rationale Determining Advocacy Coalitions: Examining Coordination Networks and Corresponding Beliefs. *Policy Studies Journal*, 39(3), 385–410. <https://doi.org/10.1111/j.1541-0072.2011.00414.x>
- May, P. J., & Jochim, A. E. (2013). Policy regime perspectives: Policies, politics, and governing. *Policy Studies Journal*, 41(3), 426–452. <https://doi.org/10.1111/psj.12024>
- Mayne, K. (2021, September 8). Urban Mobility Innovation - Presentation: Access to cycling - the role of business and financial models. *Velo-City 2021 Lisboa*. Lisboa. Retrieved from <https://www.velo-city2021.com/en/programme/programme-2021/>
- McAdam, D., McCarthy, J., Zald, M., & Mayer, N. (Eds.). (1996). *Comparative perspectives on social movements: Political opportunities, mobilizing structures, and cultural framings*. Cambridge, U.K.: Cambridge University Press. Retrieved from [https://books.google.com/books?hl=en&lr=&id=8UamWMisjtK&oi=fnd&pg=PR7&dq=McAdam,+D.,+McCarthy,+J.+D.,+%26+Zald,+M.+N.+\(Eds.\).+\(1996\).+Comparative+perspectives+on+social+movements.+Cambridge,+MA:+Cambridge+University+Press.&ots=DvUt60puug&sig=Clg1aLHmBkiZ](https://books.google.com/books?hl=en&lr=&id=8UamWMisjtK&oi=fnd&pg=PR7&dq=McAdam,+D.,+McCarthy,+J.+D.,+%26+Zald,+M.+N.+(Eds.).+(1996).+Comparative+perspectives+on+social+movements.+Cambridge,+MA:+Cambridge+University+Press.&ots=DvUt60puug&sig=Clg1aLHmBkiZ)
- McAdam, Doug, Tarrow, S., & Tilly, C. (2008). Methods for measuring mechanisms of contention. In *Qualitative Sociology* (Vol. 31, pp. 307–331). <https://doi.org/10.1007/s11133-008-9100-6>
- McCombs, M. E., & Shaw, D. L. (1972). The agenda-setting function of mass media. *Public Opinion Quarterly*, 36(2), 176–187. <https://doi.org/10.1086/267990>
- McConnell, A. (2010). *Understanding policy success: Rethinking public policy*. New York, NY: Palgrave Macmillan. Retrieved from [https://books.google.com/books?hl=en&lr=&id=TRIdBQAAQBAJ&oi=fnd&pg=PP1&dq=McConnell,+A.+\(2010\).+Understanding+policy+success:+Rethinking+public+policy.+New+York,+NY:+Palgrave+Macmillan.&ots=DKxCFfMkW8&sig=drkd68WLnGwxvdh7erqj4I42PY](https://books.google.com/books?hl=en&lr=&id=TRIdBQAAQBAJ&oi=fnd&pg=PP1&dq=McConnell,+A.+(2010).+Understanding+policy+success:+Rethinking+public+policy.+New+York,+NY:+Palgrave+Macmillan.&ots=DKxCFfMkW8&sig=drkd68WLnGwxvdh7erqj4I42PY)
- McCool, D. (1998). The subsystem family of concepts: A critique and a proposal. *Political Research Quarterly*, 51(2), 551–570. <https://doi.org/10.1177/106591299805100213>
- McCreery, S. (2001). The Claremont Road Situation. In I. Borden, J. Kerr, A. Pivaro, & J. Rendell (Eds.), *The Unknown City: Contesting Architecture and Social Space* (pp. 228–245). Cambridge, Massachusetts: MIT Press. Retrieved from <https://books.google.pt/books?id=RAIEIMDLZAYC>
- McDonald, N. C. (2012a). Children and Cycling. In *City Cycling* (pp. 235–256). Retrieved from <http://www.jstor.org/stable/j.ctt5hhjxr.15>
- McDonald, N. C. (2012b). Is there a gender gap in school travel? An examination of US children and adolescents. *Journal of Transport Geography*, 20(1), 80–86. <https://doi.org/10.1016/J.JTRANGE0.2011.07.005>
- McGuire, C., Clarke, L., & Wall, C. (2016). “Through Trade Unionism you felt a belonging—you belonged”: Collectivism and the Self-Representation of Building Workers in Stevenage New Town. *Labour History Review*, 81(3), 211–236. <https://doi.org/https://doi.org/10.3828/lhr.2016.11>
- McKenna, J., & Whatling, M. (2007). Qualitative accounts of urban commuter cycling. *Health Education*, 107(5), 448–462. <https://doi.org/https://doi.org/10.1108/09654280710778583>

- Medina, M. Á. (2018, June 13). "En Valencia ahora vivimos una revolución ciclista." *El País*. Retrieved from https://elpais.com/elpais/2018/06/11/i_love_bicis/1528703149_988650.html
- Mega, V. (1996). Our city, our future: Towards sustainable development in European cities. *Environment and Urbanization*, 8(1), 133–154. <https://doi.org/10.1177/095624789600800111>
- Mega, V. (2000, June 1). Cities inventing the civilisation of sustainability: An odyssey in the urban archipelago of the European Union. *Cities*. Elsevier Ltd. [https://doi.org/10.1016/S0264-2751\(00\)00015-9](https://doi.org/10.1016/S0264-2751(00)00015-9)
- Meggs, J. N. (2010). Bicycle Safety and Choice: Compounded Public Cobenefits of the Idaho Law Relaxing Stop Requirements for Cycling. Berkeley. Retrieved from <https://bikeportland.org/wp-content/uploads/2019/06/idaho-law-jasonmeggs-2010version-2.pdf>
- Meijering, J. V., Kern, K., & Tobi, H. (2014). Identifying the methodological characteristics of European green city rankings. *Ecological Indicators*, 43, 132–142. <https://doi.org/10.1016/j.ecolind.2014.02.026>
- Meireles, A. (2022, November 14). Lisboa só deve ter Plano de Mobilidade Urbana Sustentável a partir de 2024. *Diário de Notícias*. Retrieved from <https://www.dn.pt/local/lisboa-so-deve-ter-plano-de-mobilidade-urbana-sustentavel-a-partir-de-2024-15319709.html>
- Melo, P. C. (2021). Home. Retrieved January 7, 2022, from <https://patriciacmelo.weebly.com/>
- Merrifield, A. (2002). *Metromarxism*. *Metromarxism* (1st ed.). New York: Routledge. <https://doi.org/10.4324/9780203707432>
- Mertens, L., Compernelle, S., Gheysen, F., Deforche, B., Brug, J., Mackenbach, J. D., ... De Bourdeaudhuij, I. (2016). Perceived environmental correlates of cycling for transport among adults in five regions of Europe. *Wiley Online Library*, 17, 53–61. <https://doi.org/10.1111/obr.12379>
- Mertens, Lieze, Compernelle, S., Deforche, B., Mackenbach, J. D., Lakerveld, J., Brug, J., ... Van Dyck, D. (2017). Built environmental correlates of cycling for transport across Europe. *Health & Place*, 44, 35–42. Retrieved from <http://www.sciencedirect.com/science/article/pii/S1353829217300679?via%3Dihub>
- Mertens, Lieze, Van Cauwenberg, J., Ghekiere, A., De Bourdeaudhuij, I., Deforche, B., Van De Weghe, N., & Van Dyck, D. (2016). Differences in environmental preferences towards cycling for transport among adults: A latent class analysis. *BMC Public Health*, 16(1). <https://doi.org/10.1186/S12889-016-3471-5>
- Mertens, Lieze, Van Dyck, D., Ghekiere, A., De Bourdeaudhuij, I., Deforche, B., Van de Weghe, N., & Van Cauwenberg, J. (2016). Which environmental factors most strongly influence a street's appeal for bicycle transport among adults? A conjoint study using manipulated photographs. *International Journal of Health Geographics*, 15(1). <https://doi.org/10.1186/s12942-016-0058-4>
- Mettler, S. (2002). Bringing the state back in to civic engagement: Policy feedback effects of the G.I. Bill for World War II veterans. *American Political Science Review*, 96(2), 351–365. <https://doi.org/10.1017/S0003055402000217>
- Mettler, S., & Sorelle, M. (2018). Policy Feedback Theory. In *Theories of the Policy Process* (pp. 103–134). Routledge. <https://doi.org/10.4324/9780429494284-4>
- Meulemen, A., Seeuws, B., & Karbaumer, R. (2021). Mobility hubs - from idea to implementation. *Velo-City 2021 Lisboa*. Lisboa: European Cyclists' Federation (ECF) | Câmara Municipal de Lisboa.
- Meyers, M. K., & Vorsanger, S. (2007). Street-level bureaucrats and the implementation of public policy. In B. Guy Peters & J. Pierre (Eds.), *Handbook of Public Administration: Concise Paperback Edition* (pp. 153–164). Thousand Oaks, CA. <https://doi.org/10.4135/97808857020970.n13>
- Millet, A. R., & Murray, W. (1988). The Lessons of War. *The National Interest*, (14), 83–95. Retrieved from <https://www.jstor.org/stable/24027131>
- Ministério do Trabalho e da Solidariedade Social. Decreto-Lei n.º 163/2006 de 8 de agosto, Diário da República § (2006). Lisboa: Conselho de Ministros. Retrieved from <https://dre.pt/dre/detalhe/decreto-lei/163-2006-538624>
- Mintrom, M., & Norman, P. (2009, November). Policy entrepreneurship and policy change. *Policy Studies Journal*. Wiley/Blackwell (10.1111). <https://doi.org/10.1111/j.1541-0072.2009.00329.x>
- Mirón Malvar, B. (2016). *Pontevedra : la movilidad eco-friendly en intramuros*. ESG - Escola Superior Gallaecia, Vila Nova de Cerveira. Retrieved from <https://comum.rcaap.pt/handle/10400.26/17962>
- MOBI.E. (2020). *Plano de Atividades e Orçamento 2021-2023*. Lisboa. Retrieved from <https://mobie.pt/en/quemsomos/planos-de-atividades-e-orcamento>
- MobiCascais. (2021). Serviços Mobi. Retrieved October 31, 2021, from <https://mobi.cascais.pt/servicos/bikesharing>
- Mobilitätsagentur Wien GmbH. (2020). Radfahren in Zahlen. Retrieved January 10, 2020, from <https://www.fahrradwien.at/radfahren-in-zahlen/>
- Molloy, J., Schatzmann, T., Schoeman, B., Tchervenkov, C., Hintermann, B., & Axhausen, K. W. (2021). Observed impacts of the Covid-19 first wave on travel behaviour in Switzerland based on a large GPS

- MUBi. (2013b, April 5). Os lapsos graves da proposta de revisão do Código da Estrada, a discutir em breve no Parlamento. Retrieved June 15, 2021, from <https://mubi.pt/2013/04/05/os-lapsos-graves-da-proposta-de-revisao-do-codigo-da-estrada-a-discutir-em-breve-no-parlamento/>
- MUBi. (2013c, July 25). Código da Estrada Português entra finalmente no Século XXI. Retrieved June 15, 2021, from <https://mubi.pt/2013/07/25/codigo-da-estrada-portugues-entra-finalmente-no-seculo-xxi/>
- MUBi. (2013d, October 25). A Sexta de Bicicleta de Abel Baptista. *Público*. Retrieved from <https://www.publico.pt/2013/10/25/p3/noticia/a-sexta-de-bicicleta-de-abel-baptista-1818460>
- MUBi. (2014a, March 18). Projeto Bike to School Day. Retrieved December 6, 2021, from <https://mubi.pt/2014/03/18/projeto-bike-to-school-day/>
- MUBi. (2014b, May 1). MUBi Bike to School. Retrieved December 6, 2021, from <https://www.facebook.com/MUBibiketoschool/>
- MUBi. (2014c, August 19). Contributo MUBi para a Reforma da Fiscalidade Verde. Lisboa. Retrieved from <https://mubi.pt/2014/08/19/contributo-mubi-para-a-reforma-da-fiscalidade-verde/>
- MUBi. (2014d, December 30). Cerimónia de celebração de protocolo entre a MUBi e a Federação Portuguesa de Ciclismo. Retrieved December 7, 2021, from <https://mubi.pt/2014/12/30/cerimonia-de-celebracao-de-protocolo-entre-a-mubi-e-a-federacao-portuguesa-de-ciclismo/>
- MUBi. (2019, October 29). Parecer da MUBi sobre a alteração do Regulamento de Sinalização do Trânsito. Retrieved June 16, 2021, from <https://mubi.pt/2019/10/29/parecer-da-mubi-sobre-a-alteracao-do-regulamento-de-sinalizacao-do-transito/>
- MUBi. (2021). Cidade Ciclável. Retrieved November 20, 2021, from <https://cidadeciclavvel.mubi.pt/>
- Mullan, B. (1980). *Stevenage Ltd: aspects of the planning and politics of Stevenage New Town, 1945-78*. London: Routledge & Kegan Paul.
- Município de Oeiras. (2021a). *Obras e Projetos 2017-2021*. Oeiras: Município de Oeiras. Retrieved from https://issuu.com/municipiodeoeiras/docs/edi_o_especial_obras_e_projetos_01_junho
- Município de Oeiras. (2021b). Rede Viária. Retrieved December 2, 2021, from <https://www.oeiras.pt/rede-viaria>
- Município de Oeiras. (2022, July 15). Novas Esplanadas no Centro Histórico de Oeiras. Retrieved November 24, 2022, from <https://www.oeiras.pt/-/novas-esplanadas-no-centro-historico-oeiras>
- Muñoz, B., Monzon, A., & Lois, D. (2013). Cycling habits and other psychological variables affecting commuting by bicycle in Madrid, Spain. *Transportation Research Record*, (2382), 1–9. <https://doi.org/10.3141/2382-01>
- Muñoz, B., Monzon, A., & López, E. (2015). Transition to a cyclable city: Latent variables affecting bicycle commuting. *Transportation Research Part A: Policy and Practice*, 84, 4–17. <https://doi.org/10.1016/j.tra.2015.10.006>
- Murphy, E., & Usher, J. (2015). The Role of Bicycle-sharing in the City: Analysis of the Irish Experience. *International Journal of Sustainable Transportation*, 9(2), 116–125. <https://doi.org/10.1080/15568318.2012.748855>
- Muxí, Z. (2013). *Postsuburbia : rehabilitación de urbanización de urbanizaciones monofuncionales de baja densidad*. Barcelona: Comanegra. Retrieved from <http://www.marcialpons.es/libros/postsuburbia/9788415097761/>
- NACTO. (2011, April). *Urban Bikeway Design Guide*. New York. Retrieved from <https://nacto.org/publication/urban-bikeway-design-guide/>
- Napoli Pedala. (2019). Napoli Pedala - chi siamo. Retrieved January 2, 2020, from <http://www.napolipedala.it/chi-siamo/>
- Naves, P. (2018, September 18). Há um movimento que quer criar uma ciclovia na Ponte 25 de Abril. *NiT — New in Town*. Retrieved from <https://www.nit.pt/fora-de-casa/ha-um-movimento-quer-criar-ciclovia-na-ponte-25-abril>
- Neun, M., & Haubold, H. (2016). *The EU Cycling Economy - Arguments for an integrated EU cycling policy*. Brussels. Retrieved from [https://ecf.com/sites/ecf.com/files/FINAL THE EU CYCLING ECONOMY_low res.pdf](https://ecf.com/sites/ecf.com/files/FINAL%20THE%20EU%20CYCLING%20ECONOMY_low%20res.pdf)
- Neun, Manfred. (2018a). Framing for cycling practitioners and researchers. In K. Grafl, H. Bunte, K. Dziekan, H. Haubold, & M. Neun (Eds.), *Framing the Third Cycling Century* (pp. 19–20). Dessau-Roßlau: Umweltbundesamt (UBA) - Federal German Environment Agency. Retrieved from https://www.umweltbundesamt.de/sites/default/files/medien/1410/publikationen/181128_uba_fb_third_cycling_century_bf_small.pdf
- Neun, Manfred. (2018b). Framing sustainable mobility in practice and research - and rethinking “Reverse Innovation” in the case for Active Mobility. In K. Grafl, B. Heike, K. Dziekan, H. Haubold, & M. Neun

- (Eds.), *Framing the Third Cycling Century* (pp. 16–18). Dessau-Roßlau: Umweltbundesamt (UBA) - Federal German Environment Agency. Retrieved from https://www.umweltbundesamt.de/sites/default/files/medien/1410/publikationen/181128_uba_fb_third_cycling_century_bf_small.pdf
- Newman, P., Kenworthy, J., Newman, P., & Kenworthy, J. (2021). Gasoline Consumption and Cities Revisited: What Have We Learnt? *Current Urban Studies*, 9(3), 532–553. <https://doi.org/10.4236/CUS.2021.93032>
- Newman, P. W. G., & Kenworthy, J. R. (1989). Gasoline Consumption and Cities. <https://doi.org/10.1080/01944368908975398>, 55(1), 24–37. <https://doi.org/10.1080/01944368908975398>
- Nivola, P. S. (1999a). Are Europe's cities better? *The Public Interest*, 73–84. Retrieved from http://ksuweb.kennesaw.edu/~uzimmerm/Notes/Nivola_Are_Europe's_Cities_Better.pdf
- Nivola, P. S. (1999b). *Laws of the Landscape: How Policies Shape Cities in Europe and America* - Pietro S. Nivola. Macon, Georgia: Brookings Institution Press. Retrieved from https://books.google.pt/books?hl=en&lr=&id=ew1r-BlgQSYC&oi=fnd&pg=PA1&dq=Nivola,+1999&ots=i5oxyNFm0F&sig=Dzu94pHnj3VsrVB3U3ZPtHqz7vw&redir_esc=y#v=onepage&q=Nivola%2C+1999&f=false
- Nogueira, S. L., & Gonçalves, J. E. (2018). CiclovíaSP - Promoting a sustainable bicycle program in São Paulo city. In K. Graff, B. Heike, K. Dziekan, H. Haubold, & M. Neun (Eds.), *Framing the Third Cycling Century* (pp. 89–97). Dessau-Roßlau: Umweltbundesamt (UBA) - Federal German Environment Agency. Retrieved from https://www.umweltbundesamt.de/sites/default/files/medien/1410/publikationen/181128_uba_fb_third_cycling_century_bf_small.pdf
- Nohrstedt, D., & Olofsson, K. (2016). Advocacy Coalition Politics and Strategies on Hydraulic Fracturing in Sweden. In *Policy Debates on Hydraulic Fracturing: Comparing Coalition Politics in North America and Europe* (pp. 147–175). New York: Palgrave Macmillan US. <https://doi.org/10.1057/978-1-137-59574-4>
- Nohrstedt, D., & Weible, C. M. (2010). The Logic of Policy Change after Crisis: Proximity and Subsystem Interaction. *Risk, Hazards & Crisis in Public Policy*, 1(2), 1–32. <https://doi.org/10.2202/1944-4079.1035>
- Nolan, D. (1971). Classifying and Analyzing Politico-Economic Systems. *Individualist*, 3(1).
- Nonaka, I. (1994). A dynamic theory of organizational knowledge creation. *Organization Science*, 5(1), 14–37. <https://doi.org/https://doi.org/10.1287/orsc.5.1.14>
- Nonaka, I., Toyama, R., & Konno, N. (2000). SECI, Ba and Leadership: A Unified Model of Dynamic Knowledge Creation. *Long Range Planning*, 33(1), 5–34. [https://doi.org/10.1016/S0024-6301\(99\)00115-6](https://doi.org/10.1016/S0024-6301(99)00115-6)
- Norman, W. (2021, September 6). Cycle Diversity. *Velo-City 2021 Lisboa*. Lisboa. Retrieved from <https://www.velo-city2021.com/en/programme/programme-2021/>
- Norton, P. D. (2008). *Fighting Traffic: The Dawn of the Motor Age in the American City*. Cambridge, Massachusetts; London, England: MIT Press. Retrieved from <https://www.google.com/search?q=Peter+Norton+Fighting+Traffic&aq=chrome..69i57j69i60.4932j0j8&sourceid=chrome&ie=UTF-8>
- Notícias da Gandaia. (2014, May 25). Ciclovía Almada Costa da Caparica. Retrieved November 25, 2021, from <https://gandaia.info/ciclovía-almada-costa-da-caparica/>
- Nüssli, R., & Schmid, C. (2016). Beyond the Urban–Suburban Divide: Urbanization and the Production of the Urban in Zurich North. *International Journal of Urban and Regional Research*, 40(3), 679–701. <https://doi.org/10.1111/1468-2427.12390>
- O'Toole, L. J. (2000). Research on Policy Implementation: Assessment and Prospects. *Journal of Public Administration Research and Theory*, 10(2), 263–288. <https://doi.org/10.1093/oxfordjournals.jpart.a024270>
- Observatorio de la Movilidad Metropolitana. (2019). *Observatorio de la Movilidad Metropolitana - Informe 2017*. Madrid. Retrieved from <http://www.observatoriomovilidad.es/es/publicaciones/informes.html>
- OECD. (2012). *OECD Economic Surveys PORTUGAL*. Paris. Retrieved from https://www.oecd.org/economy/surveys/PORTUGAL_2012_Overview.pdf
- OECD. (2013). *Definition of Functional Urban Areas (FUA) for the OECD metropolitan database*. Paris. Retrieved from <https://www.oecd.org/cfe/regional-policy/Definition-of-Functional-Urban-Areas-for-the-OECD-metropolitan-database.pdf>
- OECD. (2019a). *Functional urban areas - Portugal*. Paris. Retrieved from <https://www.oecd.org/cfe/regionaldevelopment/Portugal.pdf>

- OECD. (2019b). Functional urban areas by country. Retrieved November 18, 2019, from <https://www.oecd.org/cfe/regional-policy/functionalurbanareasbycountry.htm>
- OECD. (2020a). *OECD Regions and Cities at a Glance - Country Note Portugal. Regions and Cities at a Glance 2020*. Paris. <https://doi.org/https://doi.org/10.1787/959d5ba0-en>.
- OECD. (2020b). *The case of Portugal: Diagnosing multilevel governance strengths and challenges. Decentralisation and Regionalisation in Portugal: What Reform Scenarios?* Paris. <https://doi.org/https://doi.org/10.1787/fea62108-en>
- Oeiras Commute. (2010, April 15). Oeiras Commute. Retrieved December 6, 2021, from <https://www.facebook.com/OeirasCommute>
- Oels, A. (2005). Rendering climate change governable: From biopower to advanced liberal government? *Journal of Environmental Policy and Planning*, 7(3), 185–207. <https://doi.org/10.1080/15239080500339661>
- Ogilvie, D., Mitchell, R., Mutrie, N., Petticrew, M., & Platt, S. (2008). Personal and environmental correlates of active travel and physical activity in a deprived urban population. *International Journal of Behavioral Nutrition and Physical Activity*, 5(1), 43. <https://doi.org/10.1186/1479-5868-5-43>
- Olde Kalter, M. J., Geurs, K. T., & Wismans, L. (2021). Post COVID-19 teleworking and car use intentions. Evidence from large scale GPS-tracking and survey data in the Netherlands. *Transportation Research Interdisciplinary Perspectives*, 12. <https://doi.org/10.1016/j.trip.2021.100498>
- Oldenziel, R. (2016a). The Future of Cycling: A Research Agenda. In R. Oldenziel, M. Emmanuel, A. Albert de la Bruhèze, & F. Veraart (Eds.), *Cycling Cities: The European Experience* (pp. 192–197). Eindhoven: Foundation for the History of Technology (Eindhoven University of Technology). Retrieved from <http://www.cyclingcities.info/>
- Oldenziel, R. (2016b). Urban European Cycling: A Definition. In R. Oldenziel, M. Emanuel, A. Albert de la Bruhèze, & F. Veraart (Eds.), *Cycling Cities: The European Experience* (pp. 186–192). Eindhoven: Foundation for the History of Technology (Eindhoven University of Technology).
- Oldenziel, R., & Albert de la Bruhèze, A. (2011). Contested Spaces: Bicycle Lanes in Urban Europe, 1900–1995. *Transfers*, 1(2), 29–49. <https://doi.org/10.3167/trans.2011.010203>
- Oldenziel, R., & Albert de la Bruhèze, A. (2016a). Amsterdam: World Bicycle Capital, by Chance. In R. Oldenziel, M. Emanuel, A. A. de la Bruhèze, & F. Veraart (Eds.), *Cycling Cities: The European Experience* (pp. 17–27). Eindhoven: Foundation for the History of Technology (Eindhoven University of Technology).
- Oldenziel, R., & Albert de la Bruhèze, A. (2016b). Europe: A Century of Urban Cycling. In R. Oldenziel, M. Emanuel, A. A. de la Bruhèze, & F. Veraart (Eds.), *Cycling Cities: The European Experience* (pp. 7–13). Eindhoven: Foundation for the History of Technology (Eindhoven University of Technology). Retrieved from <http://www.cyclingcities.info/>
- Oldenziel, R., Emanuel, M., Albert de la Bruhèze, A., & Veraart, F. (2016). *Cycling cities: The European experience*. (R. Oldenziel, M. Emanuel, A. A. de la Bruhèze, & F. Veraart, Eds.). Eindhoven: Foundation for the History of Technology (Eindhoven University of Technology). Retrieved from https://books.google.es/books?id=_tKiAQAACAAJ&dq=cycling+cities+the+european+experience&hl=pt-PT&sa=X&ved=0ahUKEwiOovTfsqLYAhXB1RQKHUy4AjAQ6AEIKDAA
- Oliveira, C., & Breda-Vázquez, I. (2012). Europeanisation of territorial policies in Portugal and Italy: A cross-national comparison. *Policy and Politics*, 40(1), 89–105. <https://doi.org/10.1332/030557310X520261>
- Oliveira, D. (2022, November 9). Largo do Rato: um “esgoto rodoviário a céu aberto”. Até quando? *A Mensagem de Lisboa*. Retrieved from <https://amensagem.pt/2022/11/09/largo-do-rato-lisboa-esgoto-rodoviario-ceu-aberto-mobilidade-urbanismo/>
- Oliveira, E. (2021, September 19). Saiba o que pode comer na Rua Amarela — a rua mais cool de Cascais. *NiT — New in Town*. Retrieved from <https://www.nit.pt/comida/restaurantes/saiba-o-que-pode-comer-na-rua-amarela-rua-mais-cool-de-cascais>
- OMA. (2017). Rijnstraat 8. Retrieved December 16, 2021, from <https://www.oma.com/projects/rijnstraat-8>
- Oosterhuis, H. (2016). Cycling, modernity and national culture. *Social History*, 41(3), 233–248. <https://doi.org/10.1080/03071022.2016.1180897>
- Oosterhuis, H. (2017). Blind spots and misguided optimism in cycling policies and policy-oriented bicycle research. *Scientists for Cycling Colloquium - Nijmegen. June 12, 2017*. Nijmegen.
- OpenStreetMap.org. (2021). OpenStreetMap. Retrieved from <https://www.openstreetmap.org/#map=10/38.8691/-9.0022&layers=Y>
- Ostrom, E. (1986). An agenda for the study of institutions. *Public Choice*, 48(1), 3–25. <https://doi.org/10.1007/BF00239556>

- Ostrom, E. (2005). *Understanding institutional diversity. Understanding Institutional Diversity*. Princeton, NJ: Princeton University Press. <https://doi.org/10.2307/j.ctt7s7wm>
- Ostrom, E. (2009). *Understanding Institutional Diversity*. Princeton, N.J.: Princeton University Press. Retrieved from https://books.google.pt/books?id=LbeJaji_AfEC&printsec=frontcover&dq=Understanding+Institutional+Diversity+Ostrom&hl=pt-PT&sa=X&ved=0ahUKEwjQs4uKyoLIAhUBzhoKHZ7HA2MQ6AEIKTAA#v=onepage&q=Understanding+Institutional+Diversity+Ostrom&f=false
- Ostrom, E. (2011). Background on the Institutional Analysis and Development Framework. *Policy Studies Journal*, 39(1), 7–27. <https://doi.org/10.1111/j.1541-0072.2010.00394.x>
- Ostrom, E., & Basurto, X. (2011). Crafting analytical tools to study institutional change. *Journal of Institutional Economics*, 7(3), 317–343. <https://doi.org/10.1017/S1744137410000305>
- Ostrom, E., Cox, M., & Schlager, E. (2014). An assessment of the institutional analysis and development framework and introduction of the social-ecological systems framework. In P. A. Sabatier & C. M. Weible (Eds.), *Theories of the Policy Process* (3rd ed., pp. 267–306). Boulder, CO: Westview Press.
- Ostrom, E., Gardner, R., & Walker, J. (1994). *Rules, games, and common-pool resources*. Ann Arbor: University of Michigan Press. Retrieved from <https://books.google.com/books?hl=en&lr=&id=DgmLa8gPo4gC&oi=fnd&pg=PR13&dq=OSTROM,+ELI+NOR,+ROY+GARDNER,+and+JAMED+WALKER.+1994.+Rules,+Games,+and+Common-Pool+Resources.+Ann+Arbor,+MI:+University+of+Michigan+Press.&ots=N5YGpnzcTF&sig=3bEVB92Lxzybe4u8UCugNe>
- Otchere-Darko, W. (2017). Demotorisation and Economic Consumer Culture: A contradiction in the post-modern city? (Case studies from Copenhagen and Vienna). In S. W. Stoustrup (Ed.), *Cities: Changes, Places, Spaces* (pp. 94–116). Vienna: Department of Geography and Regional Research, University of Vienna. Retrieved from https://www.academia.edu/40702690/Demotorisation_and_Economic_Consumer_Culture_A_contradiction_in_the_post_modern_city_Case_studies_from_Copenhagen_and_Vienna
- Pablo-Romero, M. del P., Pozo-Barajas, R., & Sánchez-Braza, A. (2018). Analyzing the effects of the benchmark local initiatives of Covenant of Mayors signatories. *Journal of Cleaner Production*, 176, 159–174. <https://doi.org/10.1016/j.jclepro.2017.12.124>
- Páez, A., & Whalen, K. (2010). Enjoyment of commute: A comparison of different transportation modes. *Transportation Research Part A: Policy and Practice*, 44(7), 537–549. <https://doi.org/10.1016/j.tra.2010.04.003>
- Paige Willis, D., Manaugh, K., & El-Geneidy, A. (2013). Uniquely satisfied: Exploring cyclist satisfaction. *Transportation Research Part F: Traffic Psychology and Behaviour*, 18, 136–147. <https://doi.org/10.1016/j.trf.2012.12.004>
- Parkin, J., Ryley, T., & Jones, T. (2007). Barriers to Cycling: An Exploration of Quantitative Analyses. In D. Horton, P. Rosen, & P. Cox (Eds.), *Cycling and Society* (pp. 83–98). London: Routledge. <https://doi.org/10.4324/9781315575735-9>
- Parkin, J., Wardman, M., & Page, M. (2007). Estimation of the determinants of bicycle mode share for the journey to work using census data. *Transportation*, 35(1), 93–109. <https://doi.org/10.1007/s11116-007-9137-5>
- Parques de Sintra. (2017). Eixo Verde e Azul. *YouTube*. Sintra, Portugal. Retrieved from <https://www.youtube.com/watch?v=V5V-w7IX6jw>
- Partido Socialista (PS)/ Cidadãos por Lisboa/ Associação Lisboa é Muita Gente/ Livre. (2017). Programa de Governo da Cidade de Lisboa 2017-2021. Lisboa. Retrieved from https://www.cidadaosporlisboa.pt/wp-content/uploads/2019/10/Programa_Governo_Lisboa_2017-2021.pdf
- Parusel, S., & McLaren, A. T. (2010). Cars before kids: Automobility and the Illusion of school traffic safety. *Canadian Review of Sociology*, 47(2), 129–147. <https://doi.org/10.1111/j.1755-618X.2010.01227.x>
- Pasimeni, M. R., Valente, D., Zurlini, G., & Petrosillo, I. (2019). The interplay between urban mitigation and adaptation strategies to face climate change in two European countries. *Environmental Science and Policy*, 95, 20–27. <https://doi.org/10.1016/j.envsci.2019.02.002>
- Paterson, M. (2007). *Automobile Politics. Ecology and Cultural Political Economy*. Cambridge: Cambridge University Press. Retrieved from <https://www.cambridge.org/pt/academic/subjects/politics-international-relations/political-economy/automobile-politics-ecology-and-cultural-political-economy>
- PBIC. (2020). Local Actions to Support Walking and Cycling During Social Distancing Dataset. Retrieved May 11, 2020, from http://pedbikeinfo.org/resources/resources_details.cfm?id=5209

- Peralta, R. F. (2020). *Mobicascais' Bike-Sharing Operations - A Case Study BIKE-SHARING OPERATIONS- A CASE STUDY*. Carcavelos. Retrieved from https://run.unl.pt/bitstream/10362/104421/1/11546_Raquel_Filipe_Peralta_2019-20_S1-26336-15-Raquel_Peralta_124450_309585418.pdf
- Pereira, A. (2018, February 6). História do Código da Estrada e as bicicletas. Retrieved November 28, 2022, from <https://www.cenasapedal.com/2018/02/06/historia-do-codigo-da-estrada-as-bicicletas/>
- Pereira, B. C. (2010, July). A Bicicleta nas Operações de Soberania. *Segurança e Defesa*, (14), 92–97.
- Pereira, B. C. (2015, October). Secretary-general of the OECD International Transport Forum sidelining bicycles again.
- Pereira, B. C. (2017a, April 27). Important Victory for Bicycle Users in Portugal. Retrieved December 3, 2021, from <https://ecf.com/news-and-events/news/important-victory-bicycle-users-portugal>
- Pereira, B. C. (2017b, November 1). Esboço do Plano de Ação para a Rede Ciclável 2018. Lisboa.
- Pereira, B. C. (2019). Public Policy for Urban Cycling in Lisbon. The Role of the Cyclists' Coalition. Dublin, Ireland: European Cyclists' Federation (ECF) Velo-City 2019 Conference. Retrieved from https://ecf.com/sites/ecf.com/files/Pereira.B_Public_Policy_for_Urban_Cycling_in_Lisbon.pdf
- Pereira, B. C. (2022, September 28). Um dia a pedalar, porque não? *Lisboa Para Pessoas*. Retrieved from <https://lisboaparapessoas.pt/2022/09/28/um-dia-a-pedalar-porque-nao/>
- Pereira, B. C., & Costello, J. (2016, June). Re: Message about translation, via the Cycling Fallacies website (msg 1465390536).
- Pereira, M. (2009). O Plano de Urbanização da Costa do Sol - O pioneirismo de um Plano Sub-Regional. In GC/NC - DPHM (Ed.), *O Plano de Urbanização da Costa do Sol - Uma Visão Inovadora para o Território* (Câmara Mun, pp. 24–41). Oeiras: Câmara Municipal de Oeiras.
- Pereira, M., Costa, S. V., Lobo, M. S., Lobo, S., Quaresma, C., & Marat-Mendes, T. (2009). *O Plano de Urbanização da Costa do Sol: uma visão inovadora para o território*. Oeiras: Município de Oeiras. Retrieved from <http://bibliografia.bnportugal.pt/bnp/bnp.exe/registo?1767081>
- Pérez, K., Olabarria, M., Rojas-Rueda, D., Santamariña-Rubio, E., Borrell, C., & Nieuwenhuijsen, M. (2017). The health and economic benefits of active transport policies in Barcelona. *Journal of Transport and Health*, 4, 316–324. <https://doi.org/10.1016/j.jth.2017.01.001>
- Pesce, G. (2002). An Aesthetic Rebellion (Milan, Italy). In C. Carlsson (Ed.), *Critical Mass: Bicycling's Defiant Celebration* (pp. 52–54). Edinburgh, Scotland; Oakland, CA: AK Press. Retrieved from <http://books.google.com/books?id=iVpHsLMgiCcC&pgis=1>
- Phillips, A. (1996). The challenge of restoring Europe's nature and landscapes. *International Planning Studies*, 1(1), 73–93. <https://doi.org/10.1080/13563479608721644>
- Phillips, N. E., Levy, B. L., Sampson, R. J., Small, M. L., & Wang, R. Q. (2019). The Social Integration of American Cities: Network Measures of Connectedness Based on Everyday Mobility Across Neighborhoods. *Sociological Methods & Research*, 004912411985238. <https://doi.org/10.1177/0049124119852386>
- Philpott, J. C., Kraithman, D. A., Veltman, R. K., & Adams, J. C. (1986). Policy responses to structural change in Stevenage and Hertfordshire. - Document details. In Cooke P. (Ed.) (pp. 72–81). London: ESRC. Retrieved from <https://www.scopus.com/record/display.uri?eid=2-s2.0-0022910186&origin=resultslist&sort=plf-f&src=s&st1=%22Stevenage%22+AND+%22policy%22&st2=&sid=1f7a0ab90bbe53b8c57be25835619a09&sot=b&sdt=b&sl=39&s=TITLE-ABS-KEY%28%22Stevenage%22+AND+%22policy%22%29&relp>
- Picas, T. (2020, September 24). Mário Meireles: “A cidade de Braga está atrasadíssima em matéria da mobilidade em bicicleta.” *ComUM*. Retrieved from <http://www.comumonline.com/2020/09/mario-meireles-a-cidade-de-braga-esta-atrasadissima-em-materia-da-mobilidade-em-bicicleta/>
- Pierce, J. J., Hicks, K. C., Peterson, H. L., & Giordano, L. (2017). Common Approaches for Studying the Advocacy Coalition Framework: Review of Methods and Exemplary Practices Jonathan. *Ecpr.Eu*, 1–45. Retrieved from <https://ecpr.eu/Filestore/PaperProposal/b0e4eb57-d311-4b73-9a45-56a8f46374f2.pdf>
- Pierson, P. (1993). When Effect Becomes Cause: Policy Feedback and Political Change. *World Politics*, 45(4), 595–628.
- Pimentel Ferreira, J. (2014, April 3). A bicicleta e o super mito das colinas – o caso de Lisboa! –. Retrieved August 10, 2021, from <https://cicloriente.pt/2014/04/03/a-bicicleta-e-o-super-mito-das-colinas-o-caso-de-lisboa/>
- Pincha, J. P. (2021a, March 14). A pandemia reactivou a vizinhança, “temos de lhe dar sequência.” *Público*. Retrieved from <https://www.publico.pt/2021/03/14/local/noticia/pandemia-reactivou-vizinhanca-dar-sequencia-1954210>

- https://dre.pt/web/guest/home/-/dre/123666113/details/maximized?print_preview=print-preview
- Pressman, J., & Wildavsky, A. (1973). *Implementation: How Great Expectations in Washington Are Dashed in Oakland; Or, Why It's Amazing That Federal Programs Work at All, This Being a Saga ... on a Foundation (The Oakland Project Series)*. Retrieved from <https://qlkwb0dak06.storage.googleapis.com/MDUyMDA1MzMxMQ==06.pdf>
- Público. (2021, August 14). Escrito na Pedra. *Público*, p. 7. Retrieved from <https://ereader.publico.pt/publico-edicao-lisboa/20211214>
- Pucher, J. (1997). Bicycling Boom in Germany: A Revival Engineered by Public Policy. *Transportation Quarterly*, 51(No. 4, Fall 1997), 31–46. Retrieved from https://www.researchgate.net/publication/235359426_Bicycling_Boom_in_Germany_A_Revival_Engineered_by_Public_Policy
- Pucher, J., & Buehler, R. (2008). Making cycling irresistible: Lessons from the Netherlands, Denmark and Germany. *Transport Reviews*, 28(4), 495–528. <https://doi.org/10.1080/01441640701806612>
- Pucher, J., & Buehler, R. (2010). Walking and cycling for healthy cities. *Built Environment*, 36(4), 391–414. <https://doi.org/10.2148/benv.36.4.391>
- Pucher, J., & Buehler, R. (2012a). *City cycling*. (J. Pucher & R. Buehler, Eds.). Cambridge, Massachusetts: MIT Press. <https://doi.org/10.1080/01441647.2013.782592>
- Pucher, J., & Buehler, R. (2012b). Promoting Cycling for Daily Travel: Conclusions and Lessons from across the Globe. In John Pucher and Ralph Buehler (Ed.), *City Cycling* (pp. 347–364). Cambridge: MIT Press. Retrieved from https://books.google.pt/books?hl=pt-PT&lr=&id=226mCyz9JaEC&oi=fnd&pg=PA347&dq=pucher+buehler+promoting+cycling+for+daily+travel&ots=lcUwi1pL6P&sig=gMp1gmHwufQ_fGn0apPCD_Tydh0&redir_esc=y#v=onepage&q=pucher+buehler+promoting+cycling+for+daily+t
- Pucher, J., & Buehler, R. (2021). Introduction: Cycling to Sustainability. In R. Buehler & J. Pucher (Eds.), *Cycling for Sustainable Cities* (pp. 1–10). Cambridge, Massachusetts: MIT Press. <https://doi.org/https://doi.org/10.7551/mitpress/11963.003.0005>
- Pucher, J., & Dijkstra, L. (2003). Promoting safe walking and cycling to improve public health: Lessons from Netherlands, Denmark and Germany. *Transport Reviews*, 28(4), 495–528. <https://doi.org/10.2105/AJPH.93.9.1509>
- Pucher, J., Dill, J., & Handy, S. (2010). Infrastructure, programs, and policies to increase bicycling: An international review. *Preventive Medicine*, 50(SUPPL.), S106–S125. <https://doi.org/10.1016/J.YPMED.2009.07.028>
- Pucher, J., Ensink, B., Blumenthal, T., Nesper, B., McLeod, K., Clarke, A., ... Bourke, P. (2021). Cycling Advocacy in Europe, North America, and Australia. In *Cycling for Sustainable Cities* (pp. 401–424). Cambridge, Massachusetts: MIT Press. <https://doi.org/https://doi.org/10.7551/mitpress/11963.003.0024>
- Pucher, J., Komanoff, C., & Schimek, P. (1999). Bicycling renaissance in North America? Recent trends and alternative policies to promote bicycling. *Transportation Research Part A*, 33, 625–654. Retrieved from http://www.komanoff.net/bicycle/Bicycling_Renaissance.pdf
- Pucher, J., & LeFèvre, C. (1996). *The Urban Transport Crisis in Europe and North America*. Houndmills, Basingstoke, Hampshire: MacMillan Press Ltd. <https://doi.org/10.1057/9780230371835>
- Pucher, J., Parkin, J., & de Lanversin, E. (2021). Cycling in New York, London, and Paris. In R. Buehler & J. Pucher (Eds.), *Cycling for Sustainable Cities* (p. 346). Cambridge, Massachusetts: MIT Press. <https://doi.org/https://doi.org/10.7551/mitpress/11963.003.0021>
- Puga, N. (2011). Miguel Anxo Fernandez Lores. *El Mundo*. Retrieved from <https://www.elmundo.es/elmundo/tags/49/miguel-anxo-fernandez-lores.html>
- Radentscheid Frankfurt. (2019). The Radentscheid. Retrieved December 5, 2019, from <https://www.radentscheid-frankfurt.de/en/why/>
- Radlobby Niederösterreich. (2019, October 5). Maria Enzersdorf: Wege in der Südstadt fürs Radfahren geöffnet. Retrieved November 17, 2021, from <https://www.radlobby.org/noe/mariaenzersdorf-suedstadt-radfahren-erlaubt/>
- Ramallo da Silva, B. (2021, December 22). Luxury homes, short lets and shacks: inside Lisbon's housing crisis. *The Guardian*. Retrieved from <https://www.theguardian.com/world/2021/dec/22/luxury-homes-short-lets-and-shacks-inside-lisbons-housing-crisis>
- Ramos, M. J., & Alves, M. J. (2010). *The Walker and The City*. (M. J. Ramos & M. J. Alves, Eds.). Lisboa: Associação de Cidadãos Auto-Mobilizados (ACA-M). Retrieved from https://www.aca-m.org/publicacoes_e_documentos/the-walker-and-the-city/
- Rao, R. (2010). *Urban Cycling as the Measure of the City: Experience, Policy and the Cultural Politics of*

- Mobility*. Simon Fraser University, Burnaby, BC. Retrieved from <http://summit.sfu.ca/item/10003>
- Raposo, F. (2020, June 3). Na madrugada do Dia Mundial da Bicicleta, grupo de utilizadores pinta ciclovias “pop-up” em Lisboa. *Smart Cities*. Retrieved from <https://smart-cities.pt/mobilidade/ciclovias-popup-0306lisboa/>
- Raposo, F., & Banza, M. (2021, April 11). Onde guardo a bicicleta em Lisboa? Guia para saber estacionar na cidade. *A Mensagem de Lisboa*. Retrieved from <https://amensagem.pt/2021/04/11/parques-em-el-estacionar-bicicleta-guia-mapa-lisboa/>
- Rau, H. (2018). Cycling in every period of life - Expert comment. In K. Grafl, B. Heike, K. Dziekan, H. Haubold, & M. Neun (Eds.), *Framing the Third Cycling Century* (pp. 54–55). Dessau-Roßlau: Umweltbundesamt (UBA) - Federal German Environment Agency. Retrieved from https://www.umweltbundesamt.de/sites/default/files/medien/1410/publikationen/181128_uba_fb_third_cycling_century_bf_small.pdf
- Red de Ciudades por la Bicicleta. (2021). RCxB - Red de Ciudades por la Bicicleta. Retrieved June 20, 2021, from <https://www.ciudadesporlabicicleta.org/>
- Rede Nacional de Cicloturismo - Portugal. (2011). Rede Nacional de Cicloturismo - Portugal. *Facebook*. Retrieved from https://www.facebook.com/Rede-Nacional-de-Cicloturismo-Portugal-197391793672143/?ref=page_internal
- Reguly, E. (2020). Bikes, pedestrians and the 15-minute city: How the pandemic is propelling urban revolutions -. *The Globe and Mail*. Retrieved from <https://www.theglobeandmail.com/canada/article-bikes-pedestrians-and-the-15-minute-city-how-the-pandemic-is/>
- Reichard, S. (2020). Neues Anliegen an Fahrrad Wien - Information. Vienna: Mobilitätsagentur Wien GmbH. Projekte und Kooperationen.
- Reid, C. (2015a). Davis, California – the American city which fell in love with the bicycle | Cities | The Guardian. *The Guardian*. Retrieved from <https://www.theguardian.com/cities/2015/aug/03/davis-california-the-american-city-which-fell-in-love-with-the-bicycle>
- Reid, C. (2015b). *Roads Were Not Built for Cars: How cyclists were the first to push for good roads & became the pioneers of motoring*. Washington, DC: Island Press. <https://doi.org/10.5822/978-1-61091-688-2>
- Reid, C. (2017a). *Bike Boom: The Unexpected Resurgence of Cycling*. Washington, D.C.: Island Press. Retrieved from <https://islandpress.org/books/bike-boom>
- Reid, C. (2017b). Build it and they will come? Why Britain’s 1960s cycling revolution flopped. *The Guardian*, p. Cities. Retrieved from <https://www.theguardian.com/cities/2017/sep/19/britains-1960s-cycling-revolution-flopped-stevenage>
- Reid, C. (2020, June 4). Lisbon Latest City To Rein Back Car Use With 34 Miles Of Pop-Up Cycleways Installed By September. *Forbes*. Retrieved from <https://www.forbes.com/sites/carltonreid/2020/06/04/lisbon-latest-city-to-rein-back-car-use-with-34-miles-of-pop-up-cycleways-installed-by-september/?sh=78fcdda0cef4>
- República Portuguesa | Gabinete do Ministro do Ambiente e da Ação Climática. (2021a). *Fundo Ambiental apoia a construção de ciclovias em 3,8 milhões de euros*. Lisboa. Retrieved from <https://www.portugal.gov.pt/pt/gc22/comunicacao/comunicado?i=fundo-ambiental-apoia-a-construcao-de-ciclovias-em-38-milhoes-de-euros>
- República Portuguesa | Gabinete do Ministro do Ambiente e da Ação Climática. (2021b). Incentivo pela Introdução no Consumo de Veículos de Baixas Emissões (2021). Retrieved December 27, 2021, from <https://www.fundoambiental.pt/avisos-2021/mitigacao-das-alteracoes-climaticas/incentivo-pela-introducao-no-consumo-de-veiculos-de-baixas-emissoes-2021.aspx>
- República Portuguesa | Ministério do Ambiente e Ação Climática. (2021). *Construção de Ciclovias no âmbito do Portugal Ciclável (2º Aviso) - Relatório Final | Agosto 2021*. Lisboa. Retrieved from <https://www.fundoambiental.pt/ficheiros/construcao-de-ciclovias-2-fase-relatorio-final-pdf.aspx>
- República Portuguesa | Ministério do Planeamento. (2021). *Recuperar Portugal, Construindo o futuro - Plano de Recuperação e Resiliência - XXII Governo - República Portuguesa*. Lisboa. Retrieved from <https://www.portugal.gov.pt/pt/gc22/comunicacao/documento?i=recuperar-portugal-construindo-o-futuro-plano-de-recuperacao-e-resiliencia>
- Reuters. (2020). Marseille turns green with election of first woman mayor. *Reuters*. Retrieved from <https://www.reuters.com/article/us-france-politics-marseille-idUSKBN2450MC>
- Rhodes, R. A. W. (1990). Policy Networks: A British Perspective. *Journal of Theoretical Politics*, 2(3), 293–317. <https://doi.org/10.1177/0951692890002003003>
- Rhodes, R. A. W., & Marsh, D. (1992). New directions in the study of policy networks. *European Journal of Political Research*, 21(1–2), 181–205. <https://doi.org/10.1111/j.1475-6765.1992.tb00294.x>

- Richards, R., Murdoch, L., Reeder, A. I., & Rosenby, M. (2010). Advocacy for active transport: advocate and city council perspectives. *International Journal of Behavioral Nutrition and Physical Activity*, 7(1), 5. <https://doi.org/10.1186/1479-5868-7-5>
- Richards, T. (2013). How the Met police criminalised the Critical Mass bike ride. *The Guardian*. Retrieved from <https://www.theguardian.com/environment/bike-blog/2013/mar/18/police-activism>
- Richter, J. (2013, April 24). Number of Prague cyclists doubles – despite City Hall’s approach, say activists. *Radio Prague International*. Prague: Radio Prague International. Retrieved from <https://www.radio.cz/en/section/marketplace/number-of-prague-cyclists-doubles-despite-city-halls-approach-say-activists>
- Riverstone-Newell, L. (2012). Bottom-up activism: A local political strategy for higher policy change. *Publius*, 42(3), 401–421. <https://doi.org/10.1093/publius/pjs018>
- Robichau, R. W., & Lynn, L. E. (2009). The implementation of public policy: Still the missing link. *Policy Studies Journal*, 37(1), 21–36. <https://doi.org/10.1111/j.1541-0072.2008.00293.x>
- Robinson, D. L. (2006). No clear evidence from countries that have enforced the wearing of helmets. *BMJ*, 332, 722–725. <https://doi.org/doi:https://doi.org/10.1136/bmj.332.7543.722-a>
- Rodriguez, D. A., & Joo, J. (2004). The relationship between non-motorized mode choice and the local physical environment. *Transportation Research Part D: Transport and Environment*, 9(2), 151–173. <https://doi.org/10.1016/j.trd.2003.11.001>
- Rojas-Rueda, D., de Nazelle, A., Teixidó, O., & Nieuwenhuijsen, M. J. (2012). Replacing car trips by increasing bike and public transport in the greater Barcelona metropolitan area: A health impact assessment study. *Environment International*, 49, 100–109. <https://doi.org/10.1016/j.envint.2012.08.009>
- Rojas-Rueda, David, De Nazelle, A., Andersen, Z. J., Braun-Fahrlander, C., Bruha, J., Bruhova-Foltynova, H., ... Nieuwenhuijsen, M. J. (2016). Health impacts of active transportation in Europe. *PLoS ONE*, 11(3), e0149990. <https://doi.org/10.1371/journal.pone.0149990>
- Romano, B., & Zullo, F. (2013). Models of urban land use in Europe: Assessment tools and criticalities. *International Journal of Agricultural and Environmental Information Systems*, 4(3), 80–97. <https://doi.org/10.4018/ijaeis.2013070105>
- Rondinella, G. (2015). *Considering cycling for commuting: the role of mode familiarity - An exploration on the (circular) relation between cycling behaviours and attitudes toward cycling in Vitoria-Gasteiz, Spain*. Universidad Politécnica de Madrid. Retrieved from <https://oa.upm.es/id/eprint/36379>
- Rosen, P. (2002). *Framing production: Technology, culture, and change in the British bicycle industry*. Retrieved from https://books.google.com/books?hl=en&lr=&id=hjSygAamUiMC&oi=fnd&pg=PR9&dq=Rosen,+P.+2002.+Framing+Production:+Technology,+Culture,+and+Change+in+the+British+Bicycle+Industry,+Inside+Technology,+Cambridge:+MIT+Press.&ots=c_rdWgw045&sig=v0-tPKsM1JIC0yPdQ_j7ka6Qx7c
- Rossi, A. (1984). *The architecture of the city* (6th print). Cambridge, Massachusetts: MIT Press. Retrieved from <https://mitpress.mit.edu/books/architecture-city>
- Rota Segura para a Escola. (2022). Rota Segura para a Escola. Retrieved November 26, 2022, from <http://rotaseguraparaaescola.pt/>
- Rubin, H. J. (2018). *Advocacy for Social Change*. (B. Berry, Ed.). Oxon: Routledge. <https://doi.org/10.4324/9781315121956>
- Rupprecht, S., Brand, L., Böhrer - Baedeker, S., Brunner, L. M., & Rupprecht Consult - Forschung & Beratung GmbH. (2019). *Guidelines for Developing and Implementing a Sustainable Urban Mobility Plan*. (2nd ed.). Brussels: Directorate-General for Mobility and Transport. Retrieved from <https://www.eltis.org/mobility-plans/sump-guidelines>
- Sabatier, P. A. (1986). Top-Down and Bottom-Up Approaches to Implementation Research: A Critical Analysis and Suggested Synthesis. *Journal of Public Policy*, 6(1), 21–48. <https://doi.org/10.1017/S0143814X00003846>
- Sabatier, P. A. (1988). An advocacy coalition framework of policy change and the role of policy-oriented learning therein. *Policy Sciences*, 21(2–3), 129–168. <https://doi.org/10.1007/BF00136406>
- Sabatier, P. A. (1998). The advocacy coalition framework: revisions and relevance for Europe. *Journal of European Public Policy*, 5(1), 98–130. <https://doi.org/10.1080/13501768880000051>
- Sabatier, P. A. (2007). *Theories of the policy process*. (P. A. Sabatier, Ed.). Boulder, Colorado: Westview Press. Retrieved from https://books.google.pt/books?id=ActVDgAAQBAJ&pg=PT16&dq=Theories+of+the+Policy+Process,&hl=pt-PT&sa=X&ved=0ahUKEwil3ZCd7o_IAhWLohKQHZA1AW0Q6AEIKTAA#v=onepage&q=Theories+of+the+Policy+Process%2C&f=false

- Sabatier, P. A., & Jenkins-Smith, H. C. (1993). *Policy Change And Learning: An Advocacy Coalition Approach (Theoretical Lenses on Public Policy)*. Boulder, Colorado: Westview Press.
- Sabatier, P. A., & Pelkey, N. (1987). Incorporating multiple actors and guidance instruments into models of regulatory policymaking: An advocacy coalition framework. *Administration & Society*, 19(2), 236–263. <https://doi.org/10.1177/009539978701900205>
- Sabatier, P. A., & Weible, C. M. (2007). The Advocacy Coalition: Innovations and Clarifications. In *Theories of the Policy Process* (pp. 117–166). Boulder, CO: Westview Press. Retrieved from <https://vtechworks.lib.vt.edu/handle/10919/68212>
- Sabatier, P., Hunter, S., & McLaughlin, S. (1987). *Western Political Science Association The Devil Shift: Perceptions and Misperceptions of Opponents. Source: The Western Political Quarterly* (Vol. 40).
- Sadik-Khan, J., & Solomonow, S. (2016). *Streetfight: Handbook for an Urban Revolution*. New York: Viking. <https://doi.org/10.1017/CBO9781107415324.004>
- Sadik-Khan, J., & Solomonow, S. (2020, September 4). Janette Sadik-Khan: we must rethink our streets to create the six-foot city. *The Guardian*. Retrieved from <https://www.theguardian.com/cities/2020/sep/04/janette-sadik-khan-we-must-rethink-our-streets-to-create-the-six-foot-city>
- Sadler Consultants Europe GmbH. (2021). Urban Access Regulations in Europe. Emmendingen: Sadler Consultants Europe GmbH. Retrieved from <https://urbanaccessregulations.eu/userhome/map>
- Santos, A. M. dos. (2021, July 20). Portugal quer abraçar a bicicleta, mas precisa de pedalada para proteger os ciclistas. *SAPO 24*. Retrieved from <https://24.sapo.pt/atualidade/artigos/portugal-quer-abracar-a-bicicleta-mas-precisa-de-pedalada-para-proteger-os-ciclistas>
- Santos, F. M., Gómez-Losada, Á., & Pires, J. C. M. (2019). Impact of the implementation of Lisbon low emission zone on air quality. *Journal of Hazardous Materials*, 365, 632–641. <https://doi.org/10.1016/j.jhazmat.2018.11.061>
- Savan, B., Cohlmeier, E., & Ledsham, T. (2017). Integrated strategies to accelerate the adoption of cycling for transportation. *Transportation Research Part F: Traffic Psychology and Behaviour*, 46, 236–249. <https://doi.org/10.1016/j.trf.2017.03.002>
- Schabus, E. (2018). Promoting active travel for all in European urban regions – A review of evaluated initiatives. In K. Grafl, H. Bunte, K. Dziekan, H. Haubold, & M. Neun (Eds.), *Framing the Third Cycling Century* (pp. 149–155). Dessau-Roßlau: Umweltbundesamt (UBA) - Federal German Environment Agency. Retrieved from https://www.umweltbundesamt.de/sites/default/files/medien/1410/publikationen/181128_uba_fb_third_cycling_century_bf_small.pdf
- Schattschneider, E. E. (Elmer E. (1935). Politics, pressures and the tariff. *National Municipal Review*, 24(12), 717–718. <https://doi.org/10.1002/ncr.4110241214>
- Schattschneider, E. E. (Elmer E. (1960). *The Semisovereign People: A Realist's View of Democracy in America* (Holt, Rine). Hinsdale, Ill.: Drydon Press. Retrieved from https://trove.nla.gov.au/work/9132701?q&sort=holdings+desc&_=1568885975464&versionId=20994943
- Scheffer, M. (2010). Foreseeing tipping points. *Nature*, 467, 411–412. <https://doi.org/https://doi.org/10.1038/467411a>
- Scheurenbrand, K., Parsons, E., Cappellini, B., & Patterson, A. (2018). Cycling into Headwinds: Analyzing Practices That Inhibit Sustainability. *Journal of Public Policy and Marketing*, 37(2), 227–244. <https://doi.org/10.1177/0743915618810440>
- Schmalholz, N., Rye, T., Tully, S., Auwerx, P., & Cré, I. (2022). *Park4SUMP Final Brochure*. Retrieved from https://park4sump.eu/sites/default/files/2022-09/EN_Final_Brochure_CIVITASPark4SUMP.pdf
- Schmidt, L., Gil Nave, J., & Guerra, J. (2006). *Autarquias e Desenvolvimento Sustentável (2ª)*. Porto: Fronteira do Caos.
- Schneider, A. L., & Ingram, H. (1997). *Policy Design for Democracy*. Lawrence, KS: University Press of Kansas. Retrieved from <https://kansaspess.ku.edu/978-0-7006-0844-7.html>
- Schneider, M., & Teske, P. (1992). Toward a Theory of the Political Entrepreneur: Evidence from Local Government. *American Political Science Review*, 86(3), 737–747. <https://doi.org/10.2307/1964135>
- Schumpeter, J. (1961). *The Theory of Economic Development: An Inquiry Into Profits, Capital, Credit, Interest, and the Business Cycle* (May 17, 20). Oxford: Oxford University Press. Retrieved from <https://www.routledge.com/The-Theory-of-Economic-Development/Schumpeter/p/book/9780367705268>
- Schwartz, M. L. (2010). *Cycling as a Political Act: The Framing and Culture that Create a New Social Movement*. University of Kentucky, Lexington, Kentucky. Retrieved from

- https://uknowledge.uky.edu/gradschool_theses/6
- Segadilha, A. B. P., & Sanches, S. da P. (2014a). Analysis of Bicycle Commuter Routes Using GPSs and GIS. *Procedia - Social and Behavioral Sciences*, 162, 198–207. <https://doi.org/10.1016/j.sbspro.2014.12.200>
- Segadilha, A. B. P., & Sanches, S. da P. (2014b). Identification of Factors that Influence Cyclists Route Choice. *Procedia - Social and Behavioral Sciences*, 160, 372–380. <https://doi.org/10.1016/j.sbspro.2014.12.149>
- Seixas, F. (2020, May 6). Depois de muitos meses em desenvolvimento, finalmente consegui chegar a um ponto em que a nova versão do CicloviasLX está pronta a ser usada. Retrieved December 6, 2021, from <https://www.facebook.com/groups/vou.de.bicicleta/posts/3004120552964819/>
- SELIM - Banco de Bicicletas. (2021, December 4). Olá aderentes e apoiantes do SELIM, Vimos comunicar, com imenso pesar, que o projeto SELIM - Banco de Bicicletas vai ser suspenso a partir de 2022 por falta de verbas. *Facebook*. Lisboa. Retrieved from <https://www.facebook.com/selim.cicloficina>
- Serrano-López, R., Linares-Unamunzaga, A., & Muñoz San Emeterio, C. (2019). Urban sustainable mobility and planning policies. A Spanish mid-sized city case. *Cities*, 95, 102356. <https://doi.org/10.1016/j.cities.2019.05.025>
- Shaheen, S. A., Guzman, S., & Zhang, H. (2012). Bikesharing across the Globe. In J. Pucher & R. Buehler (Eds.), *City Cycling* (pp. 183–210). Cambridge, Massachusetts: MIT Press. <https://doi.org/10.7551/mitpress/9434.003.0012>
- Shanahan, E. A., Mcbeth, M. K., & Hathaway, P. L. (2011). Narrative policy framework: The influence of media policy narratives on public opinion. *Politics and Policy*, 39(3), 373–400. <https://doi.org/10.1111/j.1747-1346.2011.00295.x>
- Shapiro, E. (2021, March 10). Bicycle as a mode share of transport in the EU in 2014. Retrieved from <https://www.instagram.com/p/CMPJWGTgEvP/>
- Sheller, M., & Urry, J. (2000). The city and the car. *International Journal of Urban and Regional Research*, 24(4), 737–757. <https://doi.org/10.1111/1468-2427.00276>
- Shepard, B. (2005). Arrested for Stickering, Biking and Other Misadventures. *CounterPunch*. Retrieved from <https://www.counterpunch.org/2005/06/18/arrested-for-stickering-biking-and-other-misadventures/>
- Shoup, D. (2005). *High Cost of Free Parking* (Routledge). Chicago: Routledge (2019); American Planning Association (2005). Retrieved from <https://www.routledge.com/High-Cost-of-Free-Parking/Shoup/p/book/9780367330019>
- Shove, E. (2010). Social theory and climate change: Questions often, sometimes and not yet asked. *Theory, Culture and Society*, 27(2), 277–288. <https://doi.org/10.1177/0263276410361498>
- Shove, E. (2012). The shadowy side of innovation: Unmaking and sustainability. *Technology Analysis and Strategic Management*, 24(4), 363–375. <https://doi.org/10.1080/09537325.2012.663961>
- Shove, E., & Walker, G. (2007). CAUTION! Transitions ahead: politics, practice, and sustainable transition management. *Environment and Planning A*, 39, 763–770. <https://doi.org/D0I:10.1068/a39310>
- SIC Notícias. (2014). Defensores da ciclovía na Marginal não desistem do projeto. Portugal: SIC. Retrieved from <http://sicnoticias.sapo.pt/pais/2014-10-27-Defensores-da-ciclovía-na-Marginal-nao-desistem-do-projeto>
- Silva, A. B., Seco, Á., Santos, S., & Graça, M. (2020). Manual de Apoio às Zonas Residenciais e de Coexistência. Barcarena. Retrieved from http://www.ansr.pt/Legislacao/RegulamentoSinalizacaoTransito/Documents/Manual_Zonas_Residenciais_e_Coexistencia_2020.pdf
- Silva, C., Teixeira, J., & Proença, A. (2019). Revealing the Cycling Potential of Starter Cycling Cities. In *International Scientific Conference on Mobility and Transport Urban Mobility – Shaping the Future Together mobil.TUM 2018, 13-14 June 2018, Munich, Germany* (Vol. 41, pp. 637–654). Munich, Germany: Transportation Research Procedia. <https://doi.org/10.1016/j.trpro.2019.09.113>
- Silva, C., Teixeira, J., Proença, A., Bicalho, T., Cunha, I., & Aguiar, A. (2019). Revealing the cycling potential of starter cycling cities: Usefulness for planning practice. *Transport Policy*, 81, 138–147. <https://doi.org/10.1016/j.tranpol.2019.05.011>
- Silva, M. da, & Mota, F. L. (2019). Municipal and local power in portuguese classical literature. *GEOGRAFIA (Londrina)*, 28(1), 9. <https://doi.org/10.5433/2447-1747.2019v28n1p9>
- Silva, R. D. da. (2021, April 12). Rede ciclável de Cascais vai crescer até aos 90 km. *Time Out Lisboa*. Retrieved from <https://www.timeout.pt/lisboa/pt/noticias/rede-ciclavel-de-cascais-vai-crescer-ate-aos-90-quilometros-041221>
- Silva, J. B., Félix, R., Gonçalves, A., & Silva, F. N. da. (2013). A participative bike route planner to improve

- adaptive cycling strategies in cycling starter cities - typology of cyclists and cycling preferences in Lisbon. In *AESOP-ACSP Joint Congress 15-19 July 2013 Dublin* (p. 15). Dublin: AESOP/ACSP Joint Congress 2013. Retrieved from https://www.researchgate.net/publication/258489412_A_participative_bike_route_planner_to_improve_adaptive_cycling_strategies_in_cycling_starter_cities_-_typology_of_cyclists_and_cycling_preferences_in_Lisbon
- Silva, R. J. (2021, February 26). Associações querem ver a mobilidade ciclável como uma prioridade no PRR | Plano de Recuperação e Resiliência. *Público*. Retrieved from <https://www.publico.pt/2021/02/26/local/noticia/associacoes-querem-mobilidade-ciclavel-prioridade-prr-1952335>
- Skenazy, L. (2009). *Free-Range Kids, How to Raise Safe, Self-Reliant Children (Without Going Nuts with Worry)*. San Francisco, CA: Jossey-Bass. Retrieved from <https://www.wiley.com/en-us/Free+Range+Kids%2C+How+to+Raise+Safe%2C+Self+Reliant+Children+%28Without+Going+Nuts+with+Worry%29-p-9780470497968>
- SNRIPD. (2007). *Acessibilidade e Mobilidade para Todos. Apontamentos para uma melhor interpretação do DL 163/2006 de 8 de Agosto*. Lisboa: Secretariado Nacional de Reabilitação e Integração de Pessoas com Deficiência (SNRIPD). Retrieved from <https://www.inr.pt/documents/11309/59516/Acessibilidade+e+mobilidade+para+todos/69ec738b-10a8-40e0-9370-e6aa9d8cf395>
- Snyder, D. (2002). Good for the bicycling cause. In C. Carlsson (Ed.), *Critical Mass, Bicycling's Defiant Celebration* (pp. 112–115). Oakland: AK Press.
- Soliz, A. (2019). Mobility and Art. Exploring Cycling Practices in Central Mexico through a Local Repair Shop. *Transfers*, 9(3), 109–115. <https://doi.org/10.3167/TRANS.2019.090308>
- Song, Y., Preston, J., & Ogilvie, D. (2017). New walking and cycling infrastructure and modal shift in the UK: A quasi-experimental panel study. *Transportation Research Part A: Policy and Practice*, 95, 320–333. <https://doi.org/10.1016/j.tra.2016.11.017>
- Sousa, M. L. (2013). *A mobilidade automóvel em Portugal. A construção do sistema socio-técnico, 1920-1950*. Universidade Nova de Lisboa, Faculdade de Ciências e Tecnologia; Université Sorbonne Nouvelle, Paris 3. Retrieved from <http://www.theses.fr/2013PA030175>
- Stadt Frankfurt am Main. (2021). Radwegweisung. Retrieved January 11, 2022, from <https://www.radfahren-ffm.de/605-0-Radwegweisung.html>
- Stadt Wein. (2017). Historische Entwicklung des Wiener Radverkehrsnetzes. Retrieved January 10, 2020, from <https://www.wien.gv.at/stadtentwicklung/projekte/verkehrsplanung/radwege/historie.html>
- Stanley, J. K., Hensher, D. A., & Loader, C. (2011). Road transport and climate change: Stepping off the greenhouse gas. *Transportation Research Part A: Policy and Practice*, 45(10), 1020–1030. <https://doi.org/10.1016/j.tra.2009.04.005>
- Star, S. L., & Griesemer, J. R. (1989). Institutional Ecology, 'Translations' and Boundary Objects: Amateurs and Professionals in Berkeley's Museum of Vertebrate Zoology, 1907–39. *Social Studies of Science*, 19(3), 387–420. <https://doi.org/10.1177/030631289019003001>
- Statista. (2020). The Hague: total population 2019. Retrieved November 17, 2021, from <https://www.statista.com/statistics/753256/total-population-of-the-hague/>
- Stehlin, J. (2019). *Cyclescapes of the Unequal City: Bicycle Infrastructure and Uneven Development*. Minneapolis, Minnesota: University of Minnesota Press. Retrieved from https://books.google.pt/books?id=SSSyDwAAQBAJ&pg=PT111&lpg=PT111&dq=cycle+advocacy+valencia&source=bl&ots=g2_TgbFJwI&sig=ACfU3U1EPR8cus3EpT6-GrbOXDY0HsLRBA&hl=pt-PT&sa=X&ved=2ahUKEwiroNz7qfnmAhWRyoUKHQpMBegQ6AEwAnoECAoQAQ#v=onepage&q=cycle+advocacy+valencia
- Sterman, J. D. (1994). Learning in and about complex systems. *System Dynamics Review*, 10(2–3), 291–330. <https://doi.org/10.1002/sdr.4260100214>
- Stevenage Museum. (2015). Eric Claxton about creating a safe town. *Talking New Towns*. Stevenage: Stevenage Museum. Retrieved from <http://www.talkingnewtowns.org.uk/content/topics/developing-a-new-town/eric-claxton-creating-safe-town>
- Stewart, J. (2009). *Public policy values. Public Policy Values*. London: Palgrave Macmillan UK. <https://doi.org/10.1057/9780230240759>
- Stinson, M. A., & Bhat, C. R. (2004). Frequency of bicycle commuting: Internet-based survey analysis. In *Transportation Research Record* (pp. 122–130). <https://doi.org/10.3141/1878-15>
- Storozynski, A. (2004). End the anarchy: Critical Mass deserves a police escort to keep it safe. *Am New York*.

- Retrieved from <https://www.amny.com>
- Strava. (2022). Strava Global Heatmap. Strava, Mapbox, OpenStreetMap. Retrieved from <https://www.strava.com/heatmap#10.73/-9.15118/38.72871/blue/ride>
- Strava Metro. (2021). Strava Metro. Retrieved January 10, 2022, from https://medium.com/strava-metro?%24web_only=true&%243p=e_it&_branch_referrer=H4slIAAAAAAAAAA8soKSkottLXLy4pSixL1E ssKNDLyczL1jcusFc1MjEusE2NzyxRAzLzizLTM%2FMSc%2BjLi3JsM0C6VI0dVY3cgCg3NSWzNFcv OT8XylEYpJubWIKUr2oMIDYpT02Kz8%2FLqVQ1dikpKk0FAFQVFPpyAAAA
- Sustrans. (2012). Locked Out Transport poverty in England. Bristol. Retrieved from <https://www.sustrans.org.uk/media/3706/transport-poverty-england-2012.pdf>
- Sustrans. (2016). Sustrans Design Manual: Greenway management handbook. Bristol. Retrieved from www.sustrans.org.uk
- Sustrans, & Birmingham City Council. (2017). *Bike Life Birmingham 2017*. Birmingham, UK. Retrieved from <https://www.sustrans.org.uk/media/2950/bike-life-birmingham-2017.pdf>
- Szabo, M.-I. N., & Schäfer, G. M. A. T. (2016). *FLOW Impact Assessment Tool – Guideline*. Retrieved from www.h2020-flow.eu
- Tarrow, S. (1988). National Politics And Collective Action: Recent Theory And Research In Western Europe And The United States. *Annual Review of Sociology*, 14(1), 421–440. <https://doi.org/10.1146/annurev.soc.14.1.421>
- Tatay, J. (2018). *Ecología integral. La recepción católica del reto de la sostenibilidad: 1891 (RN) - 2015 (LS)* (1st ed.). Madrid: BAC. Biblioteca de Autores Cristianos. Retrieved from <http://bac-editorial.es/estudios-y-ensayos/1642-ecologia-integral-la-recepcion-catolica-del-reto-de-la-sostenibilidad-1891-rn-2015-ls.html>
- TCB. (2021). TCBikes. Retrieved November 18, 2021, from <https://www.tcbareiro.pt/>
- te Brömmelstroet, M., Harms, L., Sezneva, O., & Rottenberg, A. (2014, April). The Reckless Cyclist. Dispelling the myth. *PLAN Amsterdam*, 24–29. Retrieved from <https://issuu.com/rutgerklootwijk/docs/plan-amsterdam-cycling-policy-and-d/24>
- Teixeira, T., & Sampayo, M. (2018). Lisboa e a sua Área Metropolitana. Infraestruturas de Conexão. In 7ª *Conferência Anual da Rede Portuguesa de Morfologia Urbana* (pp. 1–12). Porto: PNUM. Retrieved from https://repositorio.iscte-iul.pt/bitstream/10071/17425/1/Teixeira_Sampayo.pdf
- Teknisk kontor for Udvalget til Planlægning af Københavnseggen. (1947). Skitseforslag til Egnplan for Storkøbenhavn. Copenhagen: Bolig-og Planstyrelsen. Retrieved from <https://planinfo.erhvervsstyrelsen.dk/skitseforslag-til-egnsplan-storkoebenhavn-fingerplanen>
- Teles, F. (2014). Facilitative Mayors in Complex Environments: Why Political Will Matters. *Local Government Studies*, 40(5), 809–829. <https://doi.org/10.1080/03003930.2013.801835>
- The Gallup Organization. (2010). *Future of Transport Analytical report - Flash Eurobarometer 312*. Brussels. Retrieved from http://ec.europa.eu/commfrontoffice/publicopinion/flash/fl_312_en.pdf
- The Guardian. (2008). Critical Mass police ban blocked by law lords. *The Guardian*. Retrieved from <https://www.theguardian.com/uk/2008/nov/26/critical-mass-london-police>
- Thomas, D., Minett, J., Hopkins, S., Hamnett, S., Faludi, A., & Barrell, D. (1983). *Flexibility and Commitment in Planning: A Comparative Study of Local Planning and Development in the Netherlands and England*. The Hague: Martinus Nijhoff Publishers. <https://doi.org/10.1007/978-94-009-7496-8>
- Thornley, A., & Newman, P. (1996). International competition, urban governance and planning projects: Malmö, Birmingham and Lille. *European Planning Studies*, 4(5), 579–593. <https://doi.org/10.1080/09654319608720367>
- TML. (2021, July 16). Passageiros que viajam com passes Navegante vão poder carregar passes da Bolt com desconto. Retrieved October 31, 2021, from <https://www.portalviva.pt/pt/news/passe-navegante-vai-permitir-ter-desconto-no-passe-da-bolt-para-utilização-em-trocinetes-e-bicicletas-elétricas.aspx?i=0>
- Tóth, K. (2016). Budapest: Reviving the Bicycle Lifestyle. In R. Oldenziel, M. Emanuel, A. Albert de la Brúheze, & F. Veraart (Eds.), *Cycling Cities: The European Experience* (pp. 161–171). Eindhoven: Foundation for the History of Technology (Eindhoven University of Technology).
- Tranter, P. (2012). Effective Speed: Cycling Because it's "Faster." In R. Pucher, John; Buehler (Ed.), *City Cycling* (pp. 57–74). Cambridge, MA: MIT Press. Retrieved from https://books.google.pt/books?hl=en&lr=&id=226mCyz9JaEC&oi=fnd&pg=PA57&dq=Paul+Tranter+Effective+Speed+Pucher&ots=lcTvWjK9K&sig=PfUKHve69R_YoyBsZWYK9teB1U&redir_esc=y#v=onepage&q=Paul+Tranter+Effective+Speed+Pucher&f=false
- Tranter, P. J. (2004). *Effective Speeds: Car Costs are Slowing Us Down*. Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.576.1031&rep=rep1&type=pdf>

- TREC. (2021, November 16). PSU Masters Student Frank Boateng Appiah Works to Improve Bicycle Crossings at Unsignalized Intersections. Retrieved November 23, 2021, from <https://trec.pdx.edu/news/psu-masters-student-frank-boateng-appiah-works-improve-bicycle-crossings-unsignalized>
- Tréglodé, B. de. (2021, July). La logística del general Giap. *Desperta Ferro Contemporánea*, (46), 14–20. Retrieved from <https://www.despertaferro-ediciones.com/revistas/numero/46-dien-bien-phu-1954/>
- Trendscope, ECF, & ADFC. (2018). *EuroVelo - European Certification Standard for the European cycle route network*. European Cyclists' Federation. Brussels. Retrieved from www.viaromeafrancigena.com
- TSF. (2020). TSF Bikes. Lisboa: TSF Rádio Notícias. Retrieved from <https://www.tsf.pt/programa/tsf-bikes.html>
- TSF. (2021, June 16). Carla Castelo, a candidata a Oeiras que une BE, Livre e Volt. "Vejo a política como algo muito sério". Retrieved June 17, 2021, from <https://www.tsf.pt/portugal/politica/carla-castelo-a-candidata-a-oeiras-que-une-a-esquerda-vejo-a-politica-como-algo-muito-serio-13841116.html>
- Turcotte, M. (2006). *Like commuting? Workers' perceptions of their daily commute*. Canadian Social Trends. Ottawa, Canada. Retrieved from <http://www2.canada.com/vancouver/news/extras/commuting.pdf>
- Turner, L. (2012). Australia's helmet law disaster. *The Institute of Public Affairs Review: A Quarterly Review of Politics and Public Affairs*, 64(1), 28–29.
- TVI24. (2008, June 10). Câmara de Lisboa discute bicicletas na cidade. Retrieved October 29, 2021, from <https://tvi24.iol.pt/sociedade/camara-municipal-de-lisboa/camara-de-lisboa-discute-bicicletas-na-cidade>
- TVI24. (2020, June 15). Asfalto em duna na Fonte da Telha: APA diz que não emitiu qualquer parecer. Retrieved March 24, 2021, from <https://tvi24.iol.pt/sociedade/ambiente/asfalto-em-duna-na-fonte-da-telha-apa-diz-que-nao-emitiu-qualquer-parecer>
- U-Shift. (2021a). U-Shift/Declives-RedeViaria: Mapas com os declives de uma rede viária. Retrieved October 20, 2021, from <https://github.com/U-Shift/Declives-RedeViaria>
- U-Shift. (2021b). Walking & Cycling. Retrieved January 7, 2022, from <https://ushift.tecnico.ulisboa.pt/walking-cycling/>
- Údarás Náisiúnta Iompair. (2011). National Cycle Manual. Dublin: Údarás Náisiúnta Iompair - The National Transport Authority (NTA). Retrieved from https://www.nationaltransport.ie/wp-content/uploads/2013/10/national_cycle_manual_1107281.pdf
- UK Indymedia. (2007). Birmingham's Ride reaches Critical Mass. Retrieved January 13, 2020, from <https://www.indymedia.org.uk/en/2007/03/364256.html>
- UNFCCC. (2015). The Paris Agreement. Retrieved July 1, 2021, from <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>
- União Velocipédica Portuguesa. (1905). Carta de Portugal contendo as estradas de Macadam e caminhos-de-ferro: publicada para comemorar o 6º aniversário da fundação da União Velocipedica Portuguesa. (H. Loureiro & P. Marinho, Eds.). Lisboa: União Velocipédica Portuguesa. Retrieved from <https://purl.pt/22123>
- United Nations. (1992). United Nations Conference on Environment & Development. In *United Nations Conference on Environment & Development Rio de Janeiro, Brazil, 3 to 14 June 1992 AGENDA 21* (p. 351). Rio de Janeiro: United Nations. Department of Economic and Social Affairs (UN. DESA). Retrieved from <http://www.un.org/esa/sustdev/agenda21.htm>
- United Nations. (2015a). Transforming our world: the 2030 Agenda for Sustainable Development. Retrieved March 22, 2021, from <https://sdgs.un.org/2030agenda>
- United Nations. (2015b). United Nations Millennium Development Goals. Retrieved March 22, 2021, from <https://www.un.org/millenniumgoals/>
- United Nations. (2019). 17 Sustainable Development Goals (SDGs). Retrieved from <https://sdgs.un.org/goals>
- Urry, J. (2004). The "System" of Automobility. *Theory, Culture & Society*, 21(5), 25–39. <https://doi.org/10.1177/0263276404046059>
- Vale, D. S. (2016). A cidade e a bicicleta: uma leitura analítica. *Finisterra*, LI(103), 45–66. <https://doi.org/doi:10.18055/Finis7077>
- Valente, A. M. (2021, July 1). É preciso reconquistar Lisboa aos carros e devolvê-la às pessoas. *Público*. Retrieved from <https://www.publico.pt/2021/07/01/opiniao/opiniao/preciso-reconquistar-lisboa-carros-devolve-la-ao-povo-1968735>
- Valentines-Álvarez, J., & Macaya-Andrés, A. (2019). Making fun of the atom: Humor and pleasant forms of anti-nuclear resistance in the Iberian Peninsula, 1974–1984. *Centaurus*, 61(1–2), 70–90. <https://doi.org/10.1111/1600-0498.12224>
- Valero, J. (2015, October 1). Vulnerable road users key to reaching safety targets. *Euractiv*. Retrieved from

- <https://www.euractiv.com/section/transport/news/vulnerable-road-users-key-to-reaching-safety-targets/>
van Acker, V., van Wee, B., & Witlox, F. (2010). When transport geography meets social psychology: Toward a conceptual model of travel behaviour. *Transport Reviews*, 30(2), 219–240.
<https://doi.org/10.1080/01441640902943453>
- Van Audenhove, F.-J., Koriichuk, O., Dauby, L., & Pourbarx, J. (2014). *The Future of Urban Mobility 2.0: Imperatives to Shape Extended Mobility Ecosystems of Tomorrow*. Arthur D. Little; International Association of Public Transport (UITP). Retrieved from <https://trid.trb.org/view/1317253>
- van Bekkum, J. E., Williams, J. M., & Morris, P. G. (2011). Employees' perceptions of cycle commuting: A qualitative study. *Health Education*, 111(3), 198–215. <https://doi.org/10.1108/09654281111123484>
- van den Bergh, J. C. J. M., van Leeuwen, E. S., Oosterhuis, F. H., Rietveld, P., & Verhoef, E. T. (2007). Social learning by doing in sustainable transport innovations: Ex-post analysis of common factors behind successes and failures. *Research Policy*, 36(2), 247–259.
<https://doi.org/10.1016/j.respol.2006.11.001>
- Van der Bijl, R. (2020). Transport poverty scrutinized by mobility thresholds. In B. Boonstra, P. Davids, & A. Staessen (Eds.), *Opening up the Planning Landscape – 15 years of Actor-relational Approaches to Spatial Planning in Flanders, the Netherlands and Beyond* (pp. 159–171). Groningen: InPlanning.
<https://doi.org/10.17418/B.2020.9789491937446>
- van der Zee, R. (2015). How Amsterdam became the bicycle capital of the world. *The Guardian*. Retrieved from <https://www.theguardian.com/cities/2015/may/05/amsterdam-bicycle-capital-world-transport-cycling-kindermoord>
- van Oosteren, S. (2021). *Pourquoi pas le vélo?* Montréal, Québec: Écosociété. Retrieved from <https://ecosociete.org/livres/pourquoi-pas-le-velo-fr>
- van Waes, A., Farla, J., Frenken, K., de Jong, J. P. J., & Raven, R. (2018). Business model innovation and socio-technical transitions. A new prospective framework with an application to bike sharing. *Journal of Cleaner Production*, 195, 1300–1312. <https://doi.org/10.1016/j.jclepro.2018.05.223>
- van Wee, B. (2021). Evaluation of Cycling Policies and Projects. In R. Buehler & J. Pucher (Eds.), *Cycling for Sustainable Cities* (pp. 137–155). Cambridge, Massachusetts: MIT Press.
<https://doi.org/https://doi.org/10.7551/mitpress/11963.003.0012>
- Vélo & Territoires. (2021). L'association Vélo & Territoires. Retrieved June 20, 2021, from <https://www.velo-territoires.org/#>
- Veraart, F. (2016). Cycling in Numbers 1920-2015. In R. Oldenziel, M. Emanuel, A. Albert de la Bruhèze, & F. Veraart (Eds.), *Cycling Cities: The European Experience* (pp. 200–229). Eindhoven: Foundation for the History of Technology (Eindhoven University of Technology).
- Veraart, F., & Schipper, F. (2020). Tipping Points in Urban Mobility: Cycling's Role in Shifting Gear (Presentation). (F. Schipper & D. Henk-Jan, Eds.), *YouTube*. Retrieved from https://www.youtube.com/watch?v=l_ICfa7Glpk&feature=youtu.be&t=1233
- Veryard, D., & Perkins, S. (2018). *Integrating Urban Public Transport Systems and Cycling - Summary and Conclusions* | ITF. Paris. Retrieved from https://www.itf-oecd.org/sites/default/files/docs/integrating-urban-public-transport-systems-cycling-roundtable-summary_0.pdf
- Villar, G. Z. (2016). La nueva infraestructura de la bicicleta en París y Barcelona. Retos de su implantación e influencia de la trama urbana. *Revista de Obras Públicas*, 163(3574), 61–68.
- Visão Verde. (2012a, August 1). Plano (e Rede) Almada Ciclável. Retrieved March 24, 2021, from https://visao.sapo.pt/visao_verde/ambiente/2012-08-01-plano-e-rede-almada-ciclavelf676872/
- Visão Verde. (2012b, August 1). ZER - Zonas de Emissões Reduzidas. *Visão*. Retrieved from https://visao.sapo.pt/visao_verde/ambiente/2012-08-01-zer-zonas-de-emissoes-reduzidasf676913/
- Vivanco, L. (2013). *Reconsidering the Bicycle. An Anthropological Perspective on a New (Old) Thing*. New York: Routledge. <https://doi.org/https://doi.org/10.4324/9780203584538>
- Vlastos, T., Milakis, D., & Athanasopoulos, K. (2005). Research on Cycling in Greece. Methodology of Planning, Infrastructure Standards and a Typology of Design Solutions. In *15th International Velo-City Conference* (p. 20). Dublin. Retrieved from https://www.researchgate.net/publication/301228041_RESEARCH_ON_CYCLING_IN_GREECE_METHODOLOGY_OF_PLANNING_INFRASTRUCTURE_STANDARDS_AND_A TYPOLOGY_OF_DESIGN SOLUTIONS
- Vogel, M., Hamon, R., Lozenguez, G., Merchez, L., Abry, P., Barnier, J., ... Robardet, C. (2014). From bicycle sharing system movements to users: A typology of Vélo'v cyclists in Lyon based on large-scale behavioural dataset. *Journal of Transport Geography*, 41, 280–291.
<https://doi.org/10.1016/j.jtrangeo.2014.07.005>

- Wagner, P., & Ylä-Anttila, T. (2018). Who got their way? Advocacy coalitions and the Irish climate change law. *Environmental Politics*, 27(5), 872–891. <https://doi.org/10.1080/09644016.2018.1458406>
- Waldman, J. A. (1977). *Cycling in Towns: A Quantitative Investigation. LTR 1 - Working Paper 3*. London.
- Walker, P. (2015). How Seville transformed itself into the cycling capital of southern Europe. *The Guardian*. Retrieved from <https://www.theguardian.com/cities/2015/jan/28/seville-cycling-capital-southern-europe-bike-lanes>
- Walker, P. (2021). *The Miracle Pill*. London: Simon & Schuster UK. Retrieved from <https://www.simonandschuster.co.uk/books/The-Miracle-Pill/Peter-Walker/9781471192524>
- Wallis, J., & Dollery, B. (2001). Understanding cultural changes in an Economic control agency: The New Zealand Treasury. *Journal of Public Policy*, 21(2), 191–212. <https://doi.org/10.1017/s0143814x01001106>
- Wang, L. (2018). Barriers to implementing pro-cycling policies: A case study of Hamburg. *Sustainability (Switzerland)*, 10(11). <https://doi.org/10.3390/su10114196>
- Wang, X., Khattak, A. J., & Son, S. (2012). What can be learned from analyzing university student travel demand? *Transportation Research Record*, 2322(1), 129–137. <https://doi.org/10.3141/2322-14>
- Wardrop, J. G., & Charlesworth, G. (1954). A Method of Estimating Speed and Flow of Traffic from a Moving Vehicle. *Proceedings of the Institution of Civil Engineers*, 3(1), 158–171. <https://doi.org/10.1680/ipeds.1954.11628>
- Waze. (2020). Working Together to Help Communities Navigate COVID-19. Retrieved June 1, 2020, from <https://medium.com/waze/working-together-to-help-communities-navigate-covid-19-af47062fb7ca>
- Wefering, F., Rupprecht, S., Bührmann, S., & Böhler-Baedeker, S. (2014). Guidelines. Developing and Implementing a Sustainable Urban Mobility Plan. *European Commission*. Brussels: Directorate-General for Mobility and Transport. Retrieved from www.eltis.org/mobility-plans
- Weible, C. M. (2014). Introducing the scope and focus of policy process research and theory. In P. A. Sabatier & C. M. Weible (Eds.), *Westview Press* (3rd ed.). Boulder, CO: Westview Press. Retrieved from https://books.google.pt/books?id=ActVDgAAQBAJ&pg=PT16&dq=Theories+of+the+Policy+Process&hl=pt-PT&sa=X&ved=0ahUKEwiT4pW70__kAhXFzIUkHZLyAKgQ6AEIKTAA#v=onepage&q=Theories+of+the+Policy+Process&f=false
- Weible, C. M., & Cairney, P. (2018). Practical lessons from policy theories. *Policy & Politics*, 46(2), 183–197. <https://doi.org/10.1332/030557318X15230059147191>
- Weible, C. M., & Carter, D. P. (2017). Advancing Policy Process Research at Its Overlap with Public Management Scholarship and Nonprofit and Voluntary Action Studies. *Policy Studies Journal*, 45(1), 22–49. <https://doi.org/10.1111/psj.12194>
- Weible, C. M., & Heikkilä, T. (2017). Policy Conflict Framework. *Policy Sciences*, 50(1), 23–40. <https://doi.org/10.1007/s11077-017-9280-6>
- Weible, C. M., & Ingold, K. (2018). Why advocacy coalitions matter and practical insights about them. *Policy and Politics*, 46(2), 325–343. <https://doi.org/10.1332/030557318X15230061739399>
- Weible, C. M., Sabatier, P. A., & Flowers, J. (2008). Advocacy Coalition Framework, 1(1), 1–10. <https://doi.org/10.1081/E-EPAP2-120041405>
- Weible, C. M., Sabatier, P. A., & McQueen, K. (2009). Themes and Variations: Taking Stock of the Advocacy Coalition Framework. *Policy Studies Journal*, 37(1), 121–140. <https://doi.org/10.1111/j.1541-0072.2008.00299.x>
- Weiss, C. H. (1977a). Research for Policy's Sake: The Enlightenment Function of Social Research. *Policy Analysis*, 3(4), 531–545. Retrieved from <https://www.jstor.org/stable/42783234>
- Weiss, C. H. (1977b). *Using social research in public policy making*. (C. H. Weiss, Ed.), *Policy Studies Organization* (Vol. 11). Lexington, MA: Lexington Books. Retrieved from <http://agris.fao.org/agris-search/search.do?recordID=US201300530570>
- Welz, G., & Lotterman, A. (2009). *Projekte der Europäisierung. Kulturanthropologie Notizen*. (G. Welz & A. Lotterman, Eds.) (Volume 78). Frankfurt am Main: Institut für Kulturanthropologie und Europäische Ethnologie der Johann Wolfgang Goethe-Universität Frankfurt.
- Whittle, N. (2021). *The 15 Minute City. Global Change Through Local Living* (1st ed.). Edinburgh: Luath Press.
- Wigan Council. (2019). Greater Manchester's cycling and walking network Consultation on Victoria Street / Warrington Road improvements. Wigan: Wigan Council, GMCA, TfGM. Retrieved from <https://www.wigan.gov.uk/Docs/PDF/Resident/Parking-Roads-Travel/Travel/Warrington-and-Vic-St-Leaflet.pdf>

- Willsher, K. (2020). Greens surge in French local elections as Anne Hidalgo holds Paris. *The Guardian*. Retrieved from <https://www.theguardian.com/world/2020/jun/28/voters-stay-away-from-second-round-french-local-elections>
- Winner, L. (1980). Do artifacts have politics? *Dædalus*, 109(1), 121–136. <https://doi.org/10.4324/9781315259697-21>
- Wison, C. A. (2000). Policy regimes and policy change. *Journal of Public Policy*, 20(3), 247–274. <https://doi.org/10.1017/S0143814X00000842>
- Wittmayer, J. M., Avelino, F., van Steenberghe, F., & Loorbach, D. (2017). Actor roles in transition: Insights from sociological perspectives. *Environmental Innovation and Societal Transitions*, 24, 45–56. <https://doi.org/10.1016/j.eist.2016.10.003>
- Witzmann, U., & Uranitsch, G. (2012). *BYPAD Bicycle Policy Audit*. (U. Witzmann & G. Uranitsch, Eds.). Graz. Retrieved from https://radkompetenz.at/wp-content/uploads/2021/03/10_endbericht_bypad.pdf
- Wolff, H. (2014). Keep your clunker in the suburb: Low-emission zones and adoption of green vehicles. *Economic Journal*, 124(578), F481–F512. <https://doi.org/10.1111/ecoj.12091>
- Wolff, H., & Perry, L. (2010). Trends in clean air legislation in Europe: Particulate matter and low emission zones. *Review of Environmental Economics and Policy*, 4(2), 293–308. <https://doi.org/10.1093/reep/req008>
- Woods, R., & Masthoff, J. (2017). A comparison of car driving, public transport and cycling experiences in three European cities. *Transportation Research Part A: Policy and Practice*, 103, 211–222. <https://doi.org/10.1016/j.tra.2017.06.002>
- Worsham, J. (1997). *Other people's money : policy change, Congress, and bank regulation*. Westview Press. Boulder, CO: Westview Press.
- Wynne, G. G. (1992). *A Study of Bicycle and Pedestrian Programs in European Countries*. Washington, D.C., USA: Federal Highway Administration. Retrieved from <https://play.google.com/store/books/details?id=tVhPAAAAMAAJ&rdid=book-tVhPAAAAMAAJ&rdot=1>
- Young, M., Savan, B., Manaugh, K., & Scott, J. (2021). Mapping the demand and potential for cycling in Toronto. *International Journal of Sustainable Transportation*, 15(4), 285–293. <https://doi.org/10.1080/15568318.2020.1746871>
- Zahariadis, N. (2007). The Multiple Streams Framework: Structure, Limitations, Prospects. In P. A. Sabatier (Ed.), *Theories of the Policy Process* (pp. 65–92). Boulder, Colorado: Westview Press.
- Zamora, L. P. (1997). *The Usable Past: The Imagination of History in Recent Fiction of the Americas*. Cambridge, UK: Cambridge University Press. Retrieved from <https://www.cambridge.org/pt/academic/subjects/literature/european-literature/usable-past-imagination-history-recent-fiction-americas>
- Zielone Mazowsze. (2014). CYCLING: Warsaw Cycling Campaign - promotion of cycling and lobbying for better cycling infrastructure. Retrieved January 13, 2020, from <http://www.zm.org.pl/en/?t=en.cycling>
- Zielone Mazowsze. (2015). ABOUT ZM. Retrieved January 13, 2020, from http://www.zm.org.pl/en/?t=en.about_zm
- Zürcher, P., & Cabral, A. (2018). Participação popular, cidadania e clientelismo na “favela da ciclovia”, no município de Niteroi/RJ: entre práticas e representações Popular participation, citizenship and clientelism in the “favela da ciclovia”, in the municipality of Niteroi, RJ-between . *Revista Café Com Sociologia* | V, 7(2), 18–29. Retrieved from <https://revistacafecomsociologia.com/revista/index.php/revista/article/view/958>

8. Appendices

Appendix I – Qualitative research: interview transcript (partial)

Appendix II – Quantitative research: moving count data

Appendix I – Qualitative research: interview transcript (partial)

Opening discussion and starting questions. Identifying the subsystem and evidence of collective action.

Interviewee #(number) – Policy actor typology

Languages original and translation

PT: Portuguese

EN: English

Interviews

Interviewee #1 – Citizen:

PT: *“Agora mesmo não me lembro de nenhum (assunto que despoletou algum envolvimento com a bicicleta), talvez a minha primeira participação de bicicleta na Marginal Sem Carros.”*

EN: *“Right now I don't remember any (a subject that triggered some involvement with the bicycle), maybe my first participation on a bicycle in Marginal Sem Carros¹⁶.”*

Interviewee #3 – Activist:

PT *“A carta da MUBi (MUBi 2013)...Aí começa a participação pública. Do Sá Fernandes começa a desconfiança da MUBi.... Acho que foi com essa carta que o Sá Fernandes e (os seus assessores), etc. disseram é pá, estes gajos (MUBi) só nos estão a dar na cabeça, só estamos aqui a chatearmo-nos, estamos a levar porrada na cabeça do ACP, estamos a levar porrada da ACA-M. Perderam gás. ... E havia outros interessados, o Nunes da Silva que chamou-se a vereador da mobilidade e que queria as bicicletas, mas não muito. ... O Nunes da Silva na verdade, quase não faz nada em relação a tudo e qualquer coisa.”*

“...E esta carta da MUBi a referir que “Foi um momento histórico” é ironia, porque depois não houve nada.”

EN: *“The MUBi letter (MUBi, 2013a) ...That's where the public participation starts. That's when Sá Fernandes begins to distrust MUBi... I think it was with this letter that Sá Fernandes and (his advisors, policy entrepreneurs), etc. thought, hey, these guys (MUBi) are just hitting us on the head, we're just getting upset with this, we're getting hit on the head by ACP, we're getting hit by ACA-M. They lost fuel with this. ... And there were other interested parties, Nunes da Silva who became Deputy Mayor for Mobility and who wanted the cycling, but not so much. ... Nunes da Silva to be true, hardly does anything about anything and everything”*

“...And this letter from MUBi stating that “It was a historic moment” is irony, because in fact there was nothing.”

¹⁶ Annual European Mobility Week (car-free day) open streets initiative where Marginal Avenue is closed to motor traffic.

Interviewee #4 – Citizen:

PT: “É visível que há uma evolução no uso da bicicleta em Lisboa, é incontestável. ... É incontestável também que se vê muita gente a andar de bicicleta como meio de transporte. ... Se podia ser mais rápido, e haver mais já, acho que sim que podia.

Muita gente quer andar... se dermos condições de segurança, as pessoas aparecem. ...Em Lisboa ainda é muito inseguro andar de bicicleta.”

“Outra coisa que faz falta é descomplicar. Descomplicar a utilização da bicicleta.”

“A bicicleta está muito mais próxima do peão do que do automóvel.”

EN: “It’s visible that there is an evolution of cycling in Lisbon, it is undeniable. ... It is also undeniable that many people are seen using their bicycle as a means of transport. ... If it could be faster, and if there could be more done, I think there could be.

A lot of people want to cycle... if we provide safe conditions, people appear. ...In Lisbon it is still very unsafe to cycle.”

“Another thing that is needed is to simplify. Make cycling easier.”

“The bicycle is much closer to the pedestrian than to the car.”

7. What was the first issue sparking your (or your organisation’s) engagement in policy-influence for greater rates of cycling?

Interviewee #1 – Citizen:

PT: “Agora mesmo não me lembro de nenhum, talvez a minha primeira participação de bicicleta na Marginal Sem Carros.”

EN: “Right now I don’t remember any, maybe my first participation on a bicycle in Marginal Sem Carros¹⁷.”

Interviewee #2 – Epistemic actor:

PT: “Massa Crítica em 2007... E prometeram-nos uma coisa, o Nunes da Silva, Sá Fernandes, etc. criar um grupo de acompanhamento de projetos, que nunca foi feito.”

EN: “Critical Mass in 2007. ...And they promised us something, Nunes da Silva, Sá Fernandes, etc. to create a monitoring group to accompany projects, which was never done.”

Interviewee #3 – Activist:

PT: “Foi a revisão do Código da Estrada (em 2013) e o envolvimento na Massa Crítica”

EN: “It was the revision of the Traffic Code (in 2013) and involvement with Critical Mass”

Interviewee #4 – Citizen:

PT: “Sempre gostei de andar de bicicleta, desde pequeno... Fui passar férias a França, tive lá 3 meses, trabalhei e passei férias. Trabalhei numa casa da juventude... lá apercebi-me que a bicicleta podia ser um meio de transporte... lá apercebi-me o valor que a bicicleta tem para a mobilidade. ...E apercebi-me que Lisboa podia ser uma cidade ciclável.”

EN: “I’ve always liked cycling, since I was little... I went on vacation to France, I was there for 3 months, working and on vacation. I worked in a youth hostel... there I realised that cycling could be a means of transport... there I realised the value that cycling has for mobility. ...And I realised that Lisbon could be a cycling city.”

¹⁷ For ‘Marginal Sem Carros’, see previous footnote.

Interviewee #5 – Policy Broker (in office):

PT: “O primeiro contacto foste tu. Foste tu, e depois foi aquela volta que fizemos de bicicleta do Marques de Pombal até Oeiras.”

EN: “The first contact was you. It was you, and then it was that cycle ride from Marques de Pombal to Oeiras¹⁸.”

Interviewee #6 – Activist:

PT: “Em 2004, ou por aí. Era uma altura que andava de transporte público e depois de carro para a faculdade, e estava tão farta, tão farta, mesmo farta daquele estilo de vida. Estava saturada daquela experiência...o que me chateava era obviamente o aborrecimento intelectual e a perda de tempo de estar num carro no trânsito... era quase espiritual, muitas vezes esses percursos, do ponto de vista paisagístico, suga-nos a alegria da alma. Fazia falta mover-me outra vez. Era uma altura que estava muito sedentária.... Comecei a sentir falta de andar de bicicleta. Foram essas duas coisas.

Subjacente a isso a preocupação ambiental no geral. Queria resolver o problema tão rápido para mim, e resolver o problema mais macro... o estilo de vida cria dinâmicas insustentáveis. Em 2004/2005 recomecei a andar de bicicleta. ... Ou desistes ou tens que fazer qualquer coisa. ...Tinha que mudar, tinha que intervir.”

EN: “In 2004, or so. It was a time when I was using public transport and later driving to college, and I was so fed up, so fed up, I was really fed up with that lifestyle. I was saturated with that experience...what annoyed me was obviously the intellectual boredom and the loss of time stuck in a car in traffic... it was almost spiritual, often these routes, from a scenic point of view, suck-up the joy of our soul. I needed to move again. It was a time when I was very sedentary... I started to miss cycling. It was those two things.

Underlying this was my general environmental concern. I wanted to solve the problem so fast for me and solve the more macro problem also... the lifestyle creates unsustainable dynamics. In 2004/2005 I started cycling again. ... Either you give up or you have to do something. ...I had to change, I had to intervene.”

Interviewee #7 – Policy Broker (in office):

PT: “Existem bicicletas partilhadas aqui em Cascais desde 2001, as Bicas, portanto há muito tempo. Eu herdei isso enquanto vereador esta área de mobilidade. Depois começamos a fazer uma transformação, foi uma evolução do processo das Bicas para um modelo mais contemporâneo, mais adaptado à realidade, num grupo de trabalho que tenho, “design thinking”, brainstorming completo, em que desenhamos uma doca universal, e dissemos ao CeiiA para implementar. A ideia foi nossa, que achávamos que uma das limitações dos sistemas de bike-sharing é que a bicicleta do sistema é a única que funciona naquela doca, e nós quisemos criar uma doca universal, que desse para qualquer tipo de bicicleta, até para as nossas bicicletas pessoais. Não tivemos ganho de causa com isso, as pessoas não utilizam o sistema com as suas bicicletas particulares. Nós achávamos que podia, massificando, as pessoas podiam usar as suas bicicletas particulares usando o sistema, de forma transparente, ou outros operadores virem para o sistema utilizando as docas, porque elas eram universais. Isso não aconteceu. Mas ainda assim elas estão implementadas e são docas universais. Assim como quisemos desenhar bicicletas com especificidades próprias ao nível de sensorização que também eram únicas no mundo. Isto foi a especificação que o grupo de trabalho que trabalha aqui comigo fez. ...”

EN: “There had been bike-share here in Cascais since 2001, the Bicas, for a long time. I inherited this as deputy mayor in this area of mobility. Then we started the transformation, it was an evolution of the Bicas process to a more contemporary model, more adapted to reality, in a working group that I have, “design thinking”, complete brainstorming, in which we designed a universal dock, and we told CEiiA to implement. It was our idea, that we thought that one of the limitations of bike-sharing systems is that the bicycle in the system is the only one that works on that dock, and we wanted to create a universal dock, which would fit any type of bicycle, even for our personal bicycles. We didn't gain with the cause with that, people don't use the system with their private bicycles. We thought that massifying, people could use their private bicycles using the system, in a transparent way, or other operators could come to the system using our docks, because they were universal. This did not

¹⁸ ‘Mega Massa Crítica’ was a large Critical Mass ride from Lisbon to Oeiras during several years, this one was held on May 26, 2017; See also news article by Neves (2017).

happen. But still they were implemented, and we have universal docks. Just as we wanted to design bicycles with their own specifics in terms of sensing, that were also unique in the world. This was the specification that the working group that works with me made here.” ...

Interviewee #8 – Activist:

PT: “Usei a bicicleta como meio de transporte, acoplado ao metro para São Sebastião e depois ia de bicicleta para o Técnico ... parecia-me bastante perigoso, em 2004-2005... Depois fiz Erasmus... e quando voltei comecei a andar de bicicleta e as minhas reticências em andar de bicicleta em algumas partes de Lisboa não foram pacificadas, mas receberam muita a vontade, uma diferente contextualização, talvez até política quando comecei a ir às Massas Críticas. E o facto de me deslocar em pelotão deu-me segurança e confiança para me apropriar ainda com mais vontade este meio de transporte.

Foi em 2006, 2007. (No Erasmus não andava de bicicleta).”

EN: “I cycled for transport, coupled with the subway to São Sebastião and then I cycled to Técnico... it seemed quite dangerous, in 2004-2005... Then I did Erasmus... and when I came back, I started cycling and my doubts regarding cycling in some parts of Lisbon were not pacified, but I really wanted to, a different contextualisation, maybe even political when I started going to the Critical Masses. And the fact of moving in a platoon gave me security and even more confidence for my appropriation of this means of transport.

It was in 2006, 2007. (On Erasmus I didn't cycle).”

Interviewee #9 – Former Policy Broker:

PT: “Resultou da necessidade absoluta de diversificar os vários modos e meios de transporte, diversificar e integrar o mais possível, para conseguir ter uma maior atratividade do transporte não individual... e, portanto, a respetiva redução dos impactos ambientais. Essa ideia era importante ... Quando cheguei ao município (em 2009) fui confrontado com um processo que estava em curso para a aquisição de bicicletas partilhadas, vinha do anterior mandato... Já tinha tido alguns contactos com a (ECF) por outros motivos, por reuniões internacionais sobre transportes e mobilidade.”

EN: “It resulted from the absolute need to diversify the various modes and means of transport, diversify and integrate as much as possible, to achieve greater attractiveness for non-individual transport... and, therefore, the respective reduction of environmental impacts. That idea was important... When I arrived in the municipality (in 2009) I was faced with a process that was already underway for purchasing a bike-share system, it came from the previous mandate... I had already established some contacts with the (ECF) for other reasons, through meetings conferences on transport and mobility.”

Interviewee #9 – Former Policy Broker:

PT: “A Câmara na altura estava falida praticamente, e, portanto, estar a gastar 30 e tal milhões num sistema de bicicletas partilhadas era completamente injustificável, politicamente um erro face aquilo que era as necessidades que existia. Nós estávamos a ter carros a cair em buracos no meio da rua... eu tive duas situações dessas.”

E de facto, nós desenvolvemos um projeto muito inovador e sobretudo bastante interessante, envolvendo know-how português, que envolveu a Orbita, como fabricante de bicicletas, envolveu o CEiiA, como centro de inovação para indústria automóvel, mas que é muito mais do que a indústria automóvel, a Tekever, que é a empresa de software..., e a MOBI-E que tinha os carregadores para automóveis, e a EMEL... nós só queríamos bicicletas elétricas... Esse processo foi preparado (2011-2012), desenvolveu-se um protótipo que foi apresentado ao público no Semana de Mobilidade de 2013. ...

Houve (também) uma iniciativa privada na zona ribeirinha.”...

“(Quando sai) o pelouro que eu tinha foi dividido em três... 2013 a 2017 não há nada.”...

“Uma das vantagens que tive no meu primeiro ano e meio de mandato foi de acumular com as obras.”...

“O Salgado tinha dois braços armados extremamente poderosos, um terceiro, mas esse é menos conhecido. Um que era o DEP, e o outro que era o chamado Projetos Estratégicos.”

“Quando houve este conflito com o Sá Fernandes, relativamente às bicicletas, a maneira de o ultrapassar, sob orientação forte do Costa, este assunto é para ser tratado (com) ...os três sentam-se à mesa, e quando se trata de intervir no espaço público são os três têm que estar acertados. Foi tudo destruído a seguir.... É uma questão política... pura e dura.

EN: *“The Municipality was practically bankrupt at the time, and therefore spending 30 or so million (euros) on a bikeshare system was completely unjustifiable, politically a mistake in face of the existing needs. We were having cars falling into potholes in the middle of the street... I had two situations like that.”*

And in fact, we developed a very innovative and above all very interesting project, involving Portuguese know-how, which involved Orbita, as a bicycle manufacturer, involved CEiA, as an innovation centre for the automotive industry, but which is much more than the automobile industry, Tekever, which is the software company..., and MOBI-E which had the car chargers, and EMEL... we just wanted electric bicycles... This process was prepared (2011-2012), developed a prototype that was presented to the public during Mobility Week 2013. ...

There was (also) a private initiative in the riverside zone.” ...

“(When I left) the portfolio I had was divided into three... 2013 to 2017 there is nothing.” ...

“One of the advantages I had in my first year and a half in office was to accumulate with (municipal) construction.” ...

“Salgado had two extremely powerful armed wings, and a third, but this one is less known. One was the DEP, and the other was called Strategic Projects.”

“When there was this conflict with Sá Fernandes, regarding cycling, the way to overcome it, under Costa's strong guidance, was that this issue was to be dealt with...the three sitting at the table, and when it comes to intervening in public space the three have to be aligned. Afterwards, everything was destroyed... It's a political issue... pure and simple.”

Interviewee #10 – Former Policy Broker:

PT: *“O primeiro sinal de tentar incluir a bicicleta como mobilidade, ainda de lazer, foi a construção da ciclovia do Guincho em 1997 ainda pela câmara anterior, do Partido Socialista.*

...As Bicas foi pouco tempo depois, ainda na câmara anterior.

Houve um incremento no programa das Bicas, e depois houve, no âmbito da preparação do PDM, inseriu-se uma rede ciclável, mas bastante mais tarde, em 2012.2013.

...Sempre fui um grande defensor da questão das bicicletas, mas inicialmente sem grande sucesso. Em 2002 um colega da vereação chegou-me a dizer que as ciclovias não eram precisas para nada porque as pessoas podiam andar de bicicleta nas ruas normais e não era preciso para nada fazer ciclovias. E este era justamente o vereador do espaço público e das obras municipais.

...Foi o presidente da câmara com a área do turismo, e estarmos em Cascais, e estarmos numa zona turística. Foi com o Capucho. ...Mas não foram construídas (ciclovias) novas.”

EN: *“The first sign of trying to include cycling as a mobility (mode), (and it was) still for leisure, was the construction of the Guincho cycle path in 1997, still by the previous cabinet, run by the Socialist Party.*

...The Bicas appeared shortly thereafter, still with the previous cabinet. There was an increment of the Bicas program, and then, as part of the Master Plan preparation, a cycling network was inserted, but much later, in 2012.2013.

...I've always been a big advocate of the cycling issue, but initially without much success. In 2002 a colleague at Town Hall even told me that cycleways were not necessary for anything because people could ride bicycles on normal streets and there was no need for cycleways at all. And this was precisely the Councillor for public space and municipal works.

...It was the mayor and those (working in the) area of tourism, and we are in Cascais, and we are in a tourist area. It was with Capucho. ...But no new cycleways were built.”

Interviewee #10 – Former Policy Broker:

PT: “*Eu diria que os hábitos de vida mais saudáveis que hoje em dia é uma preocupação maior das pessoas, que esse foi o fator fundamental, e uma procura mais de uma vida ao ar livre. Estamos a falar de Cascais, onde a grande procura é mais por lazer e não para mobilidade diária.*”

EN: “*I would say that healthier lifestyle habits today are a major concern for people, that this was the fundamental factor, and a search for more of an outdoor life. We are talking about Cascais, where the great demand is for more for leisure and not for daily mobility.*”

Interviewee #11 – Journalist:

PT: “*Não consigo apontar uma coisa exatamente. Mas eu lembro-me de ser aluno, de estar na faculdade, e para mim deslocar-se em bicicleta na cidade ser uma coisa que não me entrava na cabeça. Não fazia sentido, nunca tinha pensado. Então no fundo acho que foi ter o acesso à informação, acho que foi de estar na internet e deparar com esta realidade que para mim era desconhecida. Há pessoas que usam a bicicleta como meio de transporte, OK, uma realidade distante para mim, e depois começar a perceber que mesmo na minha cidade, em Lisboa, também havia pessoas que faziam o mesmo. E eu comecei a ver aquilo como uma alternativa real e sustentável, e que até fazia sentido, e então eu comecei a experimentar. ... Deve ter sido em 2014 ou 15. ...eu peguei na minha BTT.*

Mas acho que é um processo complicado, e eu só me senti à vontade para o fazer depois de ler muito e de pesquisar muito. Acho que não é uma coisa que vem facilmente às pessoas que estão no contexto em que a utilização da bicicleta não é uma coisa natural, sobretudo como não era há 5 anos atrás, hoje em dia se calhar já é diferente.

...A partir do meu último ano da faculdade a bicicleta passou a ser o meu meio de transporte principal, muitas vezes conjugado com transporte público.

Acho que uma coisa de forma indireta, me levou a interessar sobre mobilidade sustentável, em particular mobilidade ciclável ... há de ter sido o meu interesse por cidades.”

EN: “*I can't pinpoint one exact thing. But I remember being a student, at the faculty, and for me cycling travel in the city was something that wasn't on my mind. It didn't make sense. I had never thought about it. So deep down I think it was having access to information, I think it was being on the internet and facing this reality that was previously unknown to me. There are people who use bicycles as a means of transport, OK, a distant reality for me, and then I started to realise that even in my city, in Lisbon, there were also people who did the same. And I started to see that as a real and sustainable alternative, and it even made sense, and then I started experimenting. ... It must have been around 2014 or 15. ...I picked up my mountain bike.*

But I think it's a complicated process, and I only felt sufficiently free to do it after reading a lot and researching a lot. I think it's not a possibility that comes easily to people's minds when they're living in a context where bicycle use is not a natural thing, especially as it wasn't 5 years ago, today maybe it's different already.

...From my last year of university, cycling became my principal means of transport, often combined with public transport.

I think something indirectly led me to becoming interested in sustainable mobility, in particular cycling mobility... it must have been from my interest in cities.”

8. In your opinion what issues caused the formation of a cyclists' advocacy coalition? (from Rubin, 2018, p. 9)

Interviewee #1 – Citizen:

PT: “*Penso que foram pessoas que se aperceberam que algo temos que mudar no mundo para evitar todos os efeitos nocivos das mudanças climáticas, e uma das primeiras e mais fáceis opções é deixar o carro e utilizar a bicicleta, por exemplo.*”

EN: “*I think people have realised that something has to change in the world to avoid all the harmful effects of climate change, and one of the first and easiest options is to leave the car and ride a bicycle, for example.*”

PT: “*Massa Crítica... não sei.*”

EN: “*Critical Mass... I don't know.*”

Interviewee #2 – Epistemic actor:

PT: *“Havia duas correntes, a corrente dos que achavam que não é preciso infraestrutura ciclável, outra que não, não são assim tão heroicos. Os ‘Vehicular Cyclists’ cresceram muito e quando a MUBi se formou era essa a linha que defendiam, e isso foi prejudicando os vários avanços na cidade de Lisboa. ... O discurso na MUBi mudou muito recentemente, em 2016 com a eleição de novas pessoas que não tinham essa identidade de VC.*

A MUBi teve bastantes erros táticos ao longo dos anos.... Prejudicou. Agora está com uma nova forma e uma nova estrutura, se calhar mais hierarquizada, estão a fazer outro tipo de pressão, mais a nível legislativo, e estão presentes nos média...A Massa Crítica era mesmo importante.”

EN: *“There were two currents (of thought), the current of those who thought that cycling infrastructure is not necessary, and the other that does not think this way, (the one that thinks that cyclists) are not so heroic. The Vehicular Cyclists increased a lot and when MUBi was formed that was the line they defended, and this was hampering the various advances in the city of Lisbon. ... The discourse at*

MUBi changed significantly more recently, in 2016 with the election of new people who did not have that Vehicular Cyclist identity.

MUBi has made many tactical errors over the years.... It was harmful. Now it has a new form and a new structure, perhaps more hierarchical, they are putting on another type of pressure, more at the legislative level, and they are present in the media.”

“...Critical Mass was really important.”

Interviewee #3 – Activist:

PT: *“O Código da Estrada e a Massa Crítica”*

EN: *“The Traffic Code and Critical Mass”*

Interviewee #4 – Citizen:

PT: *“A introdução de ciclovias ajudou muito. Eu acho que já havia uma ânsia por parte de muita gente de que Lisboa se transformasse numa cidade ciclável. Já havia como que uma coisa adormecida, porque muita gente, muitos jovens iam lá fora, já iam a Erasmus. Já tinham algumas experiências de andar de bicicleta lá fora. ...Embora fosse uma minoria, fosse um nicho, já havia aqui alguma coisa adormecida.*

Quando surge a primeira ciclovia, que é uma coisa nova, ... apesar de tudo aparece muita gente a andar. Quando surge a ciclovia do Tejo, que é uma ciclovia muito arcaica.... Esta ciclovia já transformou um bocado a vida de alguns Lisboaetas, que utilizavam mais esta zona do rio, primeiro por lazer, e depois de uma forma mais prática.”

“Através de BTT houve pessoas que também chegaram à bicicleta... no fim da década de 1990.”

EN: *“The introduction of cycleways helped a lot. I think that there was already a longing on behalf of many people for Lisbon to become a cycling city. There was already something dormant, because many people, many young people, were going abroad, they were already going on Erasmus programs. They already had some experiences of cycling while abroad. ...Although this was a minority, it was a niche, something here was already dormant.*

When the first cycleway appears, which is something new, ... despite everything, many people show-up cycling. When the Tagus (riverside) cycleway opens, which is a very archaic cycleway.... This cycleway has already transformed a bit of the life of some Lisbon(ers [Lisbon residents]), who used this area of the river more, first for leisure, and then in a more practical way.”

“There were also people who reached cycling through mountain biking... in the late 1990s.”

Interviewee #5 – Policy Broker (in office):

PT: *“Haver (falta de) condições na via pública para utilização das bicicletas, algum interesse. A falta de resposta das entidades públicas com tanta rapidez como as pessoas querem.”*

EN: *"There are (lack of) conditions on the public throughfare for bicycle-use, some interest. The lack of response from the public entities as quickly as the people want."*

Interviewee #6 – Activist:

PT: *"Estávamos particularmente mal na sinistralidade e no congestionamento. A Massa Crítica foi importante, foi o berço de muitas coisas. ... Porque é que a Massa Crítica surgiu quando surgiu? E porque é que teve aderentes quando teve?... Tenho ideia, ou pelo menos alguma intuição, de que a questão da Massa Crítica naquela altura, ou de alguns movimentos nessa direção, possam ter sido porque chegámos a um ponto de saturação."*

EN: *"We were in particularly bad shape regarding accidents and congestion. Critical Mass was important, it was the cradle of many things. ... Why did Critical Mass appear when it did? And why did it have adherents when it did?... I have an idea, or at least some intuition, that the issue of Critical Mass at that time, or some movements in that direction, might have been because we reached a saturation point."*

Interviewee #7 – Policy Broker (in office):

PT: *"Não (houve um assunto em concreto que movimentou a população ou ativistas)."*

EN: *"No (there was a specific issue that moved the population or activists)."*

Interviewee #8 – Activist:

PT: *"A politização vem com o facto de (as pessoas) ao andarem de bicicleta terem uma perceção muito aguda do risco que correm, e que apenas e só através de reivindicações, manifestações, a participação em associações é que poderão reivindicar aquilo que elas sentem na pele. Ao andarem de bicicleta sentem-se em risco, politizam-se para se defenderem, associam-se e juntam-se também para poder trabalhar melhor esse desenvolvimento e fomento de melhores condições cicláveis, e com isso acabam também por ter uma visão crítica de algum urbanismo que favorece o automóvel."*

...Acho que há motivações diferentes, por exemplo, na Massa Crítica lembro-me que juntava muitos ambientalistas radicais que achavam que se deveria partir quase como para uma guerra aberta com os carros. Juntava pessoas que andavam de bicicleta, e achavam interessante, e queriam ter a liberdade de o fazer sem serem buzinaados ou sem correr risco de vida. Havia pessoas que simplesmente sempre andaram de bicicleta e era uma maneira de conhecerem outras pessoas. Havia outras pessoas que simplesmente andavam de bicicleta porque isso fazia bem à saúde. Por isso há diferentes motivações, não há uma única causa."

EN: *"Politicisation comes with the fact that (people) cycling have a very acute perception of the risk they run, and that only and only through demands, demonstrations, participation in associations will be able to claim what they feel in their skin. When cycling, they feel at risk, they politicise themselves to defend themselves, they also associate and come together to be able to work better on this development and foster better cycling conditions, and with this they also end up having a critical view of some of the urbanism that favours the automobile."*

...I think there are different motivations, for example, in Critical Mass, I remember that it brought together many radical environmentalists who thought that one should go almost into open warfare with cars. It brought together people who rode bicycles, and found it interesting, and wanted to have the freedom to do so without being honked at or without risking their lives. There were people who just always cycled and it was a way to meet other people. There were other people who simply rode a bicycle because it was good for their health. That's why there are different motivations, there is no single cause."

Interviewee #9 – Former Policy Broker

PT: *"Nessa altura havia uma espécie de monopólio do Zé Caetano... (um protocolo, desde 2007-2008)."*

"...A estratégia de implementação que nós desenvolvemos está escrita. A ideia era essa, primeiro criar o hábito de lazer: zonas residenciais, zonas 30, para poder pôr as crianças e tal a andar na rua com todo o à vontade e tal... E depois começar a ligar os grandes polos. E para fazer isso eu chamo mais duas associações de ciclistas. (Depois) a (FPC)... criou uma secção para a mobilidade, uma coisa muito interessante. ..."

Havia o Zé Caetano, havia a MUBi que foi criada nessa altura, a Massa Crítica tinha alguns representantes que depois aparecem aqui... , e depois a Federação Portuguesa de Ciclismo (FPC/UVP). E com estes quatro grupos nós começamos a desenhar a rede. Com posições às vezes radicalmente opostas. Havia quem defendesse... que mais do que pistas cicláveis o que era importante era tirar carros.

Nós fizemos uma solução de compromisso, os grandes eixos, no fundo é fazer uma quadricula, larga, nos grandes eixos da cidade e que liguem aos grandes polos geradores de emprego, de lazer, de estudo, (os interfaces de transportes). A planta (da rede ciclável) ...de 2012. ...Neste tal artigo está lá isso. Aí começamos a desenhar isso. Chegou-se a acordo quanto aos princípios, a forma de fazer.

A prioridade era o eixo ribeirinho porque isso permitia fazer duas coisas, por um lado o lazer..... tinha muito a ver com a nossa estratégia. Com é um eixo com muito turismo, e os estrangeiros estão habituados à bicicleta, eles iam começar a ser os primeiros utilizador daquele eixo que depois por imitação e arrasto levariam outras pessoas a fazê-lo, primeiro para o lazer e a seguir normalmente.

Esse era o eixo. ... (A ciclovia ribeirinha) foi antes... Nós fizemos o projeto foi de Santa Apolónia até à Expo. E nós dizíamos, este é o eixo principal que se tem que fechar.

Um eixo principal de ligação até ao Planalto... uma das razões de inversão de sentido na(s) laterais da) Av. da Liberdade, o Marquês de Pombal. Depois havia discussão entre o grupo dos ciclistas, uns achavam que devia ir pelo Eixo Central, o que acabou por acontecer (ciclovia segregada, mapa mental), e outros pela Duque de Loulé.”

“A MUBi teve uma importância muito grande, e depois a (FPC/UVP) com a qual recuperámos a Subida da Glória. ... Foi um marco importante. ... Isso marca uma importância grande na participação desses dois.”

EN: “At that time there was a kind of monopoly by Zé Caetano...(a protocol since 2007-2008).”

“...The implementation strategy we developed is written. That was the idea, first to create the leisure habit: residential areas, zones 30, so that I could have the children and such walk freely in the street and such... And then start connecting the big poles. And to do this I called on two more cycling associations. (Later) the (FPC/UVP) ... created a section for mobility, a very interesting thing. ...

There was Zé Caetano, there was MUBi, that was created at that time, Massa Crítica had some representatives who later appeared here..., and later the Portuguese Cycling Federation (FPC/UVP). And with these four groups we started to design the network. With positions sometimes radically opposite. There were those who defended... that more than cycling lanes, what was important was taking cars.

We made a compromise solution, the main axes, basically it is to create a grid, wide, in the main axes of the city and connect that to the great trip-generating locations, with employment, leisure, study, (the public transport hubs). The (cycling network) plant...of 2012. ...It's in the article (Silva et al. 2013). Then we started drawing this. An agreement was reached on the principles, the way to do it.

The priority was the riverside axis because that allowed us to do two things, on one hand, leisure... it had a lot to do with our strategy. As it is an axis with a lot of tourism, and foreigners are used to cycling, they would start to be the first users of that route which later, by imitation and trailing, would lead other people to cycling, first for leisure and then for normal (mobility) purposes.

That was the axis. ... (The riverside cycleway) was the first one... We did the project from Santa Apolónia to Expo (Parque das Nações). And we said, this is the main axis that must be completed.

A main link to the (uptown plateau) ...one of the reasons for the traffic direction reversal on the Avenida da Liberdade side streets, Marquês de Pombal. Then there was a discussion between the cyclists' group, some thought that I should go through the central axis, which ended up happening (segregated cycleway, mental map), and others through Duque de Loulé.”

“MUBi was very important, and then the (FPC/UVP) with which we recovered the Glória Subway. ...It was an important milestone. ... This marks a great importance in the participation of these.”

Interviewee #10 – Former Policy Broker:

PT: “Acho que está inserido nas questões ambientais. Uma preocupação maior do que há uns anos atrás. (Em 2007 a Câmara Municipal de Cascais (CMC) tentou fechar a Marginal ao trânsito automóvel aos domingos) Foi uma tentativa.... Foram os serviços da Câmara com o Presidente da Câmara, não conseguiram. Tentou-

se fechar todos os domingos porque a Marginal é muito utilizada aos domingos de manhã, ainda nesta perspectiva de lazer, pela bicicleta. Eles (IP) disseram que não podia ser, porque não há alternativas. Uma coisa é um evento uma ou duas vezes por ano, agora todos os domingos não podia ser. Durante uma altura ainda se utilizou uma solução que era fechar só uma das faixas, a faixa da direita. Só que o quê que acontecia era que aquilo implicava uma logística muito cara, porque implicava entre as 6 e as 8 da manhã várias equipas a colocar pinos ao longo da Marginal toda até Carcavelos e depois recolhê-los. E a logística às tantas era disparatadamente cara e desistiu-se.”

EN: “I think it is part of environmental issues. A bigger concern than a few years ago.”

“(In 2007 Cascais Municipality (CMC) tried to close the Marginal to motor traffic on Sundays) It was an attempt... It was the services of the Municipality with the Mayor; they did not succeed. An attempt was made to close (Marginal to car-traffic every Sunday because the Marginal is intensively used by cyclists on Sunday mornings, still in this leisure perspective. They (IP) said it couldn't be, because there are no alternatives. It's one thing to have an event once or twice a year, now every Sunday couldn't be. For a while, a solution was used which was to close only one of the lanes, the right lane. The problem with this solution was that it involved very expensive logistics, because between 6 and 8 in the morning it involved several teams placing pins along the entire Marginal Avenue to Carcavelos and then collecting them. And the logistics at times were absurdly expensive so the (Municipality) gave up.”

Interviewee #11 – Journalist

PT: “A MUBi foi um dos veículos mais importantes de informação para mim.

...(Na realidade de Lisboa, Grande Lisboa) Não sei. **Eu acho que se calhar o facto de existir a internet, e de a internet ser um ponto de encontro, e de haver um grupo que na altura me parecia ainda bastante restrito, e havia, se calhar, uma comunidade que se contava pelos dedos das duas mãos, de pessoas que usavam mesmo a sério a bicicleta na cidade de Lisboa.** Mas essas pessoas foram-se encontrando, e depois foram encontrando outras, acho que eu cheguei aí dessa maneira. **Eu acho que a internet e as possibilidades que ela dá acabaram por possibilitar o encontro de um grupo que era muito pequeno e disperso;** fóruns, redes sociais, lugares na internet que propiciam o encontro de pessoas, acho que foi isso.”

EN: “MUBi was one of the most important information vehicles for me.

... I think maybe the fact that the internet exists, and that the internet is a meeting place, and that there was a group that at the time still seemed quite restricted, and there was, perhaps, a community that you could count on the fingers of two hands, from people who really cycled in the city of Lisbon. But these people were finding each other, and then they were finding others, I think I got there that way. I think that the internet and the possibilities it offers ended up making it possible for a group that was very small and dispersed to meet; forums, social networks, places on the internet that allow people to meet, I think that was it.”

9. What were extended context issues which emerged over time and mobilised the urban cyclists' advocacy coalition? Any movement which you (or your organisation) took note of in particular?

Interviewee #1 – Citizen:

PT: “Massa Crítica”

EN: “Critical Mass”

Interviewee #2 – Epistemic actor:

PT: “Duas entidades cujo objetivo principal era democratizar o uso da bicicleta e torná-la um veículo acessível a qualquer pessoa... a Cicloficina, nos bairros e na universidade. ...Na área metropolitana havia 11... começaram em 2011... atualmente ativas na área metropolitana são 4 ou 5: Anjos, Junqueira, Almada, Ciências e Oriente.

Outro projeto era o Bikepop, bastante ambicioso, mas acabou por não funcionar tão bem, em bairros mais desfavorecidos. Começou em 2013, no Bairro da Boavista, no limite de Lisboa, ao pé de Alfragide... e no

Intendente. Mas não evoluiu muito. No Intendente... o espaço está a funcionar e repara qualquer tipo de bicicleta (de hipermercado) a preços acessíveis.

Outros atores, os passeios anuais da FPCUB, que acabam também por tornar aquilo mais num convívio de fim-de-semana, penso que o objetivo seria para mostrar que Lisboa é ciclável.”

EN: *“Two entities whose main objective was to democratise bicycle-use and make it a vehicle accessible to anyone... the Cicloficina, in the neighborhoods and at the university. ...There were 11 in the metropolitan area... they started in 2011... there are 4 or 5 currently active in the metropolitan area: Anjos, Junqueira, Almada, Ciências and Oriente.*

Another project was Bikepop, which was quite ambitious, but ended up not working so well, located in poorer neighbourhoods. It started in 2013, in Bairro da Boavista, on the edge of Lisbon, near Alfragide... and in Intendente. But it hasn't evolved much. At Intendente... the space is working and repairs any type of bicycle (even those from large retail supermarkets) at affordable prices.

Other actors, the annual FPCUB bike rides, which also end up making it more of a weekend get-together, I think the objective would be to show that Lisbon is bikeable.”

Interviewee #2 – Epistemic actor:

PT: *“O atropelamento de um ciclista na Segunda Circular.”*

EN: *“The running over of a cyclist on the Segunda Circular (second) ring road.”*

Interviewee #3 – Activist:

PT: *“Foi primeiro o Código da Estrada, e a nível local, as ciclovias do Sá Fernandes”.*

“(Movimento) “A Massa Crítica e a MUBi.”

EN: *“It was the Traffic Code first, and at a local level, Sá Fernandes' cycleways.”*

“(Movement) “The Critical Mass and MUBi”

Interviewee #4 – Citizen:

PT: *“A partir de certo momento, com esta história das ciclovias, há um conjunto de pessoas que andavam desgarradas, que estavam em vários grupos, com ideias concretas, que se juntam de alguma forma talvez na Massa Crítica. A primeira era organizada pelo Gaia, e eram meia dúzia de pessoas que iam à Praça do Marquês de Pombal. Não te consigo dizer o ano, mas isso foi no século passado. Era organizado pela associação ambientalista Gaia, e eram realmente meia dúzia de malucos.*

Há uma federação que começa a ganhar força, que é a federação do cicloturismo (FPCUB). Ganha força, o Caetano é uma figura importante na expansão do ciclismo ou da utilização da bicicleta, porque ele com o facto da federação fazer um seguro, começa a interceder por quem usa a bicicleta...”

Depois aparecem grupos, os designers da Matilha, e vários grupos que vão dar forma a isto. A bicicleta é o denominador comum nisto tudo. Não importa muito se andas de licra ou não andas de licra, o que importa é que andas saudável.

E depois aparece a Câmara (Municipal de Lisboa), obviamente... começam a fazer ciclovias, se bem se mal, acabaram por fazer algumas e também mete a bicicleta na sua agenda política.

Houve ali um interregno realmente (de expansão de ciclovias).”

EN: *“From a certain point, with this history of the cycleways, there was a group of people who initially were astray, who were in various groups, with concrete ideas, who somehow come together, perhaps in the Critical Mass. The first was organised by Gaia, and half a dozen people went to Praça do Marquês de Pombal. I can't tell you the year, but that was last century. It was organised by the environmental association Gaia, and there were really half a dozen crazy people.*

There is a federation that is starting to gain strength, which is the cycle tourism federation (FPCUB). Gaining strength, Caetano is an important figure in the expansion of cycling and bicycle-use, because with the fact that the federation takes out insurance, he starts to intercede for bicycle-users...”Then there are groups, the Matilha designers, and various groups that will shape this scenario.

Cycling is the common denominator in all of this. It doesn't really matter if you're riding in Lycra or not, what matters is that you ride healthy.

And then Lisbon City Hall appears, obviously... they begin to build cycleway, albeit poorly, they ended up doing some and this also puts cycling on their political agenda.

Then there was a real stall for a while (regarding the cycleway network's expansion).”

Interviewee #5 – Policy Broker: (in office):

PT: *“Ambiente, qualidade de vida, no sentido mais amplo.”*

EN: *“Environment, quality of life in the broadest sense.”*

Interviewee #6 – Activist:

PT: *“Foi mesmo a Massa Crítica. Começamos a participar à volta de 2004, 2005 ... O blogue agregador surgiu em 2007 ou 2008. ...Nessa altura, conheci várias pessoas através de blogues.”*

EN: *“It really was Critical Mass. We started participating around 2004, 2005 ... The aggregating blog appeared in 2007 or 2008. ...At that time, I met several people through blogs.”*

Interviewee #7 – Policy Broker (in office):

PT: *“As questões ambientais, as questões de qualidade de vida, da saúde, ... é multifatorial, e todos estão a contribuir para isso. As pessoas querem andar de bicicleta porque querem o melhor para a sua saúde, querem andar de bicicleta porque impacta positivamente o ambiente.”*

EN: *“Environmental issues, quality of life issues, health, ... it is multifactorial, and everyone is contributing to it. People want to cycle because they want the best for their health, they want to cycle because it positively impacts the environment.”*

Interviewee #8 – Activist:

PT: *“Notou-se historicamente com a quebra da Massa Crítica que chegou a mobilizar 600 e tal pessoas, depois decaiu um pouco, a partir de 2009-2010... foi se calhar o pico da Massa Crítica. Aquilo fragmentou-se. ... As pessoas não deixaram de andar de bicicleta; fragmentaram-se em vários grupos.*

Há uma dimensão que é mais primitiva, no sentido de ser a primeira, que é a que está mais à flor da pele, o prazer, são as boas sensações, o divertido que é a deslocação em bicicleta. A pessoa descobre a cidade de outra forma... Cada parte conquistada é uma descoberta que a pessoa aprecia, e depois torna-se um hábito. E o resto vem do prazer, é o fator essencial, as pessoas sentem-se bem porque estão a exercitar o corpo, e uma descoberta da cidade, que de automóvel não acontece, ou de transporte público.”

EN: *“Historically it was observed that with the breakdown of Critical Mass, which mobilised 600 or so people, then declined a little, from 2009-2010... it was perhaps the peak of Critical Mass. It fragmented. ... People did not stop cycling; they broke up into various groups.”*

“There is a dimension that is more primitive, in the sense of being the first, which is more under one’s skin, the pleasure, the good sensations, the fun of cycling. The person discovers the city in another way... Each part conquered is a discovery that the person appreciates, and then it becomes a habit. And the rest comes from pleasure is the essential factor, people feel good because they are exercising their bodies, and a discovery of the city, which does not happen by car, or by public transport.”

Interviewee #10 – Former Policy Broker:

PT: *“Temos uns grupos de cicloturistas... Um grupo promotor da bicicleta... nunca pediram para reunir comigo, os únicos era o grupo de Matos Cheirinhos, um grupo com várias atividades, entre elas a bicicleta. Um passeio de cicloturismo esporadicamente. Nenhum movimento específico de utilizadores de bicicleta.”*

EN: *“We have groups of cycle-tourists... A group that promotes cycling... they never asked to meet with me, the only ones were the group from Matos Cheirinhos, a group with various activities, including cycling. A cycling tour sporadically. No specific movement of bicycle users.”*

Interviewee #11 – Journalist:

PT: *“Para mim houve, recentemente, coisas muito importantes para a formação de (um maior número de utilizadores da bicicleta), e também, obviamente, para pôr mais pessoas na bicicleta, e acho que isso também ajuda depois a solidificar o movimento. Acho que, obviamente, um dos grandes momentos e marcos que juntaram pessoas na discussão, e não sei quê. Acho que o projeto do Eixo Central foi uma cena que pôs muita gente a falar sobre pensar a cidade e sobre pensar uma cidade diferente daquela que nós tínhamos. Mudar um bocadinho o paradigma da orientação para o automóvel, e pensar numa cidade mais para as pessoas com diferentes usos do espaço. Acho que esse projeto pôs muita gente a discutir a cidade que queriam. E acho que juntou muitas das pessoas que queriam a bicicleta, e muitas das pessoas que se calhar ainda não viam isso como uma opção e que hoje veem. Acho que isso foi um projeto muito importante.*

Também me lembro anteriormente que houve coisas que não sei se motivaram muito a participação das pessoas na discussão de projetos e da cidade, mas acho que acabaram por mudar. Eu ainda me lembro de dar voltas de bicicleta com o meu pai, num âmbito absolutamente de lazer, de desporto, ir para o pé do rio e ainda me lembro de não existir a ciclovia... que vai da Torre de Belém até ao Cais do Sodré. Lembro-me de ela não existir. Se calhar o aparecimento dessa ciclovia também motivou falar-se um bocadinho e as pessoas começarem a pensar mais um bocadinho. No fundo acho que o aparecimento dos primeiros pedaços, mesmo que maus, de infraestrutura ciclável, acho que isso motivou o aparecimento de pessoas, e isso acabou por motivar o aparecimento de (mais utilizadores de bicicleta), e de pessoas começarem a falar sobre isso e se juntaram e muitas pessoas começaram a perceber que a bicicleta podia existir na cidade de Lisboa.”

EN: *“For me, recently, there have been very important things engrossing the mass (of cyclists), and, obviously, to get more people cycling, and I think that also helps to solidify the movement afterwards I think that one of the great moments and milestones that brought people together in the discussion, was the Eixo Central project (which included the Av. Fontes Pereira de Melo – Praça Saldanha – Avenida da República cycleway) which made a lot of people talk about how we think about the city and about how our city can be different from the one we had. Changing a little the paradigm (previously) focused on the automobile and think of a city more for*

people with different uses for (public) space. I think this project got a lot of people discussing the city they wanted. And I think it brought together many of the people who wanted to cycle, and many of the people who might not yet see (cycling) as a (mobility) option and who do now. I think this was a very important project.” I also remember earlier that there were things that I don't know if they really motivated the participation of people in the discussion of projects and the city, but I think that ended up changing. I still remember cycling with my father, absolute leisure, sport, going down to the river and I still remember that there was no cycleway yet... (on the route) that goes from the Tower of Belém to Cais do Sodré. I remember the cycleway didn't exist yet. Perhaps the appearance of this cycleway also motivated people to talk a little bit and people started to think a little more. Deep down I think that the appearance of the first pieces of cycling infrastructure, even if poorly implemented, I think this motivated the appearance of people, and that ended up motivating the appearance of (more cyclists), and people started talking about it and they got together, and many people started to realize that cycling could exist in the city of Lisbon.”

10. In your opinion, how did policy issues regarding cyclists' concerns evolve initially?

Interviewee #1 – Citizen:

PT: (A evolução de resultados em Lisboa foi) “Ao princípio muito devagarinho. Não havia, todavia, muita noção da importância que a bicicleta tem, e a construção de ciclovias, etc. E era mínimo o que se fazia.

E agora sim. Agora sim que se nota, sobretudo em Lisboa a quantidade de ciclovias que fizeram, as bicicletas partilhadas e as bicicletas privadas pela cidade. Também em Cascais, o uso da bicicleta está muito, bastante, desenvolvido e dá-se bastante importância. Não é assim em Oeiras, onde praticamente não existe.”

EN: (Policy outputs in Lisbon evolved) “Very slowly at first. There wasn't really an idea of the importance of cycling, the construction of cycleways, etc. and what was done was negligible.

But now yes. Now you can see, especially in Lisbon, the number of cycleways they have built, bikeshare, and private bicycles around the city. Also, in Cascais, cycling is developing and important. Not so in Oeiras, where it practically doesn't exist.”

Interviewee #2 – Epistemic actor:

PT: “A cultura se ao início era uma espécie de contracultura, agora é algo que é bastante aceite e bastante reconhecido por qualquer pessoa, que facilmente pega numa bicicleta e anda. Já não tem que pertencer a esse nicho, a essa cultura. Há dez anos atrás (2010) uma pessoa usar a bicicleta no dia-a-dia era quase um ato ativista... Hoje em dia qualquer pessoa usa a bicicleta, não como um ato político, pessoal, mas como algo que já é normal, generalizado. Portanto a cultura passou a ser massiva e se calhar deixou de ser uma cultura. ...Percebo que realmente há zonas que são muito acessíveis de bicicleta, e as pessoas aderiram, e outras que não. ... Há uma heterogeneidade enorme mesmo dentro do município de Lisboa, apesar das políticas terem sido lançadas e terem estado a ser consolidadas (ainda há muito por fazer).”

EN: “The culture, if at the beginning was a kind of counterculture, it is now something that is widely accepted and recognised by anyone, who easily picks up a bicycle and rides. It no longer has to belong to that niche, to that (cycling) culture. Ten years ago (2010) a person using a bicycle on a daily basis was almost doing an activist act... Nowadays, everyone uses a bicycle, not as a political, personal act, but as something that is already normal, widespread. So the (cycling) culture became massive and maybe it stopped being a culture.” ...I realise that there really are areas that are very accessible cycling, and people joined, and others that didn't. ... There is an enormous heterogeneity even within the municipality of Lisbon, even though policies have been launched and are being consolidated (there's still a lot to do).”

Interviewee #2 – Epistemic actor:

PT: “Desde 2009 houve um aumento e depois um grande abrandamento. Deve ter havido uma transição quando deixou de ser uma cultura e passou a ser algo normal e houve um grande abrandamento. As pessoas que faziam eventos, o Bike Film Festival, que se organizavam para fazer propostas para o Orçamento

Participativo, e houve muitas, depois de 2014 não houve quase nenhuma. Até lá houve muitas propostas e havia sempre propostas vencedoras.

Depois de 2014 não sei se houve alguma desmotivação na Câmara Municipal, porque as propostas (do OP) eram aprovadas, mas depois até serem executadas, isso não acontecia.

O primeiro OP, em 2009 (se não me engano), era o Trajeto Farol, desenhado pelas pessoas da Massa Crítica que desenharam e tiveram uma reunião com o Sá Fernandes, que era para fazer uma ciclovia do Campo Grande até à Baixa, e foi bastante deturpada. ... Acabou por não haver nada, e as pessoas mobilizaram-se a sério para acontecer e depois não aconteceu, desmotivaram-se. ...É muito fácil as pessoas desmotivarem-se. Havia uma massa de energia enorme que veio da Massa Crítica, e são pessoas que se juntaram não só para lutar por melhores condições de usar a bicicleta na cidade, mas também outros projetos, como libertar os passeios para os peões, Ciclofincinas, a parte mais legislativa nacional com a MUBi, e depois outros protestos com a Barragem do Tua, por exemplo. Essas pessoas acabam por ter as suas vidas, têm filhos, crescem, uns vão para outros países. Aquilo era tudo trabalho voluntário, e as coisas não avançam ...”

EN: “Since 2009 there was an increase and then a major slowdown. There must have been a transition when it stopped being a culture and became something normal and there was a big slowdown. People who made events, the Bike Film Festival, who organised themselves to make proposals for the Public Participatory Budget, and there were many, after 2014 there were almost none. Until then there were many proposals and there were always winning proposals.

After 2014 I don't know if there was a lack of motivation in the City Council, because the proposals (from the Public Participatory Budgets) were approved, but after that, until they were implemented, that didn't happen.

The first Public Participatory Budget, in 2009 (if I'm not mistaken), was the Farol Route, designed by the people from the Critical Mass group, who designed it and had a meeting with Sá Fernandes, which was to build a cycleway from Campo Grande to Baixa, and what was done was quite misleading. ... In the end there was nothing, and people who had seriously mobilised in to make it happen, then saw that it didn't happen, and they lost motivation. ...It's very easy for people to get discouraged.”

“There was a huge mass of energy which came from Critical Mass, and these are people who came together not only to fight for better conditions to use bicycles in the city, but also other projects, such as freeing up the sidewalks for pedestrians, Cycling workshops, apart from more national legislation with MUBi, and then other protests with the Tua Dam, for example. These people end up having their own lives, they have children, they grow up, some go to other countries. That was all voluntary work, and things don't move forward...”

Interviewee #2 – Epistemic actor:

PT: “Em Lisboa muita gente continuou a batalhar por melhores condições pela bicicleta, mas já não a ir pintar sharrows à noite, mas de outras formas mais diplomáticas, ativismo mais diplomático.”

EN: “In Lisbon, many people continued to fight for better conditions by bicycle, but no longer going to paint sharrows at night, but in other, more diplomatic ways, a more diplomatic activism.”

Interviewee #4 – Citizen:

PT: “A crise (financeira de 2010-2014) levou as pessoas que de alguma forma equacionassem algumas coisas, e começaram a equacionar a sua mobilidade. A crise, de alguma forma, em conjunto com outras situações como a Câmara por a bicicleta no seu programa político, movimentos que aparecerem, inclusivamente com outras maneiras de andar de bicicleta que aparecerem ..., tudo isso junto teve um efeito positivo no desenvolvimento da bicicleta em Lisboa.”

EN: “The (2010-2014 financial) crisis led people to somehow reconsider some things, and they began to reconsider their mobility. The crisis, somehow, together with other situations such as the City Hall putting cycling in its political programme, movements that appeared, even with other ways of cycling that appeared ..., all of this together had a positive effect on the development of cycling in Lisbon.”

Interviewee #5 – Policy Broker:

PT: *“Primeiro houve alguma resistência, ao longo do tempo, as pessoas evoluíram, os agentes evoluíram, e neste momento é um objetivo estratégico do município, desta organização, dos serviços, e politicamente. Nas primeiras conversas as pessoas desvalorizavam (a bicicleta), no mandato passado (2013-2017), alguma resistência no início, e depois aos poucos foram percebendo que é uma inevitabilidade e é o caminho. A pressão dos cidadãos, e as redes sociais influenciam, e os exemplos, o exemplo de Cascais, o exemplo de Lisboa.”*

“First there was some resistance, over time, people evolved, agents evolved, and at this moment it is a strategic objective of the municipality, of this organisation, of the services, and politically.

In the first conversations, people devalued (cycling), in the last term (2013-2017), some resistance at first, and then little by little they began to realise that this is an inevitability and that it is the path.

Citizen pressure and social networks influence, and the examples, the example of Cascais, the example of Lisbon.”

Interviewee #6 – Activist:

PT: *“Para aí em 2007 estava na campanha de Sá Fernandes. Entrou no discurso com obras nesse sentido em 2007.... Entrou no discurso de efetivamente haver obras nesse sentido em 2007, ou talvez 2009 ... Era uma coisa fora do normal, e nessa altura dissemos “uau, isto é bom, já está no discurso político. ... Estar no discurso político já é uma primeira fase.”*

EN: *“Around 2007, I was in the Sá Fernandes campaign. He brought about the discourse of works in that direction in 2007.... It entered the discourse of effectively having works in that sense in 2007, or maybe 2009... It was something out of the ordinary, and at that time we said “wow, this is good, it's already in the political discourse. ... Being in the political discourse is already a first phase.”*

Interviewee #7 – Policy Broker (in office):

PT: *“Houve um objetivo estratégico nosso de fazer crescer exponencialmente os quilómetros de rede ciclável e as ciclovias. E, portanto, esse investimento, mais uma vez foi em paralelo: foi comprar bicicletas, massificar as docas, fazer ciclovias.*

...Agora vamos fazer uma zona ZER, esta zona toda vai ser zona ZER.”

EN: *“There was a strategic objective of ours to make the cycling and kilometres of cycleway network grow exponentially. And, therefore, this investment, once again, was carried out in parallel: it was buying bicycles, massifying the docks, building cycleway.*

...Now we will make an LEZ zone, this entire area will be an LEZ zone.”

Interviewee #8 – Activist:

PT: *“Há um protagonismo da Câmara de Lisboa que é inaudito. ...Os circuitos da Massa Crítica, a proto-MUBi. ... A MUBi perdeu em toda a linha a sua aposta, ou a sua convicção, que as ciclovias não eram o caminho, é perentório, é notório. Lisboa, quanto a mim, por pressão externa da União Europeia ou de Bruxelas, teve durante muitos anos níveis de qualidade do ar que não eram legalmente permitidos, e isso deve ter praticamente forçado a um processo de maquilhagem através de políticas públicas, da imagem da cidade, que depois se traduziram também em políticas cicláveis. As políticas cicláveis estão aos olhos de toda a gente, a colocação de infraestrutura era o único caminho para atrair mais utilizadores. Uma rede de bicicletas partilhadas, que há alguns anos era inimaginável, também é bem vindo. Está à vista de todos.*

A Câmara (de Lisboa) também está a tapar o sol com a peneira com estas políticas cicláveis, porque é a mesma Câmara que permitiu a construção de vários parques de estacionamento subterrâneos no centro da cidade ...”

EN: *“There is an unprecedented protagonism from Lisbon City Hall. ...The Critical Mass rides, a proto-MUBi. ... MUBi completely lost its stake, or its conviction, that (dedicated) cycleways were not the way, it's peremptory, it's notorious. Lisbon, in my opinion, due to external pressure from the European Union or Brussels, had for many years illegal levels of air quality, and this must have practically forced a make-up process of the city's image, through public policies, which later also translated into cycling policies. Cycling policies are in everyone's*

eyes, infrastructure realisation was the only way to attract more users. A bike-share network, which a few years ago was unimaginable, was also welcome. It's in plain sight.

The (Lisbon) City Hall is also covering the sun with the sieve with these cycling policies, because it is the same City Hall that allowed the construction of several underground car parks in the city centre ...”

Interviewee #10 – Former Policy Broker:

PT: “Há alguma tentativa de investimento no programa das bicicletas partilhadas... É um programa que é para manter e alargar. Entretanto foi publicado o novo PDM que prevê uma rede ciclável, e, entretanto, foi feita aquela ciclovia ou faixa ciclável no paredão, que é um ponto de conflito, a solução não foi a melhor, mas é uma promoção da bicicleta. Mas contraria o princípio que seria de tirar espaço aos carros para dar às bicicletas, e tirar espaço das bicicletas para os peões, e aqui tiraste dos peões para dar às bicicletas... ..Na Marginal seria perfeitamente possível fazer isso. De São João do Estoril, do Forte Salazar até Cascais a Marginal já é da Câmara há mais de vinte anos. Já nem se quer é uma Estrada Nacional (N6). ...Entre Cascais e São João a Câmara podia fazer, mas a zona mais interessante é entre a Parede e Carcavelos, onde vais junto ao mar, entre São Pedro e Carcavelos.

...(O PDM) os trabalhos preparatórios já duram há anos sem fim. Aquilo contou com os departamentos todos, e tem essa parte positiva de ter lá prevista a bicicleta, agora falta é executar. Na verdade, o Plano Diretor, a nova versão, já tem três anos e ainda está tudo por fazer em termos de mobilidade sustentável.”

EN: “There is some attempt to invest in the bike-share system... It is a system to maintain and expand. However, the new Masterplan was published, which includes a cycling network, and in the meantime, that cycleway on the seaside walkway was created (between Cascais and Estoril), and it's a point of conflict; the solution was not the best one, but it is promoting cycling. Nonetheless it goes against the principle that would be to take space from cars to give bicycles, and take space from bicycles for pedestrians, and here you took space from pedestrians to give bicycles... ..On the Marginal Avenue it would be perfectly possible to do that. From São João do Estoril, from Forte Salazar to Cascais, Marginal Avenue has belonged to the Municipality for over twenty years. It is no longer a National Highway (N6). ...Between Cascais and São João the City Council could do it, but the most interesting area is between Parede and Carcavelos, where you go by the sea, between São Pedro and Carcavelos.

...(The Masterplan) preparatory work has been going on for years without end. That had all the departments involved, and there's this positive part of having cycling planned there, now what's needed is to implement it. In fact, the Master Plan, the new version, is already three years old and everything remains to be done in terms of sustainable mobility.”

Interviewee #11 – Journalist:

PT: “Sim. Acho que houve uma evolução... Não tem nada a ver, não tem nada a ver. Em 2015 quase ninguém falava sobre isto, e onde se falava disto, se calhar falava-se nalgum gabinete de alguma autarquia, mas longe da opinião pública. Acho que onde se falava de mobilidade ciclável, era naqueles grupos muito restritos na internet. Hoje em dia é uma coisa que se fala no jornal da noite, e que se fala em todo o lado, e acabamos por ter a opinião pública nacional -às vezes bem, e outras vezes mal- a opinar sobre isto, e acho que isso foi um processo muito importante, hoje em dia toda a gente fala sobre a bicicleta na cidade. Em 2014/2015 ninguém falava da bicicleta na cidade, e acho que para isso contribuiu o crescimento dos utilizadores, a implementação de alguns eixos cicláveis importantes, por exemplo hoje à infraestrutura, há muita gente a usar a bicicleta, houve projetos que mudaram a distribuição do espaço na cidade. Estou a falar de Lisboa.

(E fora de Lisboa? Oeiras, Cascais, outros municípios da AML) Acho que há uma disparidade muito grande entre aquilo que é discutido para a cidade e na cidade de Lisboa, no município de Lisboa, e aquilo que é a discussão fora de Lisboa, e mesmo na Área Metropolitana de Lisboa. Acho que há uma diferença muito grande entre a Área Metropolitana de Lisboa, os concelhos circundantes, e a cidade de Lisboa. Acho que Lisboa está numa fase muito mais avançada do que os restantes concelhos que estão à volta. A título de exemplo, acho que em Oeiras, que tenho algum conhecimento da realidade de Oeiras, porque vivi lá muitos anos. ...Eu acho que, se calhar há aqui uma correlação, entre a vontade política e a implementação no terreno de infraestrutura

e a mobilização das pessoas. Por exemplo, acho que às vezes basta criar-se um bocadinho de infraestrutura para aparecerem as pessoas, e para aparecer uma verdadeira massa crítica, e pessoas que fazem pressão e lóbi político, mesmo enquanto cidadãos. Portanto acho que há uma diferença essencial entre Lisboa e, por exemplo, Oeiras, mas acho que o exemplo pode estender-se a outros municípios ao lado de Lisboa. Que Lisboa tem, nos últimos anos, tido uma visão -boa ou má- tem tido uma visão, e tem tido uma expansão da rede ciclável, e acho que é uma coisa que não se vê em Oeiras, e eu acho que por essa razão há uma massa crítica muito limitada ainda em Oeiras. Ainda se fala muito pouco nisso, e acho que também parte da maneira como Oeiras e outros municípios limítrofes estão construídos, estão muito mais centrados no automóvel do que Lisboa. Portanto acho que ainda há uma falta de interesse da população em geral nesses concelhos, que pode derivar da falta de pensamento estratégico da autarquia para a mobilidade ciclável.

EN: “Yes. I think there was an evolution... It’s completely different, it’s completely different. In 2015 almost no one talked about (cycling), and where it was talked about, maybe it was talked about in some municipal office, but far from public opinion. I think that where cycling mobility was talked about, it was in those groups that were very restricted on the internet. Nowadays, it’s something that is talked about in the evening news, and it’s talked about everywhere, and we end up having the national public opinion -sometimes good, and other times bad-discussing it, and I think that it was a very important process. Nowadays everyone talks about cycling in the city. In 2014/2015, no one talked about cycling in the city, and I think that the growth of users contributed to that, the implementation of some important cycle routes, today, for instance there is infrastructure, there are many people cycling, there were projects that changed the spatial distribution in the city. I’m talking about Lisbon.”

(And outside Lisbon? Oeiras, Cascais, other AML municipalities) “I think there is an enormous disparity between what is discussed for the city and in the city of Lisbon, in the Municipality of Lisbon, and what is discussed outside of Lisbon, and even in the Lisbon Metropolitan Area. I think there is a very big difference between the Lisbon Metropolitan Area, the surrounding municipalities, and the city of Lisbon. I think Lisbon is at a much more advanced stage than the other municipalities around it. As an example, I think that in Oeiras, and I have some knowledge of the reality of Oeiras because I lived there for many years. ...I think that maybe there is a correlation here, between the political will and the implementation of infrastructure on the ground, and the mobilisation of people, for example. I think that sometimes it’s enough to create a little bit of infrastructure for people to show up, and for a real critical mass of people to appear, exerting pressure and political lobbying, even as citizens. So, I think there is an essential difference between Lisbon and, for example, Oeiras, but I think the example can be extended to other municipalities neighbouring Lisbon. That Lisbon has, in recent years, had a vision -good or bad- it has had a vision, and there has been a cycling network expansion, and I think this is something that is not seen in Oeiras, and I think that’s why for this reason, there is still a very limited (number of bicycle-users) in Oeiras. Very little is said about it, and I think that part of the way in which Oeiras and other neighbouring municipalities are built is also much more focused on the automobile than in Lisbon. Therefore, I think that there is still a lack of interest from the general population in these municipalities, which may derive from the municipality’s lack of strategic thinking for bicycle mobility.”

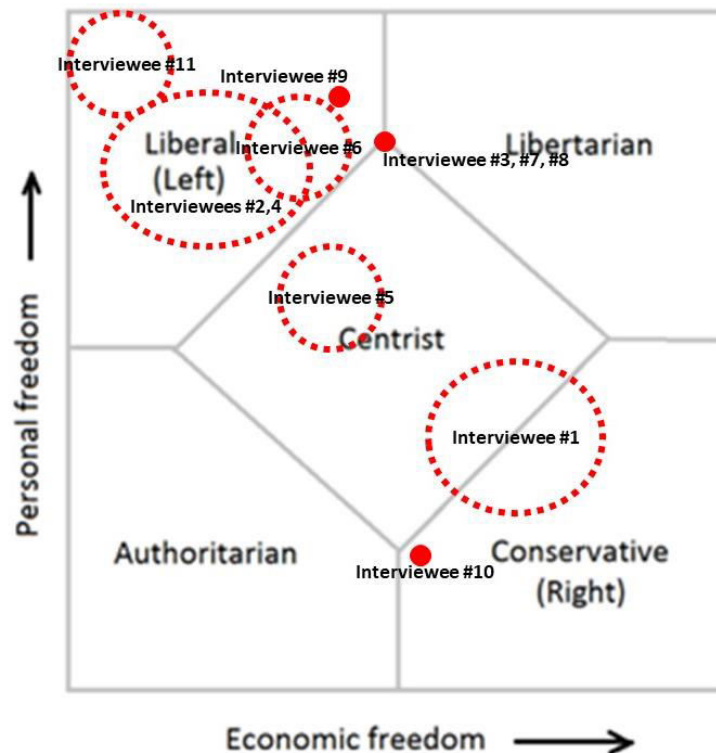
11. Did you (your organisation) engage in policy development regarding cycling? If so when did you (and your organisation) engage in policy development regarding cyclists? (In other words, when did you and your organisation start interacting with the [cyclists’] advocacy coalitions?)

Interviewee #5 – Policy Broker (in office):

PT: “Com o executivo, desde 2017 senti mais abertura e já se está a avançar para o terreno. Se calhar não tão bem como se devia, mas já se está a avançar. A mudança começou neste mandato” (2013-2017)

EN: “With the (municipal) cabinet, since 2017, I felt more open, and we are already moving on the ground. Maybe not as well as it should be, but it’s already advancing. The change started in this mandate.” (2013-2017)

12. Would you position yourself as ideologically conservative or progressive? On a left-right / authoritarian-libertarian diagram -Nolan (1971) chart- where would you position yourself? Where would you position your organisation?



Interviewee's political positioning on a simplified Nolan (1971) chart

Interviewees #2 and #3 note that it is very difficult, or practically impossible, to politically position cyclist's organisations. Interviewee #3 noted that there are MUBi members from all political quadrants.

Interviewee #4 – Citizen

PT: “*Em termos concretos não vejo nenhum partido com um compromisso efetivo (com a bicicleta).*”

EN: “*In concrete terms I don't see any party with an effective commitment (to cycling).*”

In fact, regarding both national or local politics in Lisbon and the AML municipalities, none of the interviewees could identify a political party which had explicitly defended cycling.

Interviewee #5 – Policy Broker – mentioned that such a political position from one party could also be detrimental to cycling.”

Interviewee #6 – Activist:

PT: “*Quando a Massa Crítica surgiu sem dúvida que era mais malta de esquerda e alguns quase anarquistas. Depois a coisa foi-se tornando mais mainstream. (Há de tudo) o que é bom nesse sentido.*”

EN: “*When Critical Mass emerged, there was no doubt that it had more left-wing people and some were almost anarchists. Then it became more mainstream. (There are all types) which is good in this regard.*”

Policy process questions

25. [Identifying Beliefs and Biases] What's your opinion (or as a representative of your organisation) of automobility's role in a city? Can you (and your organisation) envision the municipality you live in with less cars? How many less? Can you (and your organisation) envision this city without cars? In your opinion, which modes of transport do you think will play a central role in this city in 20 years?

Interviewee #1 – Citizen:

PT: *“Penso que (o automóvel) tem um papel demasiado importante em Portugal, e nas cidades de Portugal. (Q. Estamos a falar na cidade da Grande Lisboa, o nosso foco é Cascais, Oeiras e Lisboa). Penso que se dá demasiada importância ao automóvel, em detrimento das pessoas.*

Acho que é muito difícil porque vejo que é algo que é inerente ao povo português. É muito difícil que deixem de utilizar o carro, mas, talvez daqui a uns bons anos se consiga.

Considerando que cada família tem 2, 3, ou mais carros, se conseguíssemos que cada família tivesse só um carro, portanto reduzir em 50% ou um bocado mais, já seria bom. E penso que se conseguiria melhores transportes públicos, etc.

Os comboios, a melhoria dos comboios, autocarros, e elétricos, a ser possível.”

EN: *“I think (automobility) has a very important role in Portugal, and in Portugal’s cities. I think that the car is given too much importance, to the detriment of people.*

I think it’s very difficult because I see it’s something that is inherent to the Portuguese people. It is very difficult for them to stop using the car, but maybe in a few years it will be possible. ...

Considering that each family has 2, 3, or more cars, if we could get each family to have only one car, so reducing the car’s presence by 50% or a little more would be good. And I think better public transport, etc., could be achieved.

Trains, improvement of trains, buses, and, if possible, trams.”

Interviewee #2 – Epistemic actor:

PT: *“A nível dos bairros, das freguesias, basta ver os folhetos na altura das autárquicas, todos os partidos querem mais estacionamento.*

Lisboa podia ter 1/3 do parque automóvel que tem. A cidade já superou a capacidade de carros. Lisboa tem capacidade para melhores transportes públicos que tem, para tirar estacionamento. ... Já devia ter abandonado as exigências de estacionamento automóvel. Podia dar melhores funções a esse espaço.”

EN: *“At the neighbourhood and borough level, just have a look at the leaflets during the municipal election campaigns, all parties want more automobile parking.*

Lisbon could have 1/3 of the car park it has. The city has already surpassed its automobile capacity. Lisbon has capacity for much better public transport than it has, and to remove car parking. ... It should have already abandoned car parking requirements. It could give better functions to that space.”

“Os modos de transportes decisivos são as partilhas de carros e o ‘ride hailing’, bicicletas partilhadas (a primeira fase foi um sucesso, já se viu). Gostava de acreditar que o metro e autocarro, mas são muito pouco atrativos; o metro a expandir a sério para a área metropolitana como se fez no Porto, será decisivo.”

EN: *“The decisive modes of transport are car sharing and the ‘ride hailing’, bike-share (the first phase was a success, as you can see). I would like to believe that the subway and bus, but they are very unappealing; for the subway to expand sufficiently into the metropolitan area as was done in Porto, will be decisive.”*

Interviewee #3 – Activist:

PT: *“Lisboa mais década, menos década vai restringir o carro. Lisboa é como uma cebola, o coração, baixa, mais ano, menos ano vai restringir carros, e para fora car-lite (a Zona da Baixa talvez 10 vezes menos, a 2ª coroa metade, ...)... Oeiras e Cascais vai ser muito mais difícil, reduz-se muito pouco. ... Cascais tem o fator de turismo, que pode ajudar. A questão do turismo, da gentrificação e da Disneyficação, que já está a acontecer. Já existe no centro de Lisboa. (O Município) tem que combater (a Disneyficação) trazendo famílias com filhos a viver para os centros.”*

“O back-bone (do sistema de mobilidade urbano e metropolitano) terá de ser sempre o transporte público apoiado pela mobilidade ativa e a micromobilidade.”

EN: *“Lisbon, give or take a decade, will restrict car use. Lisbon is like an onion, the heart, downtown, more or less years will restrict cars, and outwards it will be car-lite (the Baixa zone maybe 10 times less cars, the 2nd half crown) ... Oeiras and Cascais will be much more difficult, automobile reduction will be very slight. ...*

Cascais has the tourism factor, which can help. The issue of tourism, gentrification and Disneyfication, which is already happening. It already exists in the centre of Lisbon. (The Municipality) has to fight (Disneyfication) by bringing families with children to live in the centres.”

“The back-bone (of the urban and metropolitan mobility system) will always have to be public transport supported by active mobility and micromobility.”

Interviewee #4 – Citizen:

PT *“(Nas últimas décadas) abriu-se a cidade de uma forma pornográfica (para o automóvel), no caso da (autoestrada) A5, por exemplo, o que interessava era escoar os carros da periferia, não era importante que impacto tinha para os moradores da cidade .(O automóvel) tem um papel primordial e esmagador.*

...(Consigno imaginar a cidade) com menos 70% (de carros).”

“Elétricos rápidos, transportes coletivo ferroviário... rede de elétricos em conjunto com metro, a partir daí era cortar decididamente a entrada do carro em Lisboa.”

EN: *“(In recent decades) the city has been opened up (to automobility) in a pornographic way, in the case of the A5 (motorway), for example, what mattered was draining cars from the periphery, it was not important what impact that would have on the city's residents. (The automobile) has a primordial and overwhelming role. ... (I can imagine the city) with 70% less (cars).”*

Interviewee #5 – Policy Broker (in office):

PT: *“(O papel automóvel) Deveria ser um papel secundário. Na organização da cidade a prioridade deve ser as pessoas, deve-se criar condições para que haja mais transportes públicos, menos circulação de automóveis. O exemplo máximo que eu conheço é Pontevedra, em Espanha. Quem nos dera que (o meu município) fosse como Pontevedra...E portanto, o papel do automóvel deve ser quanto menos possível, para serviços, para garantir os serviços, e pouco mais. ...Consigo imaginar, e acho que é uma ambição. Um quarto (dos carros).”*

“Mais e melhores transportes públicos... a aposta tem que ser nos transportes coletivos. A partir daí, obviamente aumentar ciclovias, criar condições para que haja mais utilização da bicicleta.”

EN: *“(The role of the automobile) should be a secondary role. When organising the city, the priority must be on the people, conditions must be created so that there is more public transport, less car traffic. The greatest example I know is Pontevedra in Spain. I wish that (my municipality) were like Pontevedra...And therefore, the role of the automobile should be as little as possible, for services, to guarantee services, and little else. ...I can imagine it, and I think it's an ambition. A quarter (of the cars). More and better public transport... investment must be in public transport. From there, obviously to increase cycleways, create conditions for more bicycle-use.”*

Interviewee #6 – Activist:

PT: *“(No tempo) Atual, (o automóvel) é centralíssimo, com se fosse uma inevitabilidade da vida, nada se faz sem carro, ter carro serve como ferramenta, serve como proxy a social signalling da tua hierarquia. Tem um papel absolutamente integral, não há como fugir. ...*

Mesmo (no centro de Lisboa) o maior obstáculo a andar de bicicleta é ter um carro. ... Efetivamente a melhor forma de não depender (do carro) é de não ter ou tê-lo bué de longe.

(Proporcionalmente) consigo imaginar Lisboa com 20% ou mesmo 10% dos automóveis que tem. Oeiras é mais disperso, ainda tem campo, se se investisse noutras formas, como se investe no carro, acho que Oeiras com 20% (dos carros) conseguia imaginar.

A bicicleta (nos Países Baixos) funciona bem porque tem a ferrovia -ferrovia à superfície-, conjugado com a bicicleta é o mais fiável. A bicicleta permite uma capilaridade.”

EN: *“(Currently, the automobile) is very central, as if it were an inevitability of life, nothing is done without a car, having a car serves as a tool, and it's the social signalling of your hierarchy, it serves as a proxy. It has an absolutely integral role, there is no escaping it. ...*

Even (in the centre of Lisbon) the biggest obstacle to riding a bike is having a car. ... Effectively the best way to not depend (on the car) is to not have it or have it far away.

(Proportionally) I can imagine Lisbon with 20% or even 10% of the automobiles it has. Oeiras is more dispersed, it still has countryside, but if you invested in other ways, as much as it is investing for the car, I think I could imagine Oeiras with 20% of (the cars) it has.

The bicycle (in the Netherlands) works well because it has the rail -rail on the surface-, in conjunction with cycling it is the most reliable. Cycling allows for capillarity.”

Interviewee #7 – Policy Broker (in office):

PT: *“Neste concelho eu podia dizer-lhe que o automóvel é um meio de transporte, mas neste concelho o automóvel também é uma bandeira de status social. O automóvel, neste concelho especificamente. E aqui as pessoas têm muitos automóveis, têm automóveis clássicos, têm coleções, portanto existe esta cultura. E por isso é que é cada vez mais difícil, é muito difícil para mim, estar a fazer as roturas que estou a fazer.*

A minha visão vejo um concelho com muito menos carros do que vejo. Vamos fechar toda a baixa...ao automóvel, isso vai ser feito, vamos ter shuttles diretos, elétricos, a fazer os movimentos pendulares dos estacionamentos para rebater para o centro da vila. E depois só bicicletas aqui dentro, trotinetas, seja o que for. E portanto, esse é o movimento que vamos fazer. Fizemos um bocadinho ao contrário de Lisboa, só o vamos fazer quando os transportes públicos, o novo concurso, estiver no ar. Não sei se sabe, está em tribunal, mal seja desbloqueado nós vamos duplicar a oferta de transportes públicos, o único concelho do país que o

vai fazer. Para além dos transportes públicos serem gratuitos no concelho..., todos, bicicleta, comboio, e autocarro... (para) residentes, trabalhadores ou estudantes, desde que seja estudantes com matrícula de mais de um ano. Com um destes três requisitos não paga nem comboio..., autocarros em todo o concelho, e bicicletas em todo o concelho... A partir do novo concurso público... mais do que duplicamos a oferta (de transportes públicos). Portanto não vamos permitir às pessoas de ter a desculpa que não há transportes públicos, há, vai haver... E por isso a seguir o esforço é fechar, limitar ao máximo o transporte individual. Começaremos por este casco velho e abraçaremos outros desafios (de outras vilas no concelho). O concelho é um concelho extenso, tem uma orografia complicada, e, portanto, o automóvel irá sempre ter algum papel, mas queremos cada vez mais que seja um papel.”

EN: “In this municipality I could tell you that the automobile is a means of transport, but in this municipality the automobile is also a flag of social status. The automobile, specifically in this municipality. And here people have a lot of cars, they have classic cars, they have collections, so it is in this culture. And that is why it is increasingly difficult; it is very difficult for me to do the disruption that I am doing.

I envision a municipality with a lot less cars than what I see now. We are going to close the entire downtown...to the car, this will be done, we will have direct, electric shuttles, making the commuting movements from the parking lots to the town centre. And then in here just bicycles, scooters, whatever. And so, that's the move we're going to make. We did it a little bit different from Lisbon, we will only do it when public transport, the new competition, is in the air. I don't know if you know, it's in court, as soon as it's unblocked, we'll double the provision of public transport, the only municipality in the country that will do it. In addition to public transport being free in the municipality..., all, bicycle, train, and bus... (for) residents, workers, or students, if they are students with registration for more than one year. With one of these three requirements, you won't even pay for trains ..., buses throughout the municipality, and bicycles throughout the municipality... With the new public tender... we have more than doubled the offer (of public transport). Therefore, we won't allow people to have the excuse that there is no public transport, there is, there will be... And, therefore, the effort is to close down, to limit individual (motor) transport as much as possible. We'll start with the old town centre and embrace other challenges (in other towns in the municipality). The municipality is a large municipality, it has a complicated orography, and therefore automobility will always have some role, but we increasingly want it to be a role.”

Interviewee #7 – Policy Broker (in office):

PT: “(Em todo o concelho) Nós temos simulações de tráfego nos pontos mais críticos do concelho, todos eles, e todas as simulações que temos, apontam que se nós conseguimos reduzir de 10 a 15% é suficiente para não haver congestionamento. Portanto a nossa ambição é de reduzir 20 a 25%. Reduzir de 66% para 40 a 45% (o automóvel). Pôr pressão no sistema.”

EN: “(Across the municipality) We have traffic simulations at the most critical points, all of them, and all the simulations we have, show that if we manage to reduce (automobile traffic) by 10 to 15%, it is enough to eliminate congestion. Therefore, our ambition is to reduce 20 to 25%. Reduce from 66% to 40 to 45% (automobility). Put pressure on the system.”

Interviewee #8 – Activist:

PT: “Lisboa com muitas cidades satélites são quimeras, são frankensteins, uma junção do antigo com o novo... o urbanismo feito antes do automóvel, fazer cidades antes do automóvel é diferente de fazer cidades, do urbanismo com automóvel. ... neste momento transformou-se num parasita: precisa da cidade para viver, mas também a contamina, também a prejudica, também a estraga. Mas é um assunto mais complicado.

(Os presidentes da câmara) não conseguem deixar de associar que o automóvel é um bocado um extrator, um bocado um modificador do mercado imobiliário. Sai hoje provavelmente mais barato ter um automóvel e viver em Setúbal, Palmela, na Azambuja, ou em Sintra, e vir trabalhar em Lisboa, do que (viver) em Lisboa.

...A Câmara de Lisboa foi conivente com o fomento ao turismo que modificou completamente, numa questão de poucos anos, o mercado imobiliário em Lisboa. Muitas das pessoas tiveram que sair de Lisboa. Como é que nós vamos resolver o problema do automóvel se os meus direitos estão em conflito, com o direito à habitação? Os políticos vão navegando um bocado às apalpadelas.”

EN: "Lisbon with its many satellite towns are fantasies, they are Frankensteins, a combination of the old and the new... urbanism done before the automobile, making cities before the automobile is different from making cities, from urban planning with the automobile. ... at this moment it has become a parasite: it needs the city to live on, but it also contaminates it, it also harms it, it also spoils it. But it's a more complicated matter.

(The mayors) can't help associating that the automobile is somewhat of an extractor, a bit of a modifier of the real estate market. It's probably cheaper today to have an automobile and live in Setúbal, Palmela, Azambuja, or Sintra, and come to work in Lisbon, than (to live) in Lisbon.

...Lisbon City Hall connived with the promotion of tourism that completely changed, in a matter of a few years, the real estate market in Lisbon. Many people had to leave Lisbon. How are we going to solve the automobile problem if my rights are in conflict with the right to housing? Politicians are navigating by groping around a bit."

Interviewee #8 – Activist:

PT: "(Consigno imaginar Lisboa com) 30% menos carros."

EN: "(I can imagine Lisbon with) 30% less cars."

Interviewee #9 – Former Policy Broker:

PT: "Neste momento as situações são muito diversas dependendo da zona (da cidade), obviamente depois do que se fez na Praça do Comércio, Cais do Sodré, Baixa, Ribeira das Naus e agora se vai fazer, aí diminuimos fortemente o papel do automóvel. ... Quando completamos o sistema da baixa... o primeiro sistema foi em 2009. Entre 2009 e 2011. Aí o carro deixou de ter (um papel central).

Na Área Metropolitana (o automóvel) ainda tem um papel central... o custo do transporte público era muito mais elevado do que o custo do transporte individual, fiz várias contas. ... Era uma coisa impressionante. Toda a gente bateu-se muito por isso (o PART) na Câmara. ... Por um lado era o custo -agora já não é- mas ainda é a articulação entre os sistemas."

(Na AML) o automóvel ainda é central, sem dúvida nenhuma. ...

Em Lisboa é imaginável -dentro de determinadas condições- reduzir para metade o peso do automóvel na cidade, da Segunda Circular para dentro. ...

Em Oeiras reduzir um terço do que é hoje a utilização do automóvel é bastante bom.

Em Cascais, como tem um centro muito bem identificado e bastante preponderante em relação ao que se passa no resto do concelho... Cascais é um concelho extremamente dual. Na zona de maior nível de rendimentos, captar ao automóvel, eu diria, que é quase impossível. O interior de Cascais, que é proletário diríamos assim, é tudo uma questão de oferta de transporte coletivo.

(Os modos de transporte mais decisivos) Ferroviário. Se tiver uma malha bem estruturada e com uma grande conectividade... (Mas) na Margem Sul tentar ter um sistema de transportes que cobre aquilo tudo (aquela área) é uma loucura...

EN: "At the moment, the situations are very different depending on the area (of the city), obviously after what was done in Praça do Comércio, Cais do Sodré, Baixa, Ribeira das Naus and now what will be done, then we have greatly reduced the role of the car. ... When we completed the downtown system... the first system was in 2009. Between 2009 and 2011. Then the automobile no longer played (a central role).

In the Metropolitan Area (automobility) still plays a central role... the cost of public transport was much higher than the cost of individual transport, I did several calculations. ... It was an amazing thing. Everyone fought a lot for that (the PART) in the Chamber. ... On the one hand it was the cost -now it is no longer- but it is still the articulation between the systems."

(In the AML) the automobile is still central, without a doubt. ...

In Lisbon, it is conceivable -within certain conditions- to cut automobility's weight to half, in the city, from the Segunda Circular (Second Bypass highway) inwards. ...

In Oeiras, reducing car use by a third is quite good.

In Cascais, as it has a very well identified centre, that is quite predominant in relation to what happens in the rest of the municipality... Cascais is an extremely dual municipality. In the area with the highest level of income,

capturing the car, I would say, is almost impossible. The interior of Cascais, which is proletarian, we would say, is all a question of providing public transport.

(The most decisive modes of transport) Rail. If you have a well-structured network and great connectivity... (But) on the South Bank of the (Tagus River), it is crazy trying to have a transport system that covers all of that (area)...

PT: *“O grande problema da história da mobilidade são as transições.”*

EN: *“The big problem with the history of mobility are the transitions.”*

Interviewee #10 – Former Policy Broker:

PT: *“O papel (do automóvel) acho que é incontornável enquanto não houver alternativas. Eu com a idade da minha filha ia para a escola de bicicleta em Cascais, hoje não deixaria, hoje não me passaria pela cabeça ir a minha filha porque tinha que passar dez cruzamentos pelo meio com gajos a guiarem que nem doidos, a 120. (Imagina Cascais com menos carros?) Sem dúvida. E Oeiras também, e Lisboa também. Embora eu já tenha algumas dúvidas a este último projeto de Lisboa, sobretudo as limitações. A bicicleta não pode ser encosta contra a liberdade pessoal das pessoas. ...Já me começa a ferir um bocadinho.*

(Quanto menos carros?)... Se comessem a investir em bicicletas, em dez anos seria possível reduzir um terço, Oeiras é muito parecido com Cascais. Lisboa já é uma realidade com muitos carros a virem de fora... Diria um quinto, Lisboa (podia) reduzir um quinto (20%) do que tem atualmente. ...Em vinte anos acho que é perfeitamente possível reduzir para metade em todos os concelhos; o número de viagens em automóvel, não o número de carros.

(Os transportes mais decisivos) Embora o Carreiras acho que gerou uma ilha, o grande erro começa logo por aí. Temos 18 concelhos, mas tens 9 urbanos na área norte de Lisboa. A AML tem 9 a norte do Tejo, o Tejo obviamente é uma barreira grande e pode ser confuso. Tu tens cada concelho a desenvolver Planos de Mobilidade próprios sem entrar com o concelho vizinho. Cascais tem previsto no seu PDM uma linha de metro ligeiro de superfície, ... prevista em PDM... tem uma ligação a Oeiras a ligar na zona da Quinta do Marquês. Oeiras no seu PDM também tem um plano parecido, com a particularidade que liga a Cascais, mas não liga no mesmo sítio... Um liga pela Quinta do Marquês, ou outro liga mais para norte. E foram aprovados ao mesmo tempo pela CCDR. ...Uma desarticulação aberrante.

Era preciso um metro ligeiro de superfície que abrange toda a área metropolitana. Eu acho que isso é fundamental. Uma rede densa destes metros ligeiros que vais para todo o lado na cidade, e passas para os vários municípios, e tens ‘n’ cidades pela Europa toda.”

EN: *“The role (of automobility) I think is unavoidable while there are no alternatives. At my daughter's age I used to cycle to school in Cascais, today I wouldn't let it happen, today I wouldn't even think of sending my daughter (by bicycle to school) because she would have to pass through ten intersections along the way with guys driving like crazy, at 120.*

(Can you imagine Cascais with fewer cars?) Without a doubt. And Oeiras too, and Lisbon too. Although I already have some doubts about this latest Lisbon project, especially its limitations. Cycling cannot be used against people's personal freedom (to drive). ...It's already starting to harm me a little.”

(How much less cars?) ...“If they started investing in cycling, in ten years it would be possible to reduce (automobility) by a third, Oeiras is very similar to Cascais. Lisbon is a reality with many cars coming from abroad.... I would say a fifth, Lisbon (could) reduce by a fifth (20%) of what it currently has. ...In twenty years, I think it is perfectly possible to (have) half in all municipalities; the number of car trips, not the number of cars. (The most decisive transports) Although I think Carreiras generated an island, the big mistake starts right there. We have 18 municipalities, but you have 9 urban ones in the northern area of Lisbon. The AML has 9 (municipalities) north of the Tagus, the Tagus is obviously a big barrier and can be confusing. You have each municipality developing their own Mobility Plans without linking with the neighbouring municipalities. Cascais has foreseen in its Masterplan a light surface light metro line ... it has a connection to Oeiras to be connected in the Quinta do Marquês area. Oeiras in its Masterplan also has a similar plan, with the particularity that it connects to Cascais, but it doesn't connect in the same place... One connects through Quinta do Marquês, the

other connects further north. And they were approved at the same time by the CCDR. ...An aberration of discoordination.

A surface light rail covering the entire metropolitan area was needed. I think this is fundamental. A dense network of these light meters that go everywhere in the city, and pass to the various municipalities, and you have 'n' cities all over Europe."

Interviewee #11 – Journalist:

PT: "Acho que há uma dependência excessiva (no automóvel) fruto do desenho do espaço, e da falta de alternativas.

(Os três concelhos -Lisboa, Oeiras e Cascais- com menos carros?) *É o cenário ideal e parece-me realista, com os investimentos certos.*

(Quantos menos carros?) *Imaginando um cenário que eu acho que é realista, está longe da realidade, mas que é realista... diria um terço dos carros atuais. ... Eu acho que são concelhos muito diferentes, em Lisboa claramente é possível, Cascais eu não conheço assim tão bem, conheço, mas não assim tão bem. E eu acho que, por exemplo, no caso de Oeiras, acho que Oeiras tem várias realidades, porque tem várias zonas, cada uma delas tem as suas características. Há zonas onde há um potencial brutal para a redução da dependência no automóvel, porque são zonas que podem muito facilmente ser muito bem ligadas com transporte público, e que têm um potencial também para a mobilidade ciclável, e para as deslocações a pé. E depois há mobilidades, que fruto da expansão suburbana da cidade, e do pensamento centrado no automóvel, que foram sendo desenvolvidas de uma forma despegada, são zonas que são predominantemente residenciais, e portanto, não têm outros usos, onde as pessoas têm que percorrer grandes distâncias, obviamente aí o transporte público também tem um papel a desempenhar, mas é um desafio diferente reduzir a dependência do automóvel nesses sítios.*

Portanto acho que principalmente em Lisboa há um potencial brutal, em Oeiras também há um potencial muito grande, mas depende dos sítios. Falar de Algés é uma coisa, falar ali de uma zona qualquer ao pé do Tagus Parque é outra.

(Modos de transporte mais decisivos) *Eu acho que é o transporte público ... comboio, metropolitano, metro ligeiro."*

EN: "I think there is an excessive (car) dependence because of spatial design, and the lack of alternatives.

(The three municipalities -Lisbon, Oeiras and Cascais- with fewer cars?) *It is the ideal scenario and seems realistic to me, with the right investments.*

(How many fewer cars?) *Imagining a scenario that I think is realistic, it's far from reality, but it is realistic... I would say a third of today's cars. ... I think they are very different municipalities, in Lisbon it is clearly possible, Cascais I don't know that well, I do, but not that well. And I think that, for example, in the case of Oeiras, I think that Oeiras has several realities, because it has several zones, each one of them has its own characteristics. There are areas where there is a great potential for reducing automobile dependency, and these are areas that can very easily be very well connected with public transport, and which also have a potential for cycling and walking. And then there are mobilities, which because of the suburban expansion of the city, and from car-centred thought, were developed in an isolated way, these are areas that are predominantly residential, and therefore, have no other uses, where people have to travel over long distances, obviously public transport also has a role to play there, but it is a different challenge to reduce automobile-dependency in these places.*

Therefore, I think that mainly in Lisbon there is a great potential, in Oeiras there is also a very significant potential, but it depends on the places. Talking about Algés is one thing, talking about any area near Tagus Parque is another.

(Most decisive modes of transport) *I think it's public transport ... train, subway, light rail."*

26. [Identifying an ideological shift] In your opinion has society shifted their views of urban cycling and the role of public street space (PT: *via pública*) since 2009? Has your organisation shifted? In your opinion when did this occur? Can you attribute any specific event or group of events which influenced this change?

Interviewee #2 – Epistemic actor:

PT: “A sociedade mudou de opinião e de posição sobre a bicicleta. Antes era vista como uma coisa daqueles malucos ... O próprio Presidente da República (Marcelo Rebelo de Sousa) tinha comentado que Lisboa não é ciclável, é só subidas... depois de muita pressão de pessoas da Massa Crítica, depois de muitas cartas e muitos e-mails da Massa Crítica, ele na semana seguinte veio pedir desculpa e reconhecia que a bicicleta até é um modo de transporte do futuro. Mas a sociedade, sim mudou, tens jovens a usar a bicicleta, as Gira, os pais já sabem que isso é possível, os avós que comentam: «a minha neta vai de bicicleta para a escola».”

EN: “Society changed its opinion and position regarding cycling. Before, it was seen as one of those crazy things... The President of the Republic (Marcelo Rebelo de Sousa) had commented that Lisbon is not bikeable, it's all uphill... after a lot of pressure from people from Critical Mass, after many letters and many e-mails from Massa Crítica, the following week he came to apologise and acknowledged that cycling is the transport mode of the future. But society, yes, has changed, you have young cycling on the Gira (bikeshare bicycles), parents are already aware of this possibility, grandparents who comment: «my granddaughter rides her bike to school».”

Interviewee #6 – Activist:

PT: “A sociedade mudou. Pôs-se isso (a bicicleta) na agenda política.”

EN: “Society changed. (Cycling) was placed on the political agenda.”

Interviewee #7 – Policy Broker (in office):

PT: “Sim (mudou)... Há aqui fatores no município que nós desde que chegamos em temos uma cultura de inovação permanente e, portanto, a mobilidade surge também -multifatorial- do ambiente, da qualidade de vida, etc., mas depois também há aqui uma cultura interna na câmara, nós gostamos, os trabalhadores, os nossos colegas gostam de estar num município que está à frente dos outros, o ser ‘early adopter’, novas tecnologias, é um fator. Está enraizado na cultura que nós transparecemos para o município.”

EN: “There are factors here in the municipality that since we arrived, we have a culture of permanent innovation and, therefore, mobility also emerges -multifactorial- from the environment, quality of life, etc., but then there is also an internal culture here in City Hall, we like it, the workers, our colleagues like to be in a municipality that is ahead of the others, being an ‘early adopter’, new technologies, is a factor. It is rooted in the culture that we transmit to the municipality.”

Interviewee #8 – Activist:

PT: “Acho (que mudou). ... Sinto que há menos buzinas, há menos razias, há um bocado mais compreensão, e isto tem a ver com a força dos números. O número dos utilizadores (de bicicleta) está a aumentar, e as pessoas habituam-se.(A organização) claro que mudou. ...As pessoas acho que já aceitam melhor a deslocação de bicicleta não como algo exótico, mas como algo que é normal. Também a crise nesse sentido ajudou bastante... quando a carteira fala a bicicleta torna-se muito mais óbvia.

(Quando?) Houve dois momentos: Houve ali em 2012, 2013, 2014 foram anos muito efervescentes no ativismo da bicicleta, porque parece que foi simultâneo que a Massa Crítica perdeu relevância e havia associações e grupos a fazer corridas, a fazer passeios, e as coisas multiplicaram-se. O outro ano foi a introdução da rede de bicicletas partilhadas (final de 2017).”

EN: “I think (that it has changed). ... I feel like there's less honking, there are fewer close calls, there's much more understanding, and this has to do with the strength of numbers. The number of (bicycle-)users is increasing, and people are getting used to it.

(The organisation) of course it has changed. ...I think people are more accepting of cycling not as something exotic, but as something that is normal. The crisis in this regard also helped a significantly... when the wallet speaks, cycling becomes much more obvious.

(When?) There were two moments: There was in 2012, 2013, 2014 were very effervescent years of bicycle activism, because it seems that it was at the same time that the Critical Mass lost relevance and there were

associations and groups running races, taking walks, and things multiplied. The other year was the introduction of the bikeshare system (end of 2017).”

Interviewee #9 – Former Policy Broker:

PT: “(A opinião social da bicicleta) Mudou, claramente. ... Qual é a última posição do ACP quando se fez as alterações na Baixa e agora a que tomou em relação (ao ZER)?

Eu acho que a mudança é de 2008 a 2013. Começa um bocadinho antes, começa-se a falar. Penso que o grande fator, o ponto marcante, é a intervenção na Praça do Comércio em 2009.

A bicicleta acho que é mais tarde. Acho ela começa a ganhar algum outro tipo de visibilidade em 2012, 2013. Por um lado porque a política da Câmara assumiu claramente a construção de uma rede ciclável, envolveu os stakeholders que na altura se chegaram à frente -mais institucionais, menos institucionais- para trabalhar com eles nesse sentido, começa a haver aqueles passeios de bicicleta na cidade, começamos a organizar com a Câmara de Almada a Semana da Mobilidade, a travessia do Tejo de bicicleta... Começa a haver uma visibilidade grande lá fora, e começa a haver do lado do município algumas obras e algumas concretizações nesse sentido.(Correlação) A questão fundamental ... isso tinha sido o erro de algumas estratégias anteriores, acentuavam uma espécie quase de nós e os outros, a velha questão tribalista de nós somos os bons, os outros são os maus.... Aquilo que é introduzido com o Terreiro do Paço e com aqueles dois cortes das duas ruas à frente rio, é dizer que isto não é só automóvel, mas tirando o automóvel é para todos. Onde o automóvel também tem espaço.

Quando deixa de ter uma visão tribalista, populista, de um modo de transporte, seja ele qual for, e passa a raciocinar muito mais em termos de cidade, em termos de ambiente, em termos de pessoas, etc. é mais fácil ganhar essa adesão.”

EN: “(Societal views of cycling) clearly changed. ... What is the ACP's (Automobile Club of Portugal's) last position when the changes were made in Baixa and now the one it has taken in relation to ZER (LEZ)?

I think the change is from 2008 to 2013. It starts a little earlier, you start talking. I think the big factor, the landmark, is the intervention in Praça do Comércio in 2009. Cycling I think it comes later. I think it starts to gain another kind of visibility in 2012, 2013. On one hand, because City Hall's policy clearly assumed the construction of a cycleway network, it involved the stakeholders who came forward at the time -more institutional, less institutional- and working with them in this sense, while those bicycle rides in the city are also beginning, we started to organise Mobility Week with the Municipality of Almada, the crossing of the Tagus by bicycle... and on the Municipal side some works, and some implementations also began in that direction.

The fundamental question ... this had been the error of some of the previous strategies, is that they accentuated a kind of us versus the others, the old tribal question of we are the good guys, and the others are the bad guys.... What is introduced with Terreiro do Paço and with those two sections of its two side-streets in front of the river, passes the message that this city is not just for the car, but by removing the car it becomes for everyone. Where the car also has space.

When we cease to have a tribal, populist vision of a transport mode, whatever it may be, and start to reason much more in terms of the city, in terms of the environment, in terms of people, etc. it's easier to earn this membership.”

Interviewee #10 – Former Policy Broker:

PT: “Sem dúvida que houve (uma mudança). Acho que está a haver uma mudança gradual, que se notou de 2002 para 2009. E nota-se de 2009 para agora, isso sem dúvida que há. Por uma questão de hábitos de vida mais saudáveis, pelas pessoas quererem viver mais perto do ambiente, e por questões ambientais. Por questões físicas e ambientais.

...Acho que foi paulatino, não foi com grandes saltos, acho que foi uma mentalidade que se foi criando aos poucos.”

EN: “No doubt there was (a change). I think there is a gradual change taking place, which was noticed from 2002 to 2009. And from 2009 to now, there is no doubt that there is. For the sake of healthier lifestyle habits,

for people wanting to live closer to the environment, and for environmental reasons. For physical and environmental reasons.

...I think it was gradual, it wasn't with big leaps, I think it was a mentality that was created little by little."

Interviewee #11 – Journalist:

PT: "Sinto que houve, não sei se é a palavra certa, uma certa profissionalização na atuação da MUBi -acho que não é a palavra certa, não é uma associação profissional-... E acho que se estreitaram os laços de ligação com a autarquia de Lisboa, e sei que a MUBi também tem outras secções ativas, em Aveiro, que acho que fazem um trabalho muito bom, apesar da autarquia local. Portanto acho que a grande diferença, foi que passou a ser muito considerada no meio autárquico, sobretudo em Lisboa, portanto passou a ser consultada e a procurar ser consultada. ...

...Acho que conta muito a abertura dos órgãos autárquicos para ouvir estas associações, e acho que isso se calhar aconteceu com maior intensidade, eu diria mesmo em Lisboa com o Fernando Medina, mais do que com o António Costa, parece-me."

EN: "I feel that there was, I don't know if it's the right word, a certain professionalisation in MUBi's performance -I don't think it's the right word, it's not a professional association-... And I think that the links with the Lisbon municipality have strengthened, and I know that MUBi also has other active sections, in Aveiro, which I think do a very good job, despite the local government. Therefore, I think the major difference was that it came to be highly regarded in municipal governments, especially in Lisbon, so it started to be consulted and it also sought being consulted. ...

...I think the opening of municipal governments to listen to these associations counts a great deal, and I think that maybe it happened with greater intensity, I would even say in Lisbon with (Mayor) Fernando Medina, more than with (his preceding Mayor) António Costa, it seems to me."

27. [Identifying policy events] If you could define one principal event which boosted cycling in the city, which event would you point to? Any other events you would consider relevant?

Interviewee #2 – Epistemic actor:

PT: "Em Lisboa, as bicicletas partilhadas e a infraestrutura."

EN: "In Lisbon, the bikeshare system and infrastructure."

Interviewee #3 – Activist:

PT: "Em Lisboa, as introdução das Giras (bicicletas partilhadas). Em Oeiras e Cascais não sei (se houve algum evento)."

EN: "In Lisbon, the introduction of the Gira (bikeshare system). In Oeiras and Cascais I don't know if there was any event)."

Interviewee #4 – Citizen:

PT: "Não há nenhum um evento que se possa atribuir ... Houve um evento no final da década de 1990, o campeonato do mundo de ciclismo, mas infelizmente foi uma coisa tão mal aproveitada. ...Podia ter sido um evento realmente importante na altura... podia ter sido aproveitado.

As Massas Críticas tiveram o seu tempo áureo. As ciclovias e alguns passeios da federação, acabaram por motivar pessoas para começar a andar, os passeios nessa altura tiveram muita importância também. Sem dúvida as ciclovias, as ciclovias nas Avenidas Novas e a aparecimento das Giras.

Agora a própria organização da Gira está a falhar... não sai dali. Na zona ocidental de Lisboa não tens Gira. E quando falo da zona ocidental, estou a falar da zona ocidental para (oeste) de Santos ...

(Um evento único?) As Massas Críticas entre Lisboa e Oeiras correram bem, mas não estou a ver um único evento. Houve um conjunto de eventos."

EN: *"There is no one event that can be attributed... There was an event in the late 1990s, the cycling world championship, but unfortunately it was such a poorly explored thing. ...It could have been an important event at the time...it could have been taken advantage of.*

The Critical Masses had their heyday. The cycleways and some of the "federation's" (FPCUB) bike rides ended up motivating people to start riding, the bike rides at that time were also very important. Without a doubt the cycleways, the cycleways on Avenidas Novas and the appearance of Gira's (public bikeshare system).

Now Gira's organisation itself is failing... it doesn't expand. In the western part of Lisbon you don't have Gira. And when I talk about the west side, I'm talking about west of Santos... (A unique event?) The Critical Mass (protest rides) between Lisbon and Oeiras went well, but I'm not seeing a single event. There were a set of events."

Interviewee #5 – Policy Broker:

PT: *"(Em Lisboa) O plano de ciclovias que foi criado, foi criticado por alguns setores, mas que eu defendo. Foi a questão da proibição dos automóveis mais antigos no centro... com muitas pessoas a reclamar. As bicicletas partilhadas também."*

(Em Cascais) as bicicletas partilhadas.

(Em Oeiras) não vejo."

EN: *"In Lisbon) The cycleway plan that was created was criticised by some sectors, but I defend it. It was the issue of banning older cars from the centre... with many people complaining. Bikeshare too."*

(In Cascais) Bikeshare.

(In Oeiras) I don't see anything."

Interviewee #6 – Activist:

PT: “Os transportes públicos levaram uma grande pancada... claramente há a questão financeira (de 2010)... (O pico) da crise de 2011-2013 foram dois anos que coincide com os picos da Massa Crítica e os picos dos média, usando a ‘Cenas a Pedal’ como um proxy do interesse dos média na bicicleta. Na cidade quanto mais fora em termos de status, a pessoa mais paga para mostrar o status. Social ‘signalling’ típico de sociedade desiguais. (Mostra) o nível de desigualdade. Onde é que estás em termos sociais tem mais importância do que em sociedades mais iguais.

A questão de 2012, 2013 é que a pressão da população que quer dar hipótese à bicicleta, mas também o facto de ser uma coisa que afetou a sociedade de uma forma ampla, fez com que se reduzisse o estigma. Há muito mais gente ... O estigma mesmo de não ter dinheiro. A cena de levar marmitas de-estigmatizou-se, porque toda a gente estava na mesma situação. ... A questão económica e associada ao facto de isso ter retirado o estigma. (Houve) mais pessoas para começar a andar de bicicleta, de extratos diferentes, as bicicletas elétricas começaram a ter mais procura, porque antes também havia um estigma “é batotice”. Nessa altura começamos a ter advogados, etc. (a usar a bicicleta), 2012, 2013 de repente mudou. No momento que essas pessoas andam de bicicleta, isso reduz o estigma para os que precisam mesmo (de usar a bicicleta).

EN: “Public transport took a big hit... clearly there is the financial issue (from 2010) ...

The 2011-2013 crisis (peak) corresponds to two years that coincide with the peaks of Critical Mass and the peaks of media coverage, using ‘Cenas a Pedal’ as a proxy for media interest in the bicycle.

In the city the more peripheral someone is in terms of status, the more one must pay to show status. This is social signalling typical of unequal societies. (It reveals) the level of inequality. Where you are in social terms matters more (in unequal societies) than in more equal societies.

The problem in 2012, 2013 was the pressure from the population that wants to give cycling a chance, but also the fact that it is something that had affected society on a general level, it reduced the stigma. There are many more people... The stigma of not having money. The lunchbox scene de-stigmatised itself, because everyone was in the same situation. ... The economic problems was associated with the fact that this removed the stigma. (There were) more people who started cycling, from different backgrounds, electric bicycles began to have greater demand, because before there was also a stigma regarding that; “it’s cheating”. At that time, we started to have lawyers, etc. (cycling). 2012, 2013 suddenly changed. The moment these people cycle, it reduces the stigma for those who really need (to cycle also).”

Interviewee #6 – Activist:

PT: “Cascais tem claramente, pelo menos politicamente, em termos de investimento e em termos discurso político, fez mais coisas (do que Oeiras). Mesmo nas ciclovias que vejo lá, não vejo ninguém a andar, porque aquilo é muito automobilizado. ... É como Lisboa. Porque é que as ciclovias do Eixo Central, a coqueluche, tiveram sucesso? Porque estão numa zona que facilmente congestionam. Aquilo funciona porque oferece uma vantagem competitiva, em vez de te meter no trânsito há ali um corredor reservado. Noutras zonas da cidade há ciclovias recentes, mas a estrada ao lado, às vezes uma autoestrada, não chega a congestionar. ... E como Stevenage, espetacular, espetacular, mas aquilo também é espetacular para carros, as pessoas vão para os carros.

(Nos últimos dez anos) a questão do bike-sharing e as ciclovias no Eixo Central, por razões de ter dado visibilidade (onde) ... antes tinhas um estigma ... de repente dá uma visibilidade e uma legitimidade. ... É muito visível lá, isso com as Gira, de repente, tiveram um efeito; ciclovias e bike-sharing. Isso é muito importante no sentido da percepção social.

A crise faz o que o governo não tem coragem para fazer ativamente ... A crise criou restrições, que podem ser económicas ou físicas. Por exemplo o estacionamento podia ser muito mais caro do que é.

Os picos das Massas Críticas e das notícias, foi muito importante, e nas redes sociais normalizou-se culturalmente aquilo, e fez-se com que mais pessoas participassem (nos grupos, na Massa Crítica), tivessem... como andar de bicicleta.

Essa parte de sociabilização acho que é fundamental, dessas redes, da exposição que essas obras ou que esses investimentos tiveram na sociedade como um todo. Obviamente não é suficiente, se não, não tínhamos a quantidade de carros que continuamos a ter.”

EN: *“Cascais has clearly done more things (than Oeiras), at least politically, in terms of investment and in terms of political discourse. Even on the cycleways I see there, I don't see anyone cycling, because it's very motorised. ... It's like Lisbon. Why are the cycleways on the Central Axis, the attention-grabbers, so successful? Because they are in an area that easily gets congested. It works because it gives you a competitive advantage, instead of putting you in car-traffic, there is a reserved corridor for you there. In other areas of the city there are recent cycleways, but the road beside it, sometimes a highway, doesn't get congested. ... And like Stevenage, spectacular, spectacular, but that's also spectacular for cars, people go by car.”*

“(Over the last ten years) the issue of bike-share and cycleways on the Central Axis, for reasons of having given visibility (where) ... before you had a stigma ... now suddenly it gets visibility and legitimacy. ... It's very visible there, that with Gira, all of a sudden, it had an effect; cycleways and bike-sharing. This is very important in terms of social perception.

The crisis does what the government does not have the courage to actively do... The crisis has created restrictions, which may be economic or physical. For example, car parking could be a lot more expensive than it is.”

“The peaks of the Critical Mass (protest rides) and the news were very important, and on social networks that was culturally normalised, with more people being able to participate (in the groups, in the Critical Mass), to be able to... cycle.

This socialisation part, I think, is fundamental, these networks, the exposure that these works or that these investments had in society as a whole. Obviously, it's not enough, if it were we wouldn't have the amount of cars we still have.”

Interviewee #7 – Policy Broker (in office):

PT: *“Não é só steering. ...Estamos steering a sociedade, mas estamos numa competição intermunicípios. Esta cultura de competição que nós queremos liderar, existe essa cultura, e o nosso concorrente direto é Lisboa, não é Oeiras. Oeiras está pressionado no meio de uma sanduiche... deixou de ser um concelho líder ... Estamos em competição direta com Lisboa. E estamos constantemente.*

Há uma competição direta saudável com Lisboa e com outros municípios, nós colocamos sempre Lisboa, mas depois colocamos Barcelona, colocamos outras. É bom um município ... ter a ambição de competir com outrosSomos parceiros de Pontevedra, fazemos parte da mesma rede europeia CIVITAS. ... Fazemos parte desta rede e partilhamos muita coisa.”

EN: *“It's not just steering. ...We are steering society, but we are in an intercity competition. This culture of competition that we want to lead, there is this culture, and our direct competitor is Lisbon, not Oeiras. Oeiras is pressed in the middle of a sandwich... it is no longer a leading council... We are in direct competition with Lisbon. And constantly.*

There is healthy direct competition with Lisbon and with other municipalities, we always place Lisbon, but then we place Barcelona, we place others. It is good ...to have the ambition to compete with others. ...We are partners with Pontevedra, we are part of the same European CIVITAS network. ... We are part of this network and we share many things.”

Interviewee #7 – Policy Broker (in office):

PT: *“Eu lembro-me que o Sá Fernandes até tinha um problema que era como é que ligava Lisboa a Cascais?”*

EN: *“I remember that Sá Fernandes had a problem, which was how was he going to connect Lisbon to Cascais?”*

Interviewee #8 – Activist:

PT: *“(Na AML) houve pessoas a mobilizar a Massa Crítica para Oeiras, falou-se na tal Ciclovia na Marginal.”*

EN: “(In the AML) there were people mobilising for the Critical Mass to Oeiras, the *Ciclovia na Marginal* (cycleway on the coastal avenue) was talked about.”

Interviewee #9 – Former Policy Broker:

PT: “*Em Oeiras é o passeio ribeirinho e o fecho da Marginal (Mexa-se na Marginal e Marginal Sem Carros). ... Em Cascais estão muito mais avançados. Começaram logo, as bicicletas partilhadas foram logo introduzidas, aquela integração tarifária, os transportes gratuitos, aquilo começou a criar uma outra coisa.*

O segredo destas coisas é saber conjugar o progressismo, medidas progressivas, com roturas. ... Aquilo na Praça do Comércio foi uma rotura.”

EN: “*In Oeiras it is the riverside walk and closing the Marginal to car-traffic (Mexa-se na Marginal and Marginal Sem Carros). ...*

In Cascais they are much more advanced. They started right away, bike-share was introduced early on, tariff integration, free transport, that started to create something else.

“The secret of these things is knowing how to combine progressivism, progressive measures, with ruptures. ... That thing at Praça do Comércio was a rupture”

Interviewee #10 – Former Policy Broker:

PT: “*Mesmo a ciclovia de Cascais (-Guincho) não era uma solução de mobilidade, era uma solução de lazer. ... Houve a ciclovia em 97, acho que isso foi um marco importante em Cascais. ... Aqui em Lisboa houve as ciclovias aqui nas Avenidas Novas, acho que foi uma mudança grande. ... Cascais nada de equivalente. Em Oeiras muito menos nesse domínio, Oeiras ainda menos.*

Lisboa está muito mais à frente nessa área do que Cascais ou Oeiras. ...”

“Eu para ir ao café ...eu pego no carro, e eu não me importo nada de ir a pé ou de ir de bicicleta, mas na verdade é intransitável. ...Fazia tudo de bicicleta, mas havia muito menos carros. Agora não me sinto seguro. ...Há uma necessidade enorme de investimento público nessa área, porque a partir do momento em que haja ciclovias, e que seja possível fazer estas deslocções...”

“...Tem que se tirar espaço ao carro... algumas (ciclovias) têm que ser estruturantes... Toda a gente acha compreensível que se exproprie terrenos para fazer uma estrada, mas não passa pela cabeça de ninguém expropriar terrenos para fazer uma ciclovia (dedicada). Mas porque não? Porque é que não pode ser? Também é uma via de deslocação... Quando é para carros, é pá, expropria-se e pronto, e toda a gente acha normalíssimo que haja uma expropriação para construir uma estrada. Mas se for para construir uma ciclovia é pá e tal, que fortuna, que disparate.”

EN: “*Even the Cascais(-Guincho) cycleway wasn't (thought out as) a mobility solution, it was a leisure solution. ... There was the cycleway in 97, I think this was an important milestone in Cascais. ... In Lisbon there were cycleways in Avenidas Novas (uptown city neighbourhood), I think it was a big change. ... Cascais has nothing like that. In Oeiras has much less in this field, Oeiras even less.*

Lisbon is much more advanced in this area than Cascais or Oeiras!”

“For me to go to the café ... I get in the car, even though I don't mind walking or cycling at all, but it's inaccessible. ...I used to do everything by bicycle, but there were a lot less cars. Now I don't feel safe. ...There is a huge need for public investment in this area, because as soon as there are cycleways, it becomes possible to make these trips...”

“...You have to take space from the car... some (cycleways) have to be structuring... Everyone thinks it's understandable that land is expropriated to build a road, but it doesn't occur to anyone to expropriate land to build a dedicated cycleway. But why not? Why can't it be? It's also a route for mobility... When it's for cars, hey, no problem, expropriate it and that's it, and everyone thinks it's very normal for there to be an expropriation to build a road. But if you're going to build a cycleway, hey, what's that, what a fortune, what nonsense!”

Interviewee #11 – Journalist:

PT: *(Meter a bicicleta na agenda: Em Lisboa) Mais uma vez, claramente o Eixo Central. (Em Oeiras) ...Se calhar num meio mais ativista, se calhar um bocadinho mais fechado, e não tão prime time jornal da noite,*

discussão alargada pública, mas acho que a proposta ao Orçamento Participativo da Ciclovia na Marginal foi uma coisa que uniu bastantes pessoas, nem que seja remotamente, e nas redes sociais, e que pôs pessoas a falar da necessidade de criar condições seguras num eixo que é fundamental e que tem um potencial gigante para a utilização da bicicleta. Eu acho que a proposta da Ciclovia na Marginal em Oeiras, foi assim de repente, parece-me um dos eventos mais significativos que pôs as pessoas a falar e a discutir. E que no fundo até zangou as pessoas, porque houve uma desconsideração de uma consulta pública que devia ser vinculativa quase, e que foi aceite e que depois não foi aceite, e que foi todo um processo estranho. E que mostrou a adesão e a vontade das pessoas - pelo menos das que mostraram a intenção de participar- e que depois foi desconsiderada por uma autarquia. Mas acho que isso foi um momento muito importante de discussão, e que abriu a discussão mais séria e de forma alargada sobre a bicicleta em Oeiras.

(Os Orçamentos Participativos em Lisboa) acho que são superimportantes, e acho que foram se calhar um dos primeiros motores até para a ação política... e se calhar até para levantar o interesse das pessoas. Eu lembro-me de ainda não estar tão envolvido e se calhar estar a começar a pensar na bicicleta e ver as propostas no Orçamento Participativo e de achar importante. E acho que em Lisboa até quem foi o percursor da ação política mais determinada até foi a vontade dos cidadãos com as propostas do Orçamento Participativo.

(Em Cascais) ...não me lembro de nada de iniciativa de cidadãos, não me lembro nada de muito grande... E acho que é um concelho com imenso potencial.

EN: *“(Putting cycling on the agenda: In Lisbon) Once again, clearly the Central Artery (Avenida Fontes Pereira de Melo – Praça Saldanha – Avenida da República). (In Oeiras) ...Maybe in a more activist environment, maybe a little more closed, and not so prime time evening news, wide public discussion, but I think the proposal for the Participatory Budget of the ‘Ciclovia na Marginal’ (Cycleway in the Marginal) was something that brought together many people, even remotely, and on social networks, and that made people talk about the need to create safe conditions in an artery that is fundamental and that has a huge potential for bicycle-use. I think that the proposal for the ‘Ciclovia on the Marginal’ in Oeiras, it seems to me, one of the most significant events that got people talking and discussing. And that actually made people angry, because there was a disregard for a public consultation that should have been almost binding, first it was accepted and then it was not accepted, and that was a very strange process. It showed the commitment and the willingness of people - at least those who showed the intention to participate - and that was later disregarded by the municipal government. But I think this was a very important moment of discussion, and that it opened a more serious and broader discussion about cycling in Oeiras.*

(Participatory Budgets in Lisbon) I think they are super-important, and I think they were perhaps one of the first engines for political action (from citizens) ... and perhaps even to raise people's interest. I remember not being that involved yet and maybe starting to think about the bicycle and seeing the proposals in Participatory Budgeting and thinking it was important. And I think that in Lisbon even the forerunner of the most determined political action was the will of the citizens with the proposals of the Participatory Budget.

(In Cascais) ...I don't remember anything about citizens' initiatives, I don't remember anything very big... And I think it's a municipality with enormous potential.”

Identifying cyclists' coalition actors

28. What kind of cooperative behaviour of the organisations could you attest to in the coalition network regarding changing perspectives towards cycling in Lisbon (Oeiras, or Cascais)? (from Wagner & Ylä-Anttila, 2018, p. 878)

Interviewee #1 – Citizen:

PT: *“Vejo nas redes sociais... ‘Ciclovia na Marginal’ e outros grupos de ciclistas nas rede sociais.”*

EN: *“I notice this in the social networks... ‘Ciclovia na Marginal’ and other groups of cyclists on the social networks.”*

Interviewee #2 – Epistemic actor:

PT: “As duas federações (FPC/UVP e FPCUB), a MUBi e a Bicicultura. A Cicloficina, que já existia desde 2007.”

EN: “The two federations (FPC/UVP and FPCUB), MUBi, and Bicicultura. Cicloficina already existed since 2007.”

Interviewee #4 – Citizen:

PT: “A bicicleta é única, e existem várias maneiras de andar de bicicleta, mas a maioria das organizações estão fechadas entre si... todas. Todas procuram ter o seu protagonismo, ter influência sobre quem decide, e nunca trabalharam em conjunto.

(Em Lisboa) a Massa Crítica devia procurar novas formas de intervenção. O paradigma mudou muito, a MC devia ser muito mais de sensibilização e apoio do que provocação (quando temos um executivo municipal favorável à bicicleta). Não podemos ir fazer uma Massa Crítica para a Avenida da República quando já temos uma ciclovia. Vais empatar o tráfego porquê?”

“Tu de Lisboa não tens para onde sair. Vais para a Marginal é o que é... corres risco de vida. Se queres ir para norte também não tens para onde ir, se queres ir para o Oeste, também não tens por onde ir. Portanto nós daqui não temos nenhum sítio por onde ir. Não temos permeabilidade (para ir de bicicleta). Aí fazia todo o sentido (uma Massa Crítica).”

“A Massa Crítica em Oeiras faz sentido, mais do que em Lisboa, numa provocação de espaço, na Marginal... Não custa para já, reivindicar uma manhã por semana para as bicicletas e para os modos suaves. Uma Massa Crítica um domingo de manhã de reivindicação de um dia por semana na Marginal. Isto era um começo, até porque existem muitas alternativas (para os carros)... A Ponte outra reivindicação, mais difícil, com a polícia, etc. Mas a Marginal era um bom início para reivindicar espaço... e aí juntar tudo, não só a Massa Crítica de pessoas que andam de bicicleta pela mobilidade, mas juntar toda a gente.”

EN: “Cycling is unique, and there are many ways to cycle, but most of the organisations are closed within themselves each...all of them. They all seek to play a leading role, to influence whoever decides, and they never worked together.”

(In Lisbon) Critical Mass should look for new forms of intervention. The paradigm has changed a lot, Critical Mass should be more about awareness and support than provocation (when we have a municipal executive in favour of cycling). We cannot go to a Critical Mass along Avenida da República when we already have a cycleway. Why are you going to tie up traffic?”

“From Lisbon you have no way to get out. You go to the Marginal (avenue) and it is what it is... you risk your life. If you want to go north you don’t have a way out, if you want to go west you also have no way to go. So, we here have nowhere to go. We don’t have permeability (for cycling).”

Interviewee #5 – Policy Broker:

PT: “Massa Crítica, Ciclovia na Marginal, e um grupo de Barcarena ... Cicloidesportivo de Barcarena e o Estúdio Nirvana, eles propuseram-me criarem eles as condições para fazer um caminho. ... propuseram fazer ali pequenas obras, eles próprios, fizeram pequenos ajustes (em 2018).”

EN: “Critical Mass, ‘Ciclovia na Marginal’, and a group from Barcarena ... ‘Cicloidesportivo de Barcarena’ and ‘Estúdio Nirvana’, they proposed that I create the conditions for them to make a cycleway. ... they proposed to do small works there themselves, they made small adjustments (in 2018).”

Interviewee #6 – Activist:

PT: “A MUBi podia perfeitamente ter sido feita com a ‘federação’ (FPCUB) e seria mais forte.”

EN: “MUBi could have been perfectly made with the ‘federation’ (FPCUB) and it would be stronger.”

Interviewee #8 – Activist:

PT: “Só uma ressalva. É uma lógica difusa, não acho que é por estas coisas acontecerem que tenham necessariamente provocado uma mudança, estou a dizer é que elas fazem parte da própria mudança. Quando os eventos, acontecimentos, agremiações, ajuntamentos de pessoas que andam de bicicleta acontecem, eles não estão a provocar necessariamente a mudança. A mudança está sempre em andamento, e só é reconhecida como mudança quando há uma leitura retrospectiva.”

EN: “Just one caveat. It's a fuzzy logic, I don't think it's because these things happen that they have necessarily brought about a change, what I'm saying is they are part of the change itself. When events, happenings, associations, gatherings of people who cycle happen, they are not necessarily bringing about change. Change is always in progress and is only recognised as change when there is a retrospective reading of the moment.”

Interviewee #8 – Activist:

PT: “Presenciei... fazerem-se fóruns com os tipos da Massa Crítica, convidarem-se intervenientes protagonistas às eleições para terem a bicicleta nos seus programas políticos, organizações e mobilizações para se fazerem associações como a MUBi, ajuntamento de pessoas para a Cicloficina, para passeios, para corridas, as Alley-Cats (houve entre c. 2011 e 2015 ou 2016).

A bicicleta é sobretudo um ponto de encontro, social. Profundamente social. A quantidade de pessoas que conheci graças à bicicleta é muito maior do que a quantidade de pessoas que conheci com outro meio.”

EN: “I witnessed... forums which were held with the guys from Critical Mass, election candidates were invited to include cycling in their political programs, organisations and mobilisations were done to form associations such as MUBi, joining people for ‘Cicloficina’, for cycle rides, for races, for Alley-Cats (which were held between c. 2011 and 2015 or 2016).

The bicycle is above all a social meeting point. Deeply social. The amount of people I met thanks to bicycle-use activities is much greater than the amount of people I met by other means.”

Interviewee #9 – Former Policy Broker:

PT: “Isso foi o trabalho que produzimos e que as várias associações de ciclistas exigiam. Participaram e foi bastante importante, e permitiu chegar às soluções de compromisso. São essenciais.

...Era para ser feito um conselho para a mobilidade, mas ainda não (foi feito).”

EN: “This was the work that we produced and that the various cyclist associations demanded. They participated and it was very important and allowed to reach compromise solutions. They are essential.

...A mobility council was supposed to be activated, but it has not (been done) yet.”

Interviewee #10 – Former Policy Broker:

PT: (Comportamentos cooperativos, entre organizações) “Eu diria que nenhuma. Notei algumas vontades individuais sobretudo de técnicos da Câmara, havia na Câmara de Cascais. Técnicos camarários. ... De professores de educação física também; alguns professores de educação física eram apologistas da bicicleta e organizavam uns passeios e tal. A única associação era aquela de cicloturismo de Matos Cheirinhos, digamos que organizavam dois eventos por ano, de cicloturismo, saíam davam um passeio Era mais uma coisa de convívio do que de militância da bicicleta.

...Em Cascais nada. Em Lisboa acho que houve mais ação nesse domínio. ...As ações foram importantes.”

EN: (Cooperative behaviour, between organisations) “I would say there was none. I noticed some individual will, especially from municipal technicians, there were in some in Cascais Town Hall. Municipal technical staff. ...Also, from some physical education teachers; some physical education teachers were apologists of cycling and organised tours and so forth. The only association was that of cycle tourism in Matos Cheirinhos, they organised two events a year, for cycle tourism, they went out and had a cycle ride... It was more of a conviviality thing than of bicycle activism.

...In Cascais nothing. In Lisbon I think there was more action in this area. ...These actions were important.”

29. With which (of the listed organisations, or others, specify) does your organisation cooperate regularly?

Interviewee #10 – Former Policy Broker:

PT: (Em Cascais) “*em termos de bicicleta, nada.*”

EN: (In Cascais) “regarding cycling, nothing.”

An open-ended discussion ensued with several interviewees from this point on in the interview. From Wagner & Ylä-Anttila's (2018) ACF analysis of a policy process attempting change, the following approach and subsequent questions were posed to interviewees:

30. What organisation can link the various different and opposing actors?

Interviewee #1 -Citizen:

PT: “*Câmara Municipal.*”

EN: “*City Hall.*”

Interviewee #2 – Epistemic actor:

PT: “*Talvez a FPCUB, mas porque têm um estilo semelhante (aos interesses do automóvel).*”

EN: “*Maybe FPCUB, but because they have similar styles (to automobility).*”

Interviewee #4 - Citizen:

PT: “*Neste momento não vejo nenhum.*”

EN: “*At the moment I can't see any.*”

Interviewee #7 – Policy Broker (in office):

PT: “*São os autarcas que fazem isso.*”

EN: “*Municipal politicians do that.*”

Interviewee #8 – Activist:

PT: “*Não há ninguém.*”

EN: “*There's no one.*”

Interviewee #9 – Former Policy Broker:

PT: “*O Município. Atualmente não vejo ninguém. Podia haver uma pessoa, que ligava isso, que é o Ricardo Veludo, novo vereador de urbanismo, mas não sei se lhe deixam.*”

EN: “*The Municipality. I currently don't see anyone. There could be a person who would link this, which is Ricardo Veludo, the new town planning deputy-mayor (in 2020), but I don't know if they will let him.*”

Interviewee #10 – Former Policy Broker

PT: “Alguém que consiga equilibrar as duas (coligações)? Confesso que não me ocorre ninguém, há malta dos dois lados... **Eu acho que tem que ser mesmo por consenso, até porque não pode ser por oposição. Até porque aqui está um caso de liberdade individual.... Aqui até mais do que consenso. Pode haver uma questão de liberdade individual: ciclovias e estradas, quem quer vai de carro, quem quer vai de bicicleta.**

...Em Lisboa tens um território muito mais limitado do que em Cascais... em Lisboa para construíres uma ciclovia tens que roubar espaço ao automóvel, em Cascais podes construir ciclovias sem roubar espaço ao automóvel em muitos casos.

Na verdade, em Cascais, a questão do automóvel é mais um hábito do que uma causa.”

EN: “*Someone who could balance the two (coalitions)? I confess that nobody occurs to me, there are people on both sides... I think it must be by consensus because it cannot be by opposition. Also, because here is a*

case of individual freedom... Here even more than consensus There may be an issue of individual freedom: cycleways and roads, whoever wants goes by car, whoever wants goes by bicycle.

...In Lisbon you have a much more limited territory than in Cascais... in Lisbon to build a cycleway you must steal space from automobility, in Cascais you can build cycleways without taking space from the car in many cases.

In fact, in Cascais, the automobile issue is more a habit than a cause.”

Interviewee #11 – Journalist:

PT: “Acho que o papel de mediação... sou da opinião de que cabe muito às autarquias. Porque o trabalho político delas lucra também do envolvimento das associações e grupos. ...A figura máxima do município, o presidente da câmara, acho que a vereação da mobilidade, o vereador da mobilidade acho que deve fazer por ter uma relação boa mesmo com a malta do lóbi automóvel e com os restantes, para tentar pô-los na mesma mesa. O papel principal de pô-los à mesa cabe à autarquia. Obviamente, se a MUBi conseguir tomar a iniciativa e conseguir sentar à mesa os atores, perfeito, acho que a MUBi também tem a consciência de que é importante procurar alguns consensos.”

EN: “I think the role of mediation... I am of the opinion that much is up to municipalities. Because their political work also benefits from the involvement of associations and groups. ...The highest figure of the municipality, the mayor, I think the mobility deputy mayor’s office, the mobility deputy mayor, I think it should be done so as to have a good relationship even with the automobile lobby people and with the rest, to try to put them at the same table. The principal role of putting them at the table rests upon the municipality. Obviously, if MUBi manages to take the initiative and manages to sit the actors down at the table, perfect, I think that MUBi is also aware that it is important to seek some consensus.”

“To understand the factors that shaped how these issues were addressed in the law, we set out to answer two questions:

- 31. a) Which organisations saw their preferences on these issues reflected in the law, and
b) What role did cyclists’ coalitions play in the policy process?” (p. 885)**

Interviewee #1 – Citizen:

PT: “Carros, ACP.”

EN: “Cars, ACP.”

Interviewee #2 – Epistemic actor:

PT: “Quase todas as que se mexeram. Penso que a MUBi, a FPCUB. Influenciar influenciaram, não sei se foi das melhores maneiras. E mesmo na direção do que é hoje a cidade ... Os últimos vereadores da mobilidade eram bastante diferentes: Nunes da Silva e Miguel Gaspar. ... Tinham visões muito diferentes do que seria a bicicleta, e foram influenciados os dois.

Antes haveria alguma influência, tímida, mas havia conversas.”

EN: “Almost all the ones that mobilised. I think that MUBi, FPCUB. Influence, they did influence, I don't know if in the best ways. And even in the direction of what the city is today... The last mobility deputy mayors were quite different: Nunes da Silva and Miguel Gaspar. ... They had very different visions of what cycling would be, and they were both influenced.

Before there would be some influence, timid, but there were conversations.”

Interviewee #3 – Activist:

PT/EN: MUBi.

Interviewee #4 - Citizen:

PT: “A MUBi e a FPCUB conseguiram. Penso que a FPC/UVV não fez nada por isso, já tem o seu estatuto discutido.

A FPCUB, apesar de tudo, têm conseguido alguma coisa. As associações, apesar de tudo, tido um papel definitivo.”

EN: “MUBi and FPCUB succeeded. I think the FPC/UVV didn't do anything about it, it already has its status conferred.

FPCUB, despite everything, has achieved something. The associations, despite everything, had a definitive role.”

Interviewee #5 – Policy Broker:

PT: “Teria que ser uma pessoa com força política a nível nacional, o Secretário de Estado do Ambiente, por exemplo... Poderia ser uma figura importante, mas não existe, (a nível histórico) não estou a ver.”

EN: “It would have to be a person with political power at the national level, the Secretary of State for the Environment, for instance... He/she could be an important figure, but (at a historical level) it doesn't exist, I don't see it.”

Interviewee #6 – Activist:

PT: “Nos últimos dez anos obviamente houve uma notória (evolução) ao nível do Código da Estrada...Um esforço multipartido, a MUBi trabalhou bastante nisso, a federação (FPCUB) também. (Mais recentemente) programas implementados, o incentivo à mobilidade elétrica. (Depois há) os próprios projetos (que) morrem, o Ciclando foi fantástico e ficou na gaveta.”

EN: “Over the last ten years there has obviously been a notorious (evolution) at the level of the Traffic Code... A multi-party effort, MUBi has worked a great deal on it, and the ‘federation’ (FPCUB) also.

(More recently) implemented programs, the encouragement of electric mobility.

(Then there are) the projects themselves (which) die, Ciclando was fantastic, and it was placed in the drawer.”

Interviewee #8 – Activist:

PT: “Sim de uma forma translúcida, não de uma forma transparente. Alguma coisa há de ter feito a FPCUB e a MUBi, acho que deverão ter modificado e sensibilizado alguma coisa. Ao nível autárquico, um pouco menos, quanto a mim, ao nível nacional.”

“Quando há um avanço ao nível legislativo, nalguma política ligada com isso, há uma tendência narrativa a ligarem-se as duas coisas... Há uma correlação, mas não quer dizer que tem de haver um fenómeno de causa e efeito. ... quanto a mim o grosso das políticas públicas sobre a bicicleta em Portugal foi fomentado pelo papão das alterações climáticas e pelas questões relacionadas com o ambiente. Claro que depois isto tem uma capilaridade a nível micro, em que o legislador, os políticos, são sensíveis não só a essas associações que nomeie, mas também à quantidade (de utilizadores de bicicleta) e ao ativismo, ou seja, cada utilizador de bicicleta em si mesmo é um ator político. A quantidade crescente de utilizadores de bicicleta... no limite é o facto de haver aqui mais ciclistas.”

EN: “Yes in a translucent way, not in a transparent way. FPCUB and MUBi must have done something, I think they must have modified and sensitised something. At the municipal level, and a little less, for me, at the national level.”

“When there is progress at the legislative level, in some policy connected with this, there is a narrative tendency to link the two things... There is a correlation, but that does not mean that there has to be a cause-and-effect phenomenon. ... in my opinion, the bulk of public policies for cycling in Portugal were fostered by the bogeyman of climate change and issues related to the environment. Of course, this has a capillary effect at the micro level, in which the legislator, the politicians, are sensitive not only to those associations that I named (MUBi and FPCUB), but also to the quantity (of cyclists) and activism, which is to say that each bicycle user is a political actor in himself. The growing number of bicycle users... at the limit is the fact that there are more cyclists here.”

Interviewee #9 – Former Policy Broker:

PT: *“A MUBi desde que se institucionalizou teve um papel importante em torno de um conjunto de legislação. E apoio nosso em relação ao recenseamento de 2011 para que a bicicleta constasse. A gente fez um trabalho político nessa matéria muito importante.*

E agora você está a trabalhar com uma das pessoas mais importantes nesta matéria (mobilidade sustentável e cidades), que é o José Carlos Mota.”

EN: *“Since its institutional founding MUBi has had an important role around a set of legislative outputs. And our support in relation to the 2011 census so that the bicycle could be registered. We did very important political work in this matter.*

And now you are working with José Carlos Mota, one of the most important people in this area (of placing sustainable mobility and cities in the institutional agenda).”

Interviewee #11 – Journalist:

PT: *“Eu acho que há um jogo de forças. Acho que as últimas alterações ao Código da Estrada... Eu acho que finalmente a malta que defende a mobilidade sustentável, nomeadamente a malta das bicicletas, teve um papel relativamente importante na definição e nalgumas coisas que mudaram no Código das Estrada, nas últimas alterações ao Código da Estrada. Mais, mas eu acho que continua a haver um jogo de forças entre aquilo que é a vontade destas associações a por exemplo o lóbi automóvel e aos outras associações que estão muito mais estabelecidas. ...*

Em Lisboa, claramente, também acho que nos últimos 4, 5 anos acho que houve uma mudança extraordinária, e acho que a vontade expressa pelas associações que representam os peões, os utilizadores da bicicleta, já estão claramente expressas na estratégia municipal e mesmo nos planos municipais que estão a decorrer. ...Em Lisboa o manual e o regulamento do espaço público, de fazer as ciclovias e os passeios, e não sei quê, aí vê-se refletida aquilo que tem sido a vontade manifestada pelas associações que defendem os peões os utilizadores de bicicleta, acho que aí o ativismo e o papel das associações têm sido importante.”

EN: *“I think there's been an arm wrestle. I think the latest changes to the Traffic Code... I think that finally the people who defend sustainable mobility, namely the bicycle people, had a relatively important role in the definition and in some things that changed in the Traffic Code, in the last changes. Plus, I think that there is still an arm wrestle between what these associations want, and for example the car lobby and other associations that are much more established want. ...*

In Lisbon, I also think that, clearly, in the last 4, 5 years there has been an extraordinary change, and I think that the will expressed by the associations representing pedestrians, and bicycle users, is already clearly expressed in the municipal strategy and in the ongoing municipal plans. ...In Lisbon, the (street design) Manual and the regulation of the public space, realising cycleways and sidewalks, and so forth, there you can see reflected what has been the will expressed by associations that defend pedestrians and cyclists, I think that there, activism and the role of associations have been important.”

Identifying pivotal actor interactions

Pivotal policy actor interactions are identified in a number of ways, including within and between policy organisations which also work around key decision-makers, and act as such *per se*, the roles of political parties, locally and nationally for instance, and officials within municipal and in higher level government departments organisations, agencies, are fundamental players to look at. From the interview approach, the interactions between key organisations and their most relevant policy actors, *i.e.*, policy-brokers according to Sabatier (1988), provide insights upon how significant levels of influence are processed and point to elements working around the policymaking process. The pivotal role of policy entrepreneurs is also researched, especially in moments when the dominant (automobility) coalition uses the ‘*devil shift*’, and when opposing coalitions polarise and exacerbate conflict. Mintrom & Norman (2009) summarise the crucial role of policy entrepreneurs in negotiating with the conflict and proceeding with policy change, and ‘*leading by example*’:

“Risk aversion among decision makers presents a major challenge for actors seeking to promote significant policy change. Policy entrepreneurs often take actions intended to reduce the perception of risk among decision makers. A common strategy involves engaging with others to clearly demonstrate the workability of a policy proposal.” (p. 653)

Considering this predicament when attempting to deliver policy outputs which aim for change in a locality with low cycling rates, low political support, the following questions were asked, with high-level policy brokers answering anonymously to protect their identities and gather relevant information:

32. Which actors do you see as most averse to taking risks in the subsystem? Which do you see as most able to take risks? To what benefit? Which do you see mediating different groups?

Interviewee #2 – Epistemic actor:

PT: *“(Não tomar riscos), a FPCUB, por uma questão de comprometimento político de não querer deixar os políticos mal.*

(Tomar riscos) “Massa crítica, cidadãos. Mesmo que trabalhem numa organização, tiram o chapéu e participam como cidadãos.”

EN: *“(Doesn’t take risks) FPCUB, since it is politically compromised it doesn’t want to let politicians down.*

(Taking risks) “Critical mass, citizens. Even if they work in an organisation, they take off their hats and participate as citizens.”

Interviewee #3 – Activist:

PT: *“Depende mais das personalidades do que do seu cargo. Por vezes os técnicos estão mais avançados e os políticos não querem, outras os políticos estão mais avançados e não querem. Lisboa tem os dois casos.”*
Nos primeiros mandatos, o Isaltino foi dos primeiros políticos que -a bem ou a mal, não era para a bicicleta, etc., mas era árvores, larguinhos e larguetos - Ele percebeu que se ganha votos no espaço público, foi dos primeiros políticos que fez muito isso. Agora é normal, e acho que ele perdeu gás.

Tem é que haver uma participação pública transparente, regular e estruturada. De 2 em 2 meses, 3 em 3 meses, com atores vários. Não deve ser só bicicletas, mas mobilidade em geral.”

EN: *“It depends more on personalities than on your position. Sometimes the technical staff are more advanced and it’s the politicians who don’t want it, sometimes the politicians are more advanced and they don’t want to. Lisbon has both cases.*

In the first terms, Isaltino (Morais, Oeiras’ Mayor intermittently 1985-2025) was one of the first politicians who - for better or worse, he wasn’t for cycling, etc., but he placed trees, little squares and larger squares - He realised that you win votes in the public space, he was one of the first politicians who did much of that. Now it’s normal, and I think he lost gas.

There has to be a transparent, regular and structured public participation. Every 2 months, 3 in 3 months, with different actors. It shouldn’t just be cycling, but mobility in general.”

Interviewee #4 - Citizen:

PT: *“O presidente da câmara de Lisboa (tem mais medo, mandato Medina), infelizmente. ... (Capazes de tomar riscos:) O vereador de mobilidade (Miguel Gaspar) tem lá pessoas que têm vontade, muita vontade. Não vejo nenhum a nível político, todos têm medo das consequências políticas que isto pode acarretar, e das próximas eleições, têm medo de enfrentar o lóbi do automóvel.”*

O presidente da câmara podia ter liderança, há que partir a loiça, e não vejo ninguém a fazê-lo.”

EN: *“The mayor of Lisbon (most afraid, Medina mandate), unfortunately. ... (Able to take risks:) The deputy-mayor for mobility (Miguel Gaspar) has people there who are willing, very willing. I don’t see anyone at the political level, everyone is afraid of the political consequences this can bring, and in the upcoming elections, they are afraid to face the automobile lobby.”*

The mayor could have leadership, the dishes have to be broken, and I don’t see anyone doing that.”

Interviewee #5 – Policy Broker:

PT: “Senti muita resistência dos serviços (municipais). Senti resistência.... Mais capaz de tomar riscos, o presidente da câmara. Em Lisboa o Medina. ... Em Cascais foi o Miguel Pinto Luz... ele é praticante (de ciclismo).”

(Benefício) *Para alguns é a visão em que eles acreditam para o futuro, para outros se calhar é um tema que está na ordem do dia, e são financiados pela tendências.”*

(Mais capacidade), o Miguel Pinto Luz e o Medina.”

EN: “I felt a lot of resistance from the (municipal) services. I felt resistance... With greater capacity for taking risks, the mayor. In Lisbon, Medina. ... In Cascais it was Miguel Pinto Luz ... he is a practitioner (of cycling).”

(Benefits) **“For some it is the vision they believe in for the future, for others perhaps it is an issue that is the order of the day, and they are financed by trends.”**

“(Greater capacity) Miguel Pinto Luz and Medina.”

Interviewee #6 – Activist:

PT: “As juntas de freguesia são muito avessas a fazer qualquer coisa pela bicicleta, porque quase sempre isso implica fazer qualquer coisa contra o carro. O carro, entretanto, absorveu o espaço público praticamente todo.

...

Também não percebo a questão com o transporte público, tipo dar mais e maior capacidade de intermodalidade, ou co-mobilidade, etc. Tem havido progressos, mas há tantas mais coisas que se podia fazer. ...Não percebo porque há coisas que são simples de fazer e não fazem.”

... Apesar de tudo, é inegável que o executivo -o Medina e o Miguel Gaspar- ...quando há questões de mobilidade, carros e espaço público, etc. dão uma coisa com uma mão tipo fazem uma ciclovia fixe ali, bike-sharing, e ao mesmo tempo fizeram um parque de estacionamento para automóveis... Antes havia o Sá Fernandes... nesse sentido tem mais mérito porque pôs aquilo na agenda. Mais mérito com certeza para ele”

(Benefício) *Pode servir para distinguir politicamente.*

(Mediar) *Não sei se é mediar, mas há claramente uma tentativa de agradar a gregos e troianos. Não é mediar... Lisboa tem um problema grave de participação.*

Lembro-me de ter reuniões com membros da câmara, técnicos e mais recentemente (mandato Medina 2017-2021) com políticos, e obviamente esse contacto é de assinalar. A questão é que, como hei de dizer, é uma coisa muito (ad-hoc)...

(Nível de contacto comparável) (Em 2011-2013) *Quando estivemos a fazer o projeto do Volunteers of Cycling Academy (VoCA) falámos com vários ativistas e as experiências eram muito variadas, de pessoas de Praga, Bucareste, muito carro-cêntricas e apesar de tudo tinham um contacto com a câmara que nós na altura não tínhamos.*

A abertura da Câmara, que teve já há vários anos, é uma coisa positiva, simplesmente falta, não está (estruturada), não há nada oficial.... É mais uma coisa organizacional em Portugal, falta mais essas skills de como é que nós tomamos os processos participativos e democráticos sem que as coisas demorem uma eternidade a resolver. É, efetivamente, difícil, percebo perfeitamente ainda mais quando as pessoas estão em organizações supercomplexas difíceis de navegar, como é a Câmara de Lisboa, eu percebo que o default seja além de navegar isto agora temos que coordenar com o público... (o problema) tem que ser resolvido.”

EN: “*Infra-local borough governments (PT. Juntas de Freguesia) are very averse to doing anything for cycling because it almost always involves doing something against the car. The car, however, has absorbed practically all of the public space.”*

“I also don't understand the issue with public transport, like giving more and greater intermodality capacity, or co-mobility, etc. There has been progress, but there is so much more that could be done. ...I don't understand why there are things that are simple to do and aren't done.”

“Despite everything, it is undeniable that the (2017-2021) cabinet -Medina and Miguel Gaspar- ...when there are issues of mobility, cars and public space, etc.... they give something with one hand, such as make a cool

cycleway there, bike-share, and at the same time they built a parking lot for automobiles... Before there was Sá Fernandes... in that sense he had more merit because it put it on the agenda. More merit for sure for him”
“(Benefit) It can serve to distinguish politically.

“(Mediate) I don't know if it's mediation, but there is clearly an attempt to please both Greeks and Trojans. It's not mediating... Lisbon has a serious participation problem.

I remember having meetings with members of City Hall, technicians and more recently (Medina 2017-2021 mandate) with politicians, and obviously this contact is noteworthy. The point is, I must say, it's a very (ad-hoc) thing...

(Comparable contact level) (In 2011-2013) When we were doing the Volunteers of Cycling Academy (VoCA) project we spoke with several activists and the experiences were very varied, from people from Prague, Bucharest, very car-centric and despite that they had contact with their City Halls and we didn't have that at the time.

City Hall's greater opening-up, which took place several years ago, is a positive thing, what is simply missing, is that it's not (structured), there's nothing official.... It's more of an organisational thing in Portugal, it's more about skills of how we make participatory and democratic processes without things taking forever to resolve. It's difficult, I understand perfectly. Even more when people are in super-complex organisations that are difficult to navigate, like the Lisbon Municipality, I realise that the default is that besides navigating this complex process now we must coordinate with the public... (but the problem) must be resolved.”

Interviewee #7 – Policy Broker (in office):

PT: “Os autarcas, paradoxalmente. ...Muito poder, o presidente da câmara tem muito poder, e tem medo porque os mandatos são curtos e, portanto, tem sempre medo de implementar, e cortes de estradas. ...

(Mais capazes de tomar esses riscos, em concreto) Os autarcas também...

(Para qual benefício tomar esses riscos) Tem um impacto brutal na vida dos nossos concidadãos. É tomar um risco, mas para ter um prémio brutal, o prémio é a qualidade de vida.”

EN: “Mayors, paradoxically (are more averse to taking risks). ...A lot of power, the mayor has a lot of power, and he's afraid because terms are short and, therefore, he's always afraid to implement, and cut road traffic.”

...

(Better able to take these risks, in particular) Mayors too...

...

(For what benefit to take these risks) It has an enormous impact on the lives of our fellow citizens. It's taking a risk but to have an enormous award, the award is quality of life.”

Interviewee #8 – Activist:

PT: “Eu não conheço as pessoas que estão nos departamentos, não sei quem é que está a tomar as decisões. Acho que há conflitos na própria Câmara de Lisboa sobre qual é que deve ser uma política de mobilidade. Acho que aquilo está dividido e não está integrado, está fragmentado então uma parte da Câmara de Lisboa faz uma coisa, outra parte da Câmara de Lisboa faz outra. E depois temos atores públicos e privados, como a ACP, a PRP, e outros (influenciar a perceção)... a PSP parece-me ser mais idónea.”

EN: “I don't know the people who are in the departments, I don't know who is making the decisions. I think there are conflicts within Lisbon City Hall regarding what a mobility policy should be exactly. I think that it's divided and not integrated, it is fragmented, so one part of Lisbon City Hall does one thing, another part of Lisbon City Hall does another. And then we have public and private actors, such as the ACP, PRP, and others (influencing perception) ... PSP (the Police) seems to me to be more reputable.”

Interviewee #9 – Former Policy Broker:

PT: “Não consigo responder a isso. Eu não consigo identificar isso de uma forma tão clara, quer numa forma, quer no outro. Porque daquilo que tem sido os meus contactos, as coisas vão muito por modas, e vão muito por ficar bem na fotografia, e por medida do risco. **Se eu tenho um ambiente favorável para avançar, e tenho um assessor que diga que isto é útil e ali foi muito bom, eu avanço.** Mas, aquilo que me parece é

que não há uma reflexão estratégica de um ponto de vista integrado. E, portanto, isto vai por pontapé para a frente e depois logo se vê.

Eu acho é que por vezes acerta-se e a coisa até corre bem. Mas a energia, os recursos que se despendem, para os resultados que se obtêm, são claramente ineficientes. Se nós tivéssemos aplicado a mesmo tipo de energia, o mesmo tipo de recursos, numa estratégia concertada, articulada, envolvendo os diferentes atores, pelo menos criando soluções de compromisso, isso seria muito mais depressa.

(A ligação) tem que ser o Município. O mediador tem que ser alguém que depois responde politicamente perante os seus cidadãos.”

EN: “I can't answer that. I can't identify it so clearly, either in one form or the other. Because from what my contacts have been, things go a lot by (fashion) trends, and much of it is to look good in the picture, and measuring the risk.”

“If I have a favourable environment for advancing, and I have an advisor who says that it is useful and it worked out very well there, then I advance.”

“But it seems to me that there is no strategic reflection from an integrated point of view. And, therefore, this goes by kicking the ball forward and then let's see what happens.

I think that sometimes you get it right and things go well. But the energy, the resources that are expended, for the results that are obtained, are clearly inefficient. If we had applied the same type of energy, the same type of resources, in a coordinated, articulated strategy, involving different actors, at least creating committed solutions, it would be much quicker.”

Interviewee #10 – Former Policy Broker:

PT: “Vereadores e presidentes de câmara, sem dúvida. Obviamente em Lisboa toma-se esse risco, o Medina sem dúvida que (toma o) risco. Em Cascais para além de alguns técnicos municipais, mas também o poder decisório final não é deles, não conseguem, não há risco nenhum.

(Benefício) São contas de política mais global: o Presidente de Câmara de Lisboa tinha ali alguma necessidade de afirmação e dar ali algum cunho pessoal ao seu modelo de desenvolvimento para a cidade, que, se calhar em Oeiras não tem de todo porque já tem um cunho pessoal do desenvolvimento, para o bem ou para o mal, e que os oeirenses gostam, para o bem ou para o mal, e não sai dali. E é aquilo que é.

Em Cascais tem um conceito diferente, impor um cunho de modernidade. Todos tentam imprimir um cunho de modernidade.

(Em Cascais) Estes apostam brutalmente na comunicação... Mas é que acaba por ser coisas muito pontuais que não têm impacto na esmagadora maioria da população, contrariamente ao que está a ser feito em Lisboa, que as mudanças efetivamente têm impacto na cidade e no dia-a-dia. Se amanhã o Medina se for embora, daqui a dez anos vais ver estas ciclovias, isto, foi feito pelo Medina. Em Cascais se estes gajos se forem embora não tens daqui a dez anos nada que tenha sido feito agora que subsista daqui a dez anos. A verdade é essa. Vai-se tudo esfumar.

Cada presidente tem a sua ideia de modernidade ...

Em termos de mobilidade ciclável vejo muito pouco (em Cascais).

EN: “Councillors and mayors, no doubt. Obviously in Lisbon that risk is taken, Medina undoubtedly (takes the) risk. In Cascais, in addition to some municipal technical staff, the final decision-making power is not theirs, they can't, there's no risk.

(Benefit) These are policy accounts that are broader: the mayor of Lisbon had some need for affirmation there and provide a more personal stamp to his development model for the city, which, perhaps in Oeiras, isn't necessary since it already has a personal imprint of development, for better or for worse, and that the people of Oeiras like, for better or for worse, and it doesn't go away. And it is what it is.

In Cascais there is a different concept, imposing a stamp of modernity. They all try to imprint a stamp of modernity.

(In Cascais) They are extremely committed to communication... But it turns out to be with very occasional things that have no impact on the overwhelming majority of the population, contrary to what is being done in Lisbon, where changes actually have an impact on the city and on the day-to-day life. If tomorrow Medina leaves, ten

years from now you will see these cycleways, this was done by the Medina. In Cascais, if these guys leave, you won't have anything in ten years' time that will survive ten years from now. That's the truth. Everything will fade away.

Every president has his idea of modernity...

In terms of cycling for mobility purposes, I see very little (in Cascais)."

Identifying Policy Actor Networks (coalition identifying questions):

33. What are your organisation's principal partners for policy influence (in the AML, in Portugal, and internationally)?

Interviewee #3 – Activist:

PT: *"A nível internacional e europeu é a ECF. (Na AML e Lisboa) a Estrada Viva, de certa forma."*

EN *"At the European level it's ECF. (In the AML and Lisbon) Estrada Viva, to a certain extent."*

Interviewee #3 – Activist:

PT: *"(A bicicleta é) importante a nível da comunicação. Os ciclistas são extremamente entusiastas e com uma força, uma estamina fora de série. São 0.5% se calhar em Lisboa, e agigantam-se e têm uma força política anormal, os peões são 100% e têm força política mínima, quase inexistente. ...Mesmo a nível mundial os peões devem associar-se aos ciclistas, e os ciclistas aos peões. Os ciclistas têm toda a vantagem em associar-se aos 100%, em termos de votos, toda a gente tem. E os peões, os 100%, têm toda a vantagem em associar-se aos ciclistas porque têm uma força política desmesurável. Já uso isso nas redes sociais... Se puser um post que refere peões e ciclistas o tweet ou post do Facebook é partilhado 10 vezes mais."*

EN: *"(Cycling is) important in terms of communication. Cyclists are extremely enthusiastic, with strength, and an outstanding stamina. They may be 0.5% (of modal share) in Lisbon, and they swell and have an exponential political strength, pedestrians are 100% and they have minimal political strength, they're almost non-existent. ...Even globally, pedestrians must partner with cyclists, and cyclists with pedestrians. Cyclists have every advantage in joining the 100%, in terms of votes, everyone does. And pedestrians, the 100%, have every advantage in associating with cyclists because they have an immeasurable political force. I already use it on social networks... If I post a post something which refers to pedestrians and cyclists, the tweet or post on Facebook is shared 10 times more."*

Interviewee #4 - Citizen:

PT: *"Sinto que há grupos de pessoas não associações que estão a impactar. O Velo-city vir para cá é porque alguém se está a mexer."*

EN: *"I feel there are groups of people and not associations that are causing impact. The Velo-city conference coming here is because someone is doing something."*

Interviewee #7 – Policy Broker (in office):

PT: *"CIVITAS, Pontevedra, Estamos a trabalhar muito com eles. Temos outras cidades europeias, temos tido uma relação forte com Roterdão, com o Mayor de Roterdão. Era o pior concelho da Holanda ... vivi a transformação de Roterdão nos últimos três anos.*

E esta competição Lisboa – Cascais está a ser muito boa para tudo."

EN: *"CIVITAS, Pontevedra, We are working a lot with them. We have other European cities, we have had a strong relationship with Rotterdam, with the Mayor of Rotterdam. It was the worst county in the Netherlands ... I have experienced the transformation of Rotterdam in the last three years.*

And this Lisbon – Cascais competition is being very good for everything."

Interviewee #9 – Former Policy Broker:

PT: *"O Município levou à mudança de legislação.*

...(Mudar) a IP é influenciar o Primeiro Ministro, ou o Ministro das Infraestruturas; a IP é muito conservadora.”
EN: “The Municipality brought change to legislation.
...To change IP influence must be on the Prime Minister, or the Minister for Infrastructures; IP is very conservative.”

34. Which organisation do you see as a central actor in Lisbon’s cycling subsystem? What level of contact does your organisation have with it (very frequent, relatively frequent, regular, occasional, rarely, none)?

35. Do you identify any organisation who is really interested in developing the AML territory from a cycling culture perspective, focusing on area wide cycle mobility policies and planning?

Interviewee #6 – Activist:

PT: “A MUBi, a Estrada Viva, a ACA-M... Uma cidade que é boa para os peões mais facilmente é boa para bicicletas, por isso, digamos que são aliados da causa.”

EN: “MUBi, Estrada Viva, ACA-M...A city that’s good for pedestrians is easier to be good for cycling, therefore, let’s say they’re allies to the cause.”

Interviewee #8 – Activist:

PT: “Muitas pessoas conhecem a Cicloficina porque também tem esta coisa que a Federação (FPCUB) e a MUBi não têm, que é um sítio físico. É um sítio onde as pessoas podem ver as bicicletas, e partes e ficam com as mãos sujas. Mas também há outras associação, uma que não é uma associação, é um evento que é o Ride Lisboa, ou as Alley Cats que aconteciam. (Ride Lisboa) é malta que se junta, que usa muito o Strava e vai dar uma volta noturna por Lisboa, em certos troços, para bater recordes.”

EN: “Many people know ‘Cicloficina’ because it also has this thing that the ‘Federation’ (FPCUB) and MUBi don’t, which is a physical site. It’s a place where people can see bicycles and parts and get their hands dirty. But there are also other associations, one that is not an association, it is an event that is the ‘Ride Lisboa’, or the ‘Alley Cats’ that used to happen. (Ride Lisbon) is a group of people who get together, they use Strava a lot and go on a night tour of Lisbon, in certain sections, to beat records.”

Interviewee #9 – Former Policy Broker:

PT: “A AML e os trabalhos que estão a ser feitos no Técnico (IST)... Cascais tem tido um papel importante na divulgação de coisas extremamente inovadoras, até porque saltou, não delegou competências na Autoridade Metropolitana de Transportes. ... Perceberam que de facto isto não se faz por somatória de partes, isto faz-se por outro tipo de visões.”

EN: “AML and the work being done at Técnico (IST)... Cascais has had an important role in the dissemination of extremely innovative things, not least because it leapt out, it didn’t wait and delegate powers to the Metropolitan Transport Authority. ... They realized that in fact this is not done by the sum of parts, this is done by another type of vision.”

36. What kind of policy actors would you see as most effective for participating in policy development towards a more robust cycling culture?

Interviewee #4 - Citizen:

PT: “O cidadão comum (impacta)... um cidadão pode influenciar vários cidadãos pela sua atitude.”

EN: “The common citizen (has impact) ... one citizen can influence various citizens by his/her attitude.”

Interviewee #5 – Policy Broker:

PT: “(Em Oeiras) Ciclovía na Marginal”

EN: “(In Oeiras) Ciclovía na Marginal”

Interviewee #6 – Activist:

PT: “As Massas Críticas são importantes para fora pela dimensão, agora em termos de nurturing da comunidade precisas de regularidade, e era isso que a Massa Crítica antigamente dava: uma vez por mês tu vais lá e tens a tua tribo. ...Só quando comesças a ver, a conhecer as pessoas, de forma informal, é que os projetos vão surgindo. ...Confiar na outra pessoa, o que quer fazer, os seus interesses, os seus valores naquilo. ...Esta questão da confiança é muito importante. ...

Em termos participativos... a questão da regularidade, antigamente tinhas menos pessoas, mas era uma coisa consistente. ... Vias a pessoa uma vez por mês, ias conversando, ias conhecendo pouco e pouco as pessoas, dessa familiaridade que desenvolves, percebes que têm interesses comuns, que, entretanto, desenvolves... Da Massa Crítica surgiu dali a Cicloficina, a MUBi. Deixou de funcionar como esse caldeirão de criatividade, de cooperação. ...

... Nós não podemos continuar a debater e discutir nas redes sociais; nós temos de nos encontrar.”

EN: “Critical Mass is important to communicate outwards by its size, now in terms of nurturing the community it needs regularity, and that’s what Critical Mass used to give: once a month you went there and you had your tribe. ...Only when you start to see, to get to know people, in an informal way, projects start to emerge. ...Trusting the other person, what they want to do, their interests, their values regarding that issue. ...This issue of trust is very important. ...

In participatory terms...regularity, in the past you had fewer people, but it was a consistent thing. ... You saw the person once a month, you talked, you got to know people little by little, and from this familiarity that you developed, you realised that they have common interests, which, you also develop in the meantime... ‘Cicloficina’ and MUBi emerged from Critical Mass. It stopped functioning as this melting pot of creativity, of cooperation. ...

... We cannot continue to debate and discuss on social media; we must meet each other.”

Interviewee #10 – Former Policy Broker:

PT: “(São) muito importante(s) os técnicos municipais, como os políticos vão mudando e os técnicos ficam lá muitos anos. Um técnico que seja defensor daquela causa acaba por conseguir muitas vezes levar a sua avante.... Vão insistindo naquilo, como os políticos vão mudando muito, às tantas, sobretudo a nível local, com mais alguma velocidade ao nível das vereações, às tantas apanham um que está para ali virado e aquilo é implementado.”

EN: “(The) municipal technical staff are very important, since politicians change, and the technical staff stay there for many years. A municipal technical employee who is defending the cause often ends up succeeding.... They keep insisting on that, since the politicians are changing frequently, so often, especially at the local level, with some more speed at the level of the deputy mayors’ offices, sometimes they find (a politician) that is aligned and what they’re pushing for is implemented.”

37. What (contrasting) events over the last decade illustrate the importance of an open, inclusive governance which provides the opportunity for the most generally beneficial project to emerge from a process favouring cycling culture in the AML?

Interviewee #1 – Citizen:

PT: “(Recordo-me) do Orçamento Participativo... como aquele em Lisboa a unir as universidades, que não tenho a certeza se foi completamente realizado ou não.”

EN: “(I recall) the public participatory budget... such as the one in Lisbon linking the universities, which I'm not sure if it was fully realised or not.”

Interviewee #4 - Citizen:

PT: “Inicialmente os Orçamentos Participativos, que atualmente não têm muita credibilidade.”

EN: “At first the Public Participatory Budget, currently it's not very credible.”

Interviewee #7 – Policy Broker (in office):

PT: “Os Orçamentos Participativos”

EN: “The Public Participatory Budgets”

Interviewee #8 – Activist:

PT: “A bicicleta não, talvez O Caracol da Penha... seria um estacionamento da EMEL, os moradores mexeram-se e transformaram aquilo num projeto para um jardim público. Não sou um fan do Orçamento Participativo, ... acho que é uma recolha de dados para as intenções dos eleitores.”

EN: “

Interviewee #9 – Former Policy Broker:

PT: “Não tenho presente.”

EN: “I don't know.”

Interviewee #10 – Former Policy Broker:

PT: “No Orçamento (Participativo) de Cascais a coisa tem que ser também exequível do ponto de vista técnico...aquela análise (técnica, antes de ir a votos) muitas vezes, se não é conveniente do ponto de vista político, a coisa morre ali, e nem se quer vai a votos. Embora seja uma avaliação técnica é uma avaliação que é mais do que técnica.”

EN: “In the Cascais (Participatory) Budget, the thing must also be feasible from a technical point of view...that analysis (technical, before going to votes) often, if it is not convenient from a political point of view, it dies there, and doesn't even go to voting. Although it is a technical assessment, it is an assessment that is more than technical.”

Interviewee #11 – Journalist:

PT: “Claramente, assim em primeiro lugar, em Lisboa, o Orçamento Participativo, e noutras cidades. Em Lisboa, acho que foi a iniciativa cidadã, a precursora, e a assumir a liderança de queremos isto para a cidade, e seguiu. ...Ainda é e vai ser para outros locais no país para a mobilidade ciclável.”

EN: “Clearly, first in Lisbon, the Public Participatory Budget, and in other cities. In Lisbon, I think it was the citizen's initiative, the precursor, and taking the lead in wanting this for the city, and it continued. ...It still is and will be for other places in the country for cycling.”

38. Do you identify any specific social compromise, or commitment?**Interviewee #2 – Epistemic actor:**

PT: “A bicicleta está em todo o lado, mas não sei até que ponto isso representa um compromisso social.”

EN: “The bicycle is everywhere, but I don't know up to what point that represents a social commitment.”

Interviewee #4 – Citizen:

PT: "Se hoje há um compromisso maior, há. Se é suficiente, não é. Há desenvolvimento, mas não como seria necessário."

EN: "If there is greater commitment today, there is. If it's enough, no it's not. ... There is development, but not as much as it would be necessary."

Interviewee #6 – Activist:

PT: "Usam o Orçamento Participativo para fazer coisas que já estavam a planear fazer."

EN: "They use the Public Participatory Budgets to do things they were already planning on doing."

Interviewee #8 – Activist:

PT: "Acho que a EMEL não é um compromisso social, é um caso su generis. ... acho que havia ali uma intenção de controlo de estacionamento abusivo que empurrou alguns utilizadores para os transportes, para a bicicleta não sei, não me parece Acho que isto não é interpretável. Sofre leituras, mas é tão opaco por ser tão complexo, que nós não conseguimos dizer, ou apontar para isto causou aquilo."

EN: "I think that EMEL is not a social commitment, it is a su generis case. ... I think there was an intention to control abusive car-parking and that pushed some users to public transport and cycling, I don't know, I don't think ... I think this is not interpretable. It takes some reading of the situation, but it's so opaque because it's so complex, that we can't tell, or point to this caused that."

Identifying Counter-Coalition Actors and Views (Degree of Beliefs)

Regarding the cycling subsystem's inclusion in policy, the national organisms are perceived as counter-coalition organisms at times, namely the National Road Safety Authority (ANSR), Portuguese Infrastructures agency (IP), and the Police (PSP) are mentioned, as are other organisations perceived as leveraging greater power in policy making Portuguese Automobile Club (ACP) and the road safety interest group (PRP).

Questions regarding these organisations:

- f) Do you view them as opposed to the Traffic Code of 2013/2014?
- g) Are they opposed to national targets on Climate Change?
- h) What are their opinions on to the national bicycle strategy of 2019?
- i) What in particular are they opposed to?
- j) Are these organisations "perceived as being markedly more influential"? (from Wagner & Ylä-Anttila, 2018, p. 886) Why?

Interviewee #1 – Citizen:

PT: "A ANSR é contra (a bicicleta), a IP é contra a bicicleta, a PSP não sei, o ACP é contra a bicicleta, a PRP não sei."

O ACP cria barreiras, a ANSR dificulta. Eles defendem o automóvel. Imagino que a IP não se quer meter em mais despesas e complicações.

Sim (são mais influentes). Estas (ACP, ANSR, IP) são organizações que são reconhecidas em Portugal, com muitos anos e muito poder, todas elas."

EN: "ANSR is against (cycling), IP is against cycling, PSP I don't know, ACP is against (cycling), PRP I don't know. ACP creates barriers, ANSR make it difficult. They defend the automobile. I imagine IP doesn't want to get involved in new expenses and complications."

Yes (they are more influential). These (ACP, ANSR, IP) are organisations that are renowned in Portugal, with many years and a great deal of power, all of them."

Interviewee #2 – Epistemic actor:

PT: "Quase todas (se opõem). Tendem a criar (barreiras)."

Têm muito mais peso do que qualquer associação de defesa da bicicleta. Nos meios mais nacionais. ...São instituições de peso, de nome, antigas, com a sua formalidade e a sua hierarquia. ...A FPCUB fala a mesma língua que eles. Essas entidades têm peso institucional, mesmo sem investigação, sem estudos, têm a sua palavra e toda a gente repete essa palavra.”

EN: “Almost all (oppose). They tend to create (barriers).

They carry much more weight than any association which defends cycling. In the most national media. ...They are important institutions, with a name, a history, with their formality and hierarchy. ...FPCUB speaks the same language as they do. These entities have institutional weight, even without research, without studies, they have their word, and everyone repeats that word.”

Interviewee #3 – Activist:

PT: “O Código de Estrada foi produzido pela Assembleia da República depois de sessões de uma grande consulta, e o Deep State “como Steve Bannon” reagiu mal. A ANSR que emana depois para as polícias, etc., reagiu mal, não a instituição em si, mas pessoas na instituição... juristas e técnicos que não concordaram com as alterações emanadas da Assembleia da República.

*A atuação da ANSR, etc... como são juristas, técnicos e engenheiros tem uma perspetiva de neutralidade ideológica e política, o que acho que é um erro, porque se quiseres fazer mobilidade sustentável tens que desequilibrar o sistema. ... **Fazem duas coisas, uma, por influência sociológica e política dão benesses ao grupo mais forte, o carro -durante o século XX, deram benesses ao carro-, mas quando se quiser inverter o sistema, tratam isto como aquele discurso do Trump na manifestação dos nazis que mataram a rapariga “There are good people on both sides”, dizem sempre “both sides”.***

Há aqui alguma questão ideológica. Do PSD uma das melhores vereadoras (da CML), a Marina Ferreira, direita, uma vez numa campanha eleitoral disse “Eu não estou aqui para beneficiar ou desbeneficiar nenhum modo de transporte.” Esta neutralidade que aceita o status quo do desequilíbrio (favorável ao automóvel) e dizem que o problema está nos dois lados... campanhas de segurança para bicicletas ou peões estão a dizer que os dois lados são incumpridores; “both sides”, como o discurso do Trump com nazis com torchas, etc., mas “there are good and bad people on both sides”.

Essa neutralidade, que até pode ser bem intencionada -não tomar posição- é errada do ponto de vista de políticas urbanas, tens que tomar posição. Tens que beneficiar os modos mais sustentáveis e desbeneficiar os piores.”

Mostra bem que falta uma política governamental em que introduza na ANSR, e da ANSR para baixo, dizer que temos que desequilibrar o sistema. O governo se tivesse ideias, e capacidade para isso, devia dizer que nós devemos controlar o perigo automóvel e, portanto, temos que ser muito, muito mais rigorosos, e devemos incentivar o uso da bicicleta e dos peões por questões de segurança rodoviária. O governo nunca diz isso claramente, e a ANSR continua com aquele status de “nós não tomamos posição” e passa isso para as polícias, e as polícias não tem orientações e fiscalizam peões e bicicletas... o hashtag #enquantomultamasvítimas.

Falta de estratégia governamental, que não é emanada, ainda temos uma ideia do século XX... O governo não põe pessoas capazes para mudar o paradigma (ANSR, IP), e acaba por não chegar.

As câmaras, ANSR, IP são influentes. Em Portugal o poder local é poderoso. Em Oeiras e Cascais o Carreiras e o Isaltino são figura fortes, os outros vereadores contam pouco.

EN: “The Traffic Code was produced by the Assembly of the Republic (parliament) after a great joint consultation, and the Deep State “as with Steve Bannon” reacted badly. The ANSR emanates to the police, etc., they reacted badly, not the institution itself, but the people in the institution... jurists and technical staff who did not agree with the amendments made by the Assembly of the Republic.

ANSR's performance, etc... as they are jurists, technical staff, and engineers, they have a perspective of ideological and political neutrality, which I think is a mistake, because if you want to have sustainable mobility, you must rebalance the system. ...”

“They do two things, one, by sociological and political influence, they give benefits to the strongest group, the car -during the 20th century, they gave benefits to the car-, but when you want to invert the system, they treat it using the same balance that Donald Trump advocated regarding the Nazi demonstrators who killed the girl

«There are good people on both sides», they always say «on both sides». There is some ideological issue here.

One of the best Councillors (at Lisbon City Hall), from the centre-right PSD, Marina Ferreira, once in an election campaign said, “I am not here to benefit or disbenefit any mode of transport.” This neutrality that accepts the status quo of imbalance -in favour of the automobile- says that the problem is on both sides... safety campaigns for cyclists or pedestrians are saying that both sides are in breach; “both sides”, like Trump's speech concerning Nazis with torches, etc. but “there are good and bad people on both sides”.

This neutrality, which may even be well-intentioned in some cases -not taking a stand- is wrong from the point of view of urban policies, you must take a stand. You have to benefit the most sustainable modes and disbenefit the worst ones.”

“It clearly shows that there is a lack of a government policy being introduced in the ANSR, and from the ANSR downwards, stating clearly that we have to unbalance the system. If the government had the ideas, and the capacity for it, it should say that we must control automobile danger and therefore we have to be much, much stricter (with motor traffic), and we must encourage cycling and pedestrians for road safety reasons. The government never says this clearly, and ANSR still has that status of “we take no stand” and passes this on to the police, and the police don't have guidelines, so they supervise pedestrians and cyclists (instead of automobility) ... the hashtag #enquantomultamasvítimas (#whiletheyfinvictims).

There's a lack of government strategy, which is not emanating, we still have a 20th century idea... The government does not put capable people in charge to change the paradigm (ANSR, IP), and it ends up stalling. Municipal Governments, ANSR, IP are influential. In Portugal, local power is powerful. In Oeiras and Cascais, Carreiras and Isaltino are strong figures, the other deputy mayors are insignificant.”

Interviewee #4 - Citizen:

PT: “(ANSR, IP, PSP, ACP e PRP) todos colocam barreiras à bicicleta... A ANSR podia ter um papel conciliador nisto tudo e não tem.

Todas são influentes. Não se avança mais porque as instituições não querem, não querem que se avance, tem medo, têm receio, ou então têm interesses, ou vendem interesses; a indústria automóvel tem um poder enorme, uma importância económica muito grande.”

EN: “(ANSR, IP, PSP, ACP and PRP) all of them create barriers to cycling... The ANSR could have a conciliatory role in all of this, and it doesn't.

All are influential. More progress isn't made because the institutions don't want to, they don't want to advance, they're afraid, they're scared, otherwise it's because they have interests, or they sell interests; the automobile industry has enormous power, a very great deal of economic importance.”

Interviewee #5 – Policy Broker (in office):

PT: “Sim (criam barreiras), que tenho conhecimento a IP, das outras não tenho sentido (aqui no município).

Sim (mais influentes). A legislação é feita com pareceres com a influência deles (interesses do automóvel), e não dos utilizadores.”

EN: “Yes (they create barriers), I'm aware of IP, I haven't felt it from the others (here in the municipality).

Yes (most influential). Legislation is produced with opinions with their influence (automobile interests), and not of the users.”

Interviewee #6 – Activist:

PT: “Em 2009 andamos a ter reuniões. Tivemos reuniões com a ANSR, e nas audiências que tivemos com essas entidades, e depois também outros eventos ao longo dos anos, quando nos encontrámos e falámos do Código da Estrada, direitos dos ciclistas, etc., estou-ma e a lembrar da GNR, da PSP, ao longo dos anos, notava-se uma falta de entendimento, e mesmo mais recentemente a Polícia Municipal, as mudanças do Código da Estrada que existem agora muitas vezes não são compreendidas. Foram ganhos civilizacionais, mas as próprias forças não compreendem o porquê daquilo, e muitas não concordam.

Em 2009 foi muito difícil. Em 2013 quando fizemos recomendações técnicas ao parlamento já foi recebido de forma completamente diferente. Mas em 2009 era horrível.

A ACP claramente (que se opõe).

(Essas organizações) Sim, criam barreiras.

Sem dúvida que essas entidades ao longo dos anos foram uma força contra a questão da mudança: primeiro de conseguirmos as mudanças do Código da Estrada, que não foram completas e não foram perfeitas, e mesmo depois de já haver essas mudanças, de querer alterar -por exemplo, a questão do capacete é a mais óbvia- ... no caso das polícias, há uma ignorância abismal, que já havia antes, mas continua a haver do que é o Código da Estrada. A GNR, a PSP, a Polícia Municipal, cada uma acha um coisa diferente, em reuniões e em relatos de pessoas que tiveram interações, intervenções n vezes. E obviamente não esquecer que são seres humanos e vivem na cultura que se conhece, e não se pode dizer que sejam imparciais. Há um desconhecimento das regras do Código da Estrada, nomeadamente dos deveres dos condutores de automóvel face a quem anda de bicicleta, e dos direitos de quem anda de bicicleta face a quem anda de automóvel.

Era o mínimo, tem que haver uma equidade na lei. A lei tem que refletir um comportamento dos utentes da estrada que reflita a melhor ciência que houver aí. Mas depois no dia a dia mesmo que o Código da Estrada não tivesse mudado, nós podíamos ter um ambiente rodoviário mais seguro, muito mais cordial. Uma coisa é a lei, outra é a cultura, e a cultura não mudou, porque nada se fez para mudar a cultura.”

...(De 2009 para 2020) é difícil responder a isso. Eu queria dizer que sim (que a cultura mudou), mas não tenho a certeza de que isso é verdade, porque mesmo a questão da hostilidade... isso continua a acontecer. Quando mudou o Código de Estrada até houve um espécie de backlash porque mudou aquilo, ‘os ciclistas têm novos direitos comparado com o carro’, notou-se a agressividade.

...Continuo a ver pessoas agressivas... a usar o carro para ameaçar.”

EN: “In 2009 we had meetings. We met with ANSR, and in the hearings we had with these entities, and later in other events over the years, we met and talked about the Traffic Code, cyclists' rights, etc., I recall GNR, PSP, throughout the years, you could see their lack of understanding, and even more recently the Municipal Police, the changes to the Traffic Code currently in effect are often not understood. There were civilisational gains, but the police forces themselves do not understand why, and many don't agree with these.

In 2009 it was very difficult. In 2013, when we made technical recommendations to parliament, it was already received in a completely different way. But in 2009 it was horrible.

ACP clearly (is opposed).

(These organisations) Yes, they create barriers.

There's no doubt that throughout the years these entities have been a force working against the issue of change: before achieving the changes to the Traffic Code, which were not complete and not perfect, and even after we already had these changes made, they didn't want the change - the helmet issue, for instance, is the most obvious one- ... there is an abysmal ignorance with the police, which already existed, but it remains so with the Traffic Code. GNR, PSP, Municipal Police, each thinks it's something different; from meetings and from the reports of people who had interactions with them, 'n' interventions. And of course, don't forget that they are human beings and live in the culture that is known, so they can't be said to be impartial. There is a lack of knowledge of Traffic Code rules, namely the duties of automobile drivers in comparison to those who ride a bicycle, and the rights of those who ride a bicycle in comparison to those who drive an automobile.

It was a minimum, there must be equity in the law. The law must reflect road user behaviour, that reflects the best science that we have. But on a daily basis even if the Traffic Code had not changed, we could have had a safer road environment, much more cordial. The law is one thing, the culture another, and the culture has not changed, because nothing has been done to change the culture.”

... (From 2009 to 2020) it is difficult to answer that. I would like to say yes (that the culture has changed), but I'm not sure that's true, because even the hostility issue... it keeps happening. When the Traffic Code changed, there was even a kind of backlash because it changed that, ‘cyclists have new rights compared to the car’, the aggressiveness was noted.

...I keep seeing aggressive people... using the car to threaten.”

Interviewee #7 – Policy Broker (in office):

PT: *“Talvez o Carlos Barbosa, de resto não vejo mais nada.”*

EN: *“Maybe Carlos Barbosa, otherwise I don’t see anyone else.”*

Interviewee #8 – Activist:

PT: *“Acho que a Polícia de Segurança Pública, pelo menos ao nível institucional, é a única que escapa. Sem (contar com) experiências más com polícias no terreno Mas as outras acho que são sobretudo atávicas, provincianas na sua (abordagem). ... O desequilíbrio entre modos de mobilidade é um facto, portanto, quando uma coisa está desajustada tu deves ser justo com esse desajuste, com esse desequilíbrio. Portanto, achar que a bicicleta é um meio de transporte que deve ser tratado como qualquer outro não avalia por o que ela é. Por isso que disse que é uma postura provinciana e atávica.*

...Acho que são instituições que não mandam uma para a caixa.

Claro que sim (que têm mais influência), têm mais canais, têm mais capital.”

EN: *“I think that the Public Security Police (PSP), at least at the institutional level, is the only one that’s valid. Without (counting on) bad experiences with police officers on the street.... But the others I think are mostly atavistic, provincial in their (approach). ... The imbalance between modes of mobility is a fact, therefore, when something is not adjusted you must be fair with that inadequacy, with that imbalance. Therefore, thinking that cycling is a means of transport that should be treated like any other is not judging it by what it is. That’s why I said it’s a provincial and atavistic posture.*

...I think these are institutions that don’t get one thing right.

Of course, they do (have more influence), they have more channels, they have more capital.”

Interviewee #9 – Former Policy Broker:

PT: *“(Barreiras) Agora estão um bocado mais moderadas do ponto de vista da sua expressão. O ACP e a ANSR ainda continuam com uma posição demasiadamente... A ANSR é demasiada securitária.*

(Mais influentes) Sim. Por tradição institucional essas entidades são conservadoras. Faz parte. São conservadoras. Mais do que na defesa do automóvel, neste momento, têm muito receio daquilo que é novo. Já foram mais. No meu tempo eram muito eram mais fortes no ponto de vista na defesa do, na intransigência do automóvel...

Agora, há um dado que eu também aprendi, que foi, que se você os envolver na discussão das coisas com outros parceiros desde o início, é fundamental. Porque isso é muito importante.

Eu passei a fazer uma coisa, que era ir ao Comando da Polícia. Antes de fazer qualquer alteração ia à Polícia Municipal e ao Comando da Polícia. E explicava, qual era o objetivo Primeiro, falo com eles, antes de mostrar cá para fora, oiço as críticas, deixo-lhes tempo, dou-lhes um prazo de quinze dias para eles mastigarem aquilo e depois mandarem sugestões... Numa segunda fase o envolvimento em conjunto (no projeto).”

EN: *“(Barriers) Now they are a bit more moderate from the point of view of their expression. ACP and ANSR still have a position too ... ANSR is too securitarian.*

(More influential) Yes. By institutional tradition these entities are conservative. It is part. They are conservative. More than defending automobility, at this moment, they are very scared of what is new. They’ve been worse. When I was in office, they were much stronger from the point of view of defending automobility, they’re intransigence with automobility....

Now, there’s a fact that I also learned, which was, that if you involve them in discussing things with other partners from the beginning, it’s crucial. Because this is very important.

I started to do one thing, which was to go to the Police Headquarters. Before making any changes, I went to the Municipal Police and the Police Headquarters. And it explained, what was the objective... First, I spoke with them, before bringing out, I listened to their criticism, I gave them time, I gave them a period of fifteen days for them to assess it and then send suggestions... In a second phase, joint involvement (on the project).”

Interviewee #10 – Former Policy Broker:

PT: "O IP acho que claramente é uma entidade que ainda não interiorizou a importância da bicicleta presente e futura, nem o peão. A PSP diria que já está mais sensibilizada ...

A Infraestruturas de Portugal (IP) claramente cria barreiras (à utilização da bicicleta). As outras não sei dizer, não estou por dentro da situação."

EN: "I think IP is clearly an entity that has not yet internalised the importance of the present and future of cycling, nor of pedestrians. PSP would say that it is already more aware...

Infraestruturas de Portugal (IP) clearly creates barriers (to bicycle-use). The others I can't say, I'm not aware of the situation."

Interviewee #11 – Journalist:

PT: "Acho que há uma oposição ativa (ao Código da Estrada).

Claramente (criam barreiras à utilização da bicicleta). Há várias maneiras de criar barreiras, não é só desse ponto de vista de regulamentação, acho que também do ponto de vista da atuação da polícia (PSP), o facto da fiscalização parca dos automóveis e uma sobre-fiscalização, que é contraproducente aos utilizadores das bicicletas e dos peões.

Por exemplo, eles demitiram-se. É uma demissão de responsabilidades, no caso da Marginal que é uma estrada que vai ser sempre utilizada por bicicletas. E pronto acho que isso é uma demissão de responsabilidades, e acho que essa demissão de responsabilidades é colocar um obstáculo, e mais do que colocar um obstáculo é colocar pessoas e vidas em risco. Portanto a atuação nesse caso das Infraestruturas de Portugal é um perigo para a vida pública dos portugueses, e para a mobilidade das pessoas.

(Percecionadas como sendo mais influentes)... Claramente... Estas pessoas sabem que são instituições com poder de decisão e com poder de influência muito grande E não é só uma percepção, é uma coisa que transparece mesmo para as decisões, e para a vida real."

EN: "I think there is active opposition (to the Traffic Code).

Clearly (they create barriers to cycling). There are several ways to create barriers, not only from the regulatory point of view, I think also from the (PSP) policing point of view, the fact there's a lack of enforcement on automobiles and over-enforcement of cycling, which is counterproductive both cyclists and pedestrians.

For example, they conform themselves. It is a dismissal of their responsibility, in the case of Marginal Avenue, which is a road that will always be used by cyclists. And then I think there is this resignation of responsibility, and I think that this resignation of responsibility is putting an obstacle, and more than putting an obstacle, it is putting people and their lives at risk. Therefore, the way Infrastructures of Portugal conducts the matter is a danger to the public life of the Portuguese people and their mobility.

(Perceived as being more influential) ... Clearly... These people know that they are institutions with decision-making power and very strong influence. And it's not just a perception, it's something that really shines through in decisions, and in real life."

Events - Identifying the Relevance of External factors (Degree of Beliefs)

39. Regarding the cycling subsystem, are there any specific external factors you can identify as influencing policy change in Lisbon's cycling mobility scene? Which events occurring since 2009, or before that, would you consider had the most impact on the cycling subsystem in Lisbon? (from Sabatier & Pelkey, 1987, p. 248-249) Have these had an impact on your organisation? What impacts did they have in particular?

Interviewee #2 – Epistemic actor:

PT: "(Não é da bicicleta), mas o passe do PART, o diálogo entre todos os municípios, o compromisso."

EN: "(It's not Cycling), but the PART public transport pass, the dialogue between the municipalities, the commitment."

40. Which one external episode do you consider has had the greatest impact for increased cycling in Lisbon since 2009?

41. Which factor within Lisbon, Oeiras, or Cascais municipality do you consider has had the most impact since 2009?

Interviewee #7 – Policy Broker (in office):

PT: *“Em Oeiras não vejo nada.”*

EN: *“In Oeiras I don’t see anything.”*

42. Regarding changes in legislation, what are your views on policy issues regarding cycling:

a) On the national traffic code?

d) On municipal programs and investments in Lisbon, Cascais, Oeiras?

Interviewee # 1 – Citizen:

PT: *“Acho que há interesse em fazer a bicicleta crescer em Lisboa, estão a trabalhar nisso. Em Oeiras não vejo nada, acho que não há mesmo nada, só fazem alguma coisa para dizer que fazem alguma coisa, mas na realidade não fazem nada. Cascais dá alguma atenção à bicicleta, não tanto como em Lisboa, mas estão a fazer alguma coisa.”*

EN: *“I think there’s interest in making cycling grow in Lisbon, they’re working on it. In Oeiras I don’t see anything, I think there’s nothing, they only do something to say that they’re doing something, but in reality, they don’t do anything. Cascais gives some attention to cycling, not as much as in Lisbon, but yes they’re doing something.”*

Interviewee #2 – Epistemic actor:

PT: *“Preocupam-me principalmente que, sendo um compromisso até ao próximo ano, 2021, e depois disso não haja um plano, uma estratégia, uma visão para a cidade. Isso preocupa-me imenso. Estão a fazer as obras para 2021 e depois acabou. Depois vamos ficar mais uns anos como estamos agora, estagnados.”*

EN: *“I am especially concerned that, being a commitment until next year, 2021, and after that there’s no plan, a strategy, a vision for the city. This worries me immensely. They are doing the work for 2021 and then it’s over. Then we’ll stay a few more years like we are now, stagnated.”*

c) Has your organisation changed its position regarding cycling’s status over the last decade in the AML?

d) Any significant changes that you consider regarding the most influential actors involved in policy development at the local or metropolitan level in Lisbon? At the national level in Portugal?

Interviewee #1 – Citizen:

PT: *“Sim, (na minha opinião vejo uma mudança em relação à bicicleta) há 10 anos não usava bicicleta em Lisboa, e agora com as ciclovias sim. Na verdade, usei as bicicletas públicas, com bastante calma. Em Cascais, também, embora algumas áreas são um pouco confusas. Em Oeiras praticamente não ando de bicicleta, não me sinto à vontade, a não ser talvez no Jamor, mas no resto (do concelho) não.”*

Em Portugal, a nível nacional, não sei se houve alguma alteração (significativa) fora de Lisboa. Nas cidades europeias, sim, houve uma mudança.”

EN: *“Yes, (in my opinion, I’ve noticed regarding cycling) 10 years ago I wouldn’t dare to cycle in Lisbon, and now with the cycleways yes. In fact, I’ve used the public bicycles, cycling quite calmly. In Cascais, also, although some areas that are a little confusing. In Oeiras I practically don’t cycle, I don’t feel at ease, except maybe in Jamor, but the rest (of the municipality) no.”*

“In Portugal, at a national level, I don’t know if there’s been any (significant) change outside of Lisbon. In European cities yes there’s a change.”

Appendix II – Quantitative research: moving count data

Appendix II – Quantitative research: moving count data

n	n Day	Date	Year	Date	Weekend	Hour	Time	Rush Hour	Travel Time (min)	Weather	No Rain	Temp. (°C)	Segment	Bikeshare	Length (m)	Cycleway Length (m)	Cycleway %	Municipality (Lisboa)	Male	Male-helmet	Female	Female-helmet	Total	Bicycles/Hour	Obs	
1	1	07.2009	2009	07.2009	0		1400	0	25	clear	1	25	PA-AG	0	5776	1518	26%	0					0	0		
2			2009	07.2009	0		1430	0	65	clear	1	25	AG-QC	0	16822	8464	50%	1					6	6		
									65															0	0	Oeiras
									90															6	6	Lisboa
									90															6	6	Overall
3	2		2010	07.2009	0		900	1	25	clear	1	17	PA-AG	0	5776	1518	26%	0					1	2		
4			2010	07.2009	0		930	1	65	clear	1	17	AG-QC	0	16822	8464	50%	1					15	14		
									25															1	2	Oeiras
									65															15	14	Lisboa
									90															16	11	Overall
5	3		2011	07.2009	0		900	1	25	clear	1	17	PA-AG	0	5776	1518	26%	0					1	2		
6			2011	07.2009	0		930	1	65	clear	1	17	AG-QC	0	16822	8464	50%	1					20	18		
									25															1	2	Oeiras
									65															20	18	Lisboa
									90															21	14	Overall
7	4		2012	07.2009	0		900	1	25	clear	1	17	PA-AG	0	5776	1518	26%	0					1	2		
8			2012	07.2009	0		930	1	65	clear	1	17	AG-QC	0	16822	8464	50%	1					26	24		
									25															1	2	Oeiras
									65															26	24	Lisboa
									90															27	18	Overall
9	5		2013	07.2009	0		900	1	25	clear	1	17	PA-AG	0	5776	1518	26%	0					2	5		
10			2013	07.2009	0		930	1	65	clear	1	17	AG-QC	0	16822	8464	50%	1					34	31		
									25															2	5	Oeiras
									65															34	31	Lisboa
									90															36	24	Overall
11	6		2014	07.2009	0		900	1	25	clear	1	17	PA-AG	0	5776	1518	26%	0					3	7		
12			2014	07.2009	0		930	1	65	clear	1	17	AG-QC	0	16822	9054	54%	1					3	7		
									25															3	7	Oeiras
									65															39	36	Lisboa
									90															42	28	Overall
13	7	21.10.2015	2015	21.10.2015	0		1800-1900	1800	1	60	clear	1	21	CG-TP-AG	0	15636	8980	57%	1	66	26	18	1	84	84	
14			2015	21.10.2015	0		1900-1930	1900	1	30	clear	1	21	AG-PA	0	5776	3227	56%	0	12	8	2	1	14	28	
15	8	11.11.2015	2015	11.11.2015	0		1700-1800	1700	1	60	clear	1	19	CG-TP-AG	0	15636	8980	57%	1	44	21	10	1	54	54	
16			2015	11.11.2015	0		1800-1808	1800	1	8	clear	1	19	AG-CQ	0	2014	1709	85%	0	5	3	1	0	6	45	
17	9	17.11.2015	2015	17.11.2015	0		0905-0940	905	1	35	clear	1	16	AG-CS	0	8495	6906	81%	1	19	6	11	1	30	51	
18			2015	17.11.2015	0		1745-1830	1745	1	45	clear	1	16	CG-TP-AG	0	15636	8980	57%	1	38	12	4	1	42	56	
19	10	18.11.2015	2015	18.11.2015	0		1620-1645	1620	0	25	clear	1	16	EC-TP	0	4929	0	0%	1	7	2	1	1	8	19	
20			2015	18.11.2015	0		1645-1725	1645	0	40	clear	1	16	TP-AG	0	9223	7496	81%	1	33	12	9	0	42	63	
21	11	19.11.2015	2015	19.11.2015	0		1700-1720	1700	1	20	clear	1	16	CG-TP	0	6422	1484	23%	1	7	2	0	0	7	21	
22			2015	19.11.2015	0		1720-1805	1720	1	45	clear	1	16	TP-AG	0	9223	7496	81%	1	45	18	8	1	53	71	
23			2015	19.11.2015	0		1805-1813	1805	1	8	clear	1	16	AG-CQ	0	2014	1709	85%	0	5	5	0	0	5	38	
24	12	21.10.2015	2015	21.10.2015	0		1800-1900	1800	1	60	clear	1	22	CG-TP-AG	0	15636	8980	57%	1	66	26	18	1	84	84	
25			2015	21.10.2015	0		1900-1930	1900	1	30	clear	1	22	AG-PA	0	5776	3227	56%	0	12	8	2	1	14	28	
26	13	24.11.2015	2015	24.11.2015	0		1230-1250	1230	0	20	clear	1	15	CG-TP	0	6422	1484	23%	1	7	1	0	0	7	21	
27			2015	24.11.2015	0		1250-1335	1250	0	45	clear	1	15	TP-AG	0	9223	7496	81%	1	15	9	6	1	21	28	
28			2015	24.11.2015	0		1335-1343	1335	0	8	clear	1	15	AG-CQ	0	2014	1709	85%	0	2	2	0	0	2	15	
29	14	27.11.2015	2015	27.11.2015	0		1230-1250	1230	0	20	clear	1	18	EC-TP	0	4929	0	0%	1	7	1	0	0	7	21	
30			2015	27.11.2015	0		1250-1345	1250	0	55	clear	1	18	TP-AG	0	9223	7496	81%	1	22	8	12	1	34	37	
31	15	1.12.2015	2015	1.12.2015	0		1230-1250	1230	0	20	rain	0	14	EC-TP	0	4929	0	0%	1	2	0	0	0	2	6	
32			2015	1.12.2015	0		1250-1345	1250	0	55	rain	0	14	TP-AG	0	9223	7496	81%	1	14	7	3	0	17	19	
33	16	4.12.2015	2015	4.12.2015	0		0845-930	845	1	45	clear	1	13	AG-PA	0	5776	3227	56%	0	14	9	2	0	16	21	
34			2015	4.12.2015	0		0930-1000	930	1	30	clear	1	13	TP-CG	0	6422	1484	23%	1	4	2	0	0	4	8	
35			2015	4.12.2015	0		1320-1340	1320	0	20	clear	1	13	CG-TP	0	6422	1484	23%	1	5	1	3	2	8	24	
36			2015	4.12.2015	0		1340-1415	1340	0	35	clear	1	13	TP-AG	0	9223	7496	81%	1	10	2	4	1	14	24	
37	17	10.12.2015	2015	10.12.2015	0		1550-1600	1550	0	10	cloudy	1	14	EC-TP	0	4929	0	0%	1	2	1	0	0	2	12	
38			2015	10.12.2015	0		1600-1645	1600	0	45	cloudy	1	14	TP-AG	0	9223	7496	81%	1	15	8	1	0	16	21	
39			2015	10.12.2015	0		1645-1715	1645	0	30	cloudy	1	14	AG-PA	0	5776	3227	56%	0	5	4	1	0	6	12	
40	18	15.12.2015	2015	15.12.2015	0		1440-1505	1440	0	25	cloudy	1	20	CG-MP	0	4235	1484	35%	1	4	2	0	0	4	10	
41			2015	15.12.2015	0		1505-1510	1505	0	5	cloudy	1	20	MP-TP	0	2178	0	0%	1	3	2	1	1	4	48	
42			2015	15.12.2015	0		1530-1615	1530	0	45	cloudy	1	20	TP-AG	0	9223	7496	81%	1	11	3	1	0	12	16	
43			2015	15.12.2015	0		1615-1645	1615	0	30	cloudy	1	20	AG-PA	0	5776	3227	56%	0	6	4	0	0	6	12	
									189														69	22	Oeiras	
									820														556	41	Lisboa	
									1009														625	37	Overall	
44	19	14.1.2016	2016	14.1.2016	0		1630-1648	1630	0	18	rain	0	12	EC-TP	0	4929	0	0%	1	2	0	0	0	2	7	
45			2016	14.1.2016	0		1648-1650	1648	0	2	rain	0	12	TP-CS	0	728	590	81%	1	2	1	0	0	2	60	
46	20	29.1.2016	2016	29.1.2016	0		1455-1530	1455	0	35	clear	1	13	TP-AG	0	9223	7496	81%	1	18	4	3	0	21	36	
47			2016	29.1.2016	0		1530-1540	1530	0	10	clear	1	13	AG-CQ	0	2014	1709	85%	0	5	4	1	0	4	24	
48			2016	29.1.2016	0		1540-1605	1540	0	25	clear	1	13	CQ-PA	0	3762	1518	40%	0	5	5	0	0	5	12	
49	21	4.2.2016	2016	4.2.2016	0		1010-1020	1010	0	10	clear	1	9	MP-TP	0	2178	0	0%	1	6	4	1	1	7	42	
50			2016	4.2.2016	0		1020-1055	1020	0	35	clear	1	9	TP-AG	0	9223	7496	81%	1	22	13					

108	2016	21.4.2016	0	0943-0956	943	1	13	cloudy	1	14	TP-MP	0	2178	0	0%	1	17	4	23	2	40	185
109	2016	21.4.2016	0	0956-1015	956	1	19	cloudy	1	14	MP-EC	0	2751	0	0%	1	3	3	1	1	4	13
110	2016	21.4.2016	0	1530-1542	1530	0	12	clear	1	14	EC-MP	0	2751	0	0%	1	4	2	0	0	4	20
111	2016	21.4.2016	0	1550-1553	1550	0	3	cloudy	1	14	TP-CS	0	728	590	81%	1	5	3	1	0	6	120
112	2016	21.4.2016	0	1554-1630	1554	0	36	cloudy	1	14	CS-AG	0	8495	6906	81%	1	13	1	22	0	35	58
113	2016	21.4.2016	0	1635-1644	1635	0	9	clear	1	14	AG-CQ	0	2014	1709	85%	1	2	1	0	0	2	13
114	2016	21.4.2016	0	1645-1705	1645	0	20	cloudy	1	14	CO-PA	0	3762	1518	40%	0	2	0	0	0	2	6
115	37	27.4.2016	2016	0857-900	857	1	3	clear	1	12	CS-TP	0	728	590	81%	1	5	2	1	1	6	120
116	2016	27.4.2016	0	9300-944	9300	0	14	clear	1	12	TP-MP	0	2178	0	0%	1	6	5	0	0	6	26
117	2016	27.4.2016	0	1237-1240	1237	0	3	clear	1	12	TP-CS	0	728	590	81%	1	0	0	1	0	1	20
118	2016	27.4.2016	0	1240-1315	1240	0	35	clear	1	12	CS-AG	0	8495	6906	81%	1	23	10	13	3	36	62
119	2016	27.4.2016	0	1330-1350	1330	0	20	clear	1	12	CO-PA	0	3762	1518	40%	0	6	3	1	0	7	21
120	38	28.4.2016	2016	0840-0910	840	1	30	clear	1	13	AG-CS	0	8495	6906	81%	1	4	1	0	0	4	8
121	2016	28.4.2016	0	0910-0915	910	1	5	clear	1	13	CS-TP	0	728	590	81%	1	0	0	0	0	0	0
122	2016	28.4.2016	0	1215-1218	1215	0	3	clear	1	13	TP-CS	0	728	590	81%	1	7	4	1	0	8	160
123	2016	28.4.2016	0	1218-1251	1218	0	33	clear	1	13	CS-AG	0	8495	6906	81%	1	15	5	13	0	28	51
124	2016	28.4.2016	0	1300-1320	1300	0	20	clear	1	13	CO-PA	0	3762	1518	40%	0	5	3	1	0	6	18
125	39	30.4.2016	2016	0955-0958	955	1	3	clear	1	16	CS-TP	0	728	590	81%	1	13	10	2	2	15	300
126	2016	30.4.2016	0	1315-1325	1315	0	10	clear	1	16	MP-TP	0	2178	0	0%	1	2	0	1	1	3	18
127	2016	30.4.2016	0	1327-1330	1327	0	3	clear	1	16	TP-CS	0	728	590	81%	1	11	1	5	0	16	320
128	40	2.5.2016	2016	1150-1153	1150	0	3	clear	1	18	CS-TP	0	728	590	81%	1	8	1	12	0	20	400
129	2016	2.5.2016	0	1422-1430	1422	0	8	clear	1	18	MP-TP	0	2178	0	0%	1	3	0	0	0	3	23
130	2016	2.5.2016	0	1430-1433	1430	0	3	clear	1	18	TP-CS	0	728	590	81%	1	2	0	1	0	3	60
131	41	4.5.2016	2016	0935-938	935	1	3	cloudy	1	22	CS-TP	0	728	590	81%	1	9	5	2	2	11	220
132	2016	4.5.2016	0	0940-995	940	1	15	cloudy	1	22	TP-MP	0	2178	0	0%	1	1	0	0	0	1	4
133	2016	4.5.2016	0	1140-1150	1140	0	10	cloudy	1	22	MP-EC	0	2751	0	0%	1	1	0	0	0	1	6
134	2016	4.5.2016	0	1430-1435	1430	0	5	cloudy	1	22	EC-MP	0	2751	0	0%	1	1	0	0	0	1	12
135	2016	4.5.2016	0	1435-1445	1435	0	10	cloudy	1	22	MP-TP	0	2178	0	0%	1	3	0	0	0	3	18
136	2016	4.5.2016	0	1540-1550	1540	0	10	cloudy	1	22	TP-MP	0	2178	0	0%	1	6	2	0	0	6	36
137	2016	4.5.2016	0	1800-1815	1800	1	15	cloudy	1	22	MP-TP	0	2178	0	0%	1	4	1	2	0	6	24
138	2016	4.5.2016	0	1815-1818	1815	1	3	cloudy	1	22	TP-CS	0	728	590	81%	1	9	2	5	1	14	280
139	2016	4.5.2016	0	1820-1855	1820	1	35	cloudy	1	22	CS-AG	0	8495	6906	81%	1	32	20	4	0	36	62
140	2016	4.5.2016	0	1900-1907	1900	1	7	cloudy	1	22	AG-CQ	0	2014	1709	85%	0	4	2	2	2	6	51
141	2016	4.5.2016	0	1907-1925	1907	1	18	cloudy	1	22	CO-PA	0	3762	1518	40%	0	2	2	0	0	2	7
142	42	10.5.2016	2016	1715-1718	1715	1	3	cloudy	1	15	CS-TP	0	728	590	81%	1	3	0	0	0	3	60
143	2016	10.5.2016	0	1800-1815	1800	1	5	cloudy	1	15	MP-MP	0	2178	0	0%	1	5	0	1	1	6	120
144	43	11.5.2016	2016	1020-1023	1020	0	3	rain	0	14	CS-TP	0	728	590	81%	1	4	2	0	0	4	80
145	2016	11.5.2016	0	1023-1033	1023	0	10	rain	0	14	TP-MP	0	2178	0	0%	1	2	0	9	0	11	66
146	2016	11.5.2016	0	1345-1355	1345	0	10	rain	0	14	MP-TP	0	2178	0	0%	1	3	1	1	1	4	24
147	2016	11.5.2016	0	1355-1400	1355	0	5	rain	0	14	TP-CS	0	728	590	81%	1	2	0	1	0	3	36
148	44	13.5.2016	2016	1625-1630	1625	0	5	cloudy	1	14	CS-TP	0	728	590	81%	1	5	0	0	0	5	60
149	2016	13.5.2016	0	1630-1640	1630	0	10	cloudy	1	14	TP-MP	0	2178	0	0%	1	0	0	0	0	0	0
150	2016	13.5.2016	0	1640-1655	1640	0	15	cloudy	1	14	MP-EC	0	2751	0	0%	1	1	1	1	0	2	8
151	2016	13.5.2016	0	1904-1925	1904	1	21	cloudy	1	14	EC-MP	0	2751	0	0%	1	2	1	0	0	2	6
152	2016	13.5.2016	0	1925-1935	1925	1	10	cloudy	1	14	MP-TP	0	2178	0	0%	1	0	0	0	0	0	0
153	2016	13.5.2016	0	1935-1940	1935	1	5	cloudy	1	14	TP-CS	0	728	590	81%	1	5	0	1	1	6	72
154	45	18.5.2016	2016	0825-0828	825	1	3	clear	1	18	CS-TP	0	728	590	81%	1	10	5	4	0	14	280
155	2016	18.5.2016	0	0828-0843	828	1	15	clear	1	18	TP-MP	0	2178	0	0%	1	3	2	2	1	5	20
156	2016	18.5.2016	0	1220-1230	1220	0	10	clear	1	18	MP-TP	0	2178	0	0%	1	1	0	0	0	1	6
157	2016	18.5.2016	0	1230-1235	1230	0	5	clear	1	18	TP-CS	0	728	590	81%	1	3	0	0	0	3	36
158	2016	18.5.2016	0	1235-1305	1235	0	30	clear	1	18	CS-AG	0	8495	6906	81%	1	16	8	18	1	34	68
159	2016	18.5.2016	0	1305-1315	1305	0	10	clear	1	18	AG-CQ	0	2014	1709	85%	0	0	0	0	0	0	0
160	2016	18.5.2016	0	1315-1335	1315	0	20	clear	1	18	CO-PA	0	3762	1518	40%	0	8	5	1	1	9	27
161	46	25.5.2016	2016	1025-1030	1025	0	5	cloudy	1	16	CS-TP	0	728	590	81%	1	9	4	2	1	11	132
162	2016	25.5.2016	0	1030-1040	1030	0	10	cloudy	1	16	TP-MP	0	2178	0	0%	1	0	0	0	0	0	0
163	2016	25.5.2016	0	1040-1050	1040	0	10	cloudy	1	16	MP-EC	0	2751	0	0%	1	2	2	0	0	2	12
164	2016	25.5.2016	0	1740-1750	1740	0	10	cloudy	1	16	MP-TP	0	2178	0	0%	1	4	0	0	0	4	24
165	2016	25.5.2016	0	1800-1805	1800	1	5	cloudy	1	16	TP-CS	0	728	590	81%	1	13	9	1	1	14	168
166	2016	25.5.2016	0	1805-1845	1805	1	40	cloudy	1	16	CS-AG	0	8495	6906	81%	1	24	12	10	2	34	51
167	2016	25.5.2016	0	1845-1850	1845	1	5	cloudy	1	16	AG-CQ	0	2014	1709	85%	0	8	2	0	0	8	96
168	2016	25.5.2016	0	1850-1910	1850	1	20	cloudy	1	16	CO-PA	0	3762	1518	40%	0	4	3	1	0	5	15
169	47	1.6.2016	2016	0915-0918	915	1	3	clear	1	20	CS-TP	0	728	590	81%	1	6	3	0	0	6	120
170	2016	1.6.2016	0	0918-0930	918	1	12	clear	1	20	TP-MP	0	2178	0	0%	1	2	2	2	1	4	20
171	2016	1.6.2016	0	1335-1345	1335	0	10	clear	1	20	MP-TP	0	2178	0	0%	1	2	0	0	0	2	12
172	2016	1.6.2016	0	1345-1355	1345	0	10	clear	1	20	TP-CS	0	728	590	81%	1	3	1	3	2	8	96
173	2016	1.6.2016	0	1350-1430	1350	0	40	clear	1	20	CS-AG	0	8495	6906	81%	1	14	3	6	2	20	30
174	2016	1.6.2016	0	1430-1440	1430	0	10	clear	1	20	AG-CQ	0	2014	1709	85%	0	0	0	3	2	3	18
175	2016	1.6.2016	0	1440-1455	1440	0	15	clear	1	20	CO-PA	0	3762	1518	40%	0	4	1	0	0	4	16
176	48	7.6.2016	2016	0952-0955	952	1	3	clear	1	20	CS-TP	0	728	590	81%	1	22	3	8	5	30	600
177	2016	7.6.2016	0	0955-1010	955	1	15	clear	1	28	TP-MP	0	2178	0	0%	1	1					

243		2016	22.8.2016	0	0920-0930	920	1	10	clear	1	32	TP-MP	0	2178	0	0%	1	1	0	0	0	1	6
244		2016	22.8.2016	0	0940-0950	940	1	10	clear	1	32	MP-TP	0	2178	0	0%	1	3	1	2	0	5	30
245		2016	22.8.2016	0	1530-1615	1530	0	45	clear	1	32	CS-AG	0	8495	6906	81%	1	22	5	9	1	31	41
246		2016	22.8.2016	0	1615-1623	1615	0	8	clear	1	32	AG-CQ	0	2014	1709	85%	0	2	2	0	0	2	15
247		2016	22.8.2016	0	1625-1646	1625	0	20	clear	1	32	CQ-PA	0	3762	1518	40%	0	2	1	1	0	3	9
248	63	1.9.2016	2016	1.9.2016	0	1255-1300	1255	0	5	clear	1	27	CS-TP	0	728	590	81%	1	2	0	0	2	24
249		2016	1.9.2016	0	1420-1430	1420	0	10	clear	1	27	TP-MP	0	2178	0	0%	1	0	0	0	0	0	0
250		2016	1.9.2016	0	1925-1935	1925	1	10	clear	1	27	MP-TP	0	2178	0	0%	1	3	1	0	0	3	18
251		2016	1.9.2016	0	1935-1940	1935	1	5	clear	1	27	TP-CS	0	728	590	81%	1	7	3	0	0	7	84
252	64	30.9.2016	2016	30.9.2016	0	1255-1258	1255	0	3	clear	1	27	TP-CS	0	728	590	81%	1	29	0	31	0	60
253	65	4.10.2016	2016	4.10.2016	0	0913-0917	913	1	4	clear	1	25	CS-TP	0	728	590	81%	1	17	4	1	0	18
254		2016	4.10.2016	0	0917-0928	917	1	9	clear	1	25	TP-MP	0	2178	0	0%	1	2	2	1	0	3	20
255		2016	4.10.2016	0	0928-0940	928	1	12	clear	1	25	MP-EC	0	2751	0	0%	1	3	2	1	1	4	17
256		2016	4.10.2016	0	1220-1234	1220	0	14	clear	1	25	EC-MP	0	2751	0	0%	1	4	1	0	0	4	20
257		2016	4.10.2016	0	1235-1245	1235	0	10	clear	1	25	MP-TP	0	2178	0	0%	1	0	0	0	0	0	0
258		2016	4.10.2016	0	1245-1249	1245	0	4	clear	1	25	TP-CS	0	728	590	81%	1	7	4	6	6	13	
259		2016	4.10.2016	0	1249-1328	1249	0	39	clear	1	25	CS-AG	0	8495	6906	81%	1	27	6	14	1	41	
260		2016	4.10.2016	0	1328-1336	1328	0	8	clear	1	25	AG-CQ	0	2014	1709	85%	0	0	0	0	0	0	0
261		2016	4.10.2016	0	1338-1356	1338	0	22	clear	1	25	CQ-PA	0	3762	1518	40%	0	6	5	0	0	6	16
262	66	7.10.2016	2016	7.10.2016	0	1030-1035	1030	0	5	clear	1	24	CS-TP	0	728	590	81%	1	14	4	8	0	22
263		2016	7.10.2016	0	1040-1055	1040	0	15	clear	1	24	TP-MP	0	2178	0	0%	1	15	0	7	0	22	
264		2016	7.10.2016	0	1600-1609	1600	0	9	clear	1	24	MP-TP	0	2178	0	0%	1	4	0	7	0	11	
265		2016	7.10.2016	0	1610-1613	1610	0	3	clear	1	24	TP-CS	0	728	590	81%	1	1	0	0	0	1	73
266	67	10.10.2016	2016	10.10.2016	0	0945-0952	945	1	7	cloudy	1	18	EC-CG	0	1484	1484	100%	1	13	4	6	2	19
267		2016	10.10.2016	0	1100-1104	1100	0	4	cloudy	1	18	OC-CG	0	1186	74	6%	1	1	0	0	0	1	163
268		2016	10.10.2016	0	1104-1109	1104	0	5	cloudy	1	18	CS-EC	0	1484	1484	100%	1	4	0	0	0	4	48
269		2016	10.10.2016	0	1109-1121	1109	0	12	cloudy	1	18	EC-MP	0	2751	0	0%	1	1	0	0	0	1	5
270		2016	10.10.2016	0	1121-1128	1121	0	13	cloudy	1	18	MP-TP	0	2178	0	0%	1	9	8	8	17	78	
271		2016	10.10.2016	0	1130-1134	1130	0	4	cloudy	1	18	TP-CS	0	728	590	81%	1	2	0	0	0	2	30
272		2016	10.10.2016	0	1134-1206	1134	0	32	cloudy	1	18	CS-AG	0	8495	6906	81%	1	24	6	13	2	37	
273		2016	10.10.2016	0	1312-1320	1312	0	8	cloudy	1	18	AG-CQ	0	2014	1709	85%	0	3	1	0	0	3	23
274		2016	10.10.2016	0	1320-1338	1320	0	18	cloudy	1	18	CQ-PA	0	3762	1518	40%	0	7	6	0	0	7	23
275	68	12.10.2016	2016	12.10.2016	0	1612-1615	1612	0	3	rain	0	16	CS-TP	0	728	590	81%	1	1	0	0	0	1
276		2016	12.10.2016	0	1615-1630	1615	0	15	rain	0	16	TP-MP	0	2178	0	0%	1	0	0	0	0	0	20
277		2016	12.10.2016	0	1844-1849	1844	1	5	rain	0	16	MP-TP	0	2178	0	0%	1	2	0	0	0	2	24
278		2016	12.10.2016	0	1849-1853	1849	1	4	rain	0	16	TP-CS	0	728	590	81%	1	6	4	0	0	6	90
279	69	13.10.2016	2016	13.10.2016	0	1450-1453	1450	0	3	cloudy	1	15	CS-TP	0	728	590	81%	1	1	0	0	0	1
280		2016	13.10.2016	0	1453-1503	1453	0	10	cloudy	1	15	TP-MP	0	2178	0	0%	1	4	4	2	2	6	36
281		2016	13.10.2016	0	1755-1803	1755	1	8	cloudy	1	15	MP-TP	0	2178	0	0%	1	2	0	0	0	2	15
282		2016	13.10.2016	0	1803-1806	1803	1	3	cloudy	1	15	TP-CS	0	728	590	81%	1	25	1	25	0	50	
283	70	14.10.2016	2016	14.10.2016	0	1820-1828	1820	1	8	clear	1	15	AG-CQ	0	2014	1709	85%	0	4	0	0	0	4
284		2016	14.10.2016	0	1829-1849	1829	1	20	clear	1	15	CQ-PA	0	3762	1518	40%	0	7	5	0	0	7	21
285	71	17.10.2016	2016	17.10.2016	0	1300-1325	1300	0	25	rain	0	29	PA-CQ	0	3762	1518	40%	0	1	0	0	0	1
286		2016	17.10.2016	0	1325-1335	1325	0	10	rain	0	29	OC-AG	0	2014	1709	85%	0	0	0	0	0	0	0
287		2016	17.10.2016	0	1700-1710	1700	1	10	rain	0	29	AG-CQ	0	2014	1709	85%	0	1	0	0	0	1	6
288		2016	17.10.2016	0	1710-1732	1710	1	22	rain	0	29	CQ-PA	0	3762	1518	40%	0	1	1	0	0	1	9
289	72	19.10.2016	2016	19.10.2016	0	1730-1745	1730	1	15	cloudy	1	18	MP-TP	0	2178	0	0%	1	7	3	1	0	8
290		2016	19.10.2016	0	1745-1748	1745	1	3	cloudy	1	18	TP-CS	0	728	590	81%	1	9	2	4	0	13	
291		2016	19.10.2016	0	1750-1823	1750	1	33	cloudy	1	18	CS-AG	0	8495	6906	81%	1	30	9	9	1	39	
292		2016	19.10.2016	0	1823-1830	1823	1	7	cloudy	1	18	AG-CQ	0	2014	1709	85%	0	4	1	3	0	7	60
293		2016	19.10.2016	0	1830-1850	1830	1	20	cloudy	1	18	CQ-PA	0	3762	1518	40%	0	8	4	2	0	10	
294	73	21.10.2016	2016	21.10.2016	0	1503-1506	1503	0	3	cloudy	1	20	CS-TP	0	728	590	81%	1	4	0	0	0	4
295		2016	21.10.2016	0	1510-1513	1510	0	3	cloudy	1	20	TP-CS	0	728	590	81%	1	4	1	0	0	4	
296		2016	21.10.2016	0	1520-1550	1520	0	30	cloudy	1	20	CS-AG	0	8495	6906	81%	1	18	2	8	0	26	
297		2016	21.10.2016	0	1550-1558	1550	0	8	cloudy	1	20	AG-CQ	0	2014	1709	85%	0	0	0	0	0	0	0
298	74	03.11.2016	2016	03.11.2016	0	1000-1003	1000	0	3	cloudy	1	18	CS-TP	0	728	590	81%	1	5	2	0	0	5
299		2016	03.11.2016	0	1003-1020	1003	0	17	cloudy	1	18	TP-MP	0	2178	0	0%	1	5	1	2	0	7	
300		2016	03.11.2016	0	1810-1812	1810	1	2	cloudy	1	18	EC-MP	0	2751	0	0%	1	3	1	2	0	5	
301		2016	03.11.2016	0	1813-1819	1813	1	6	cloudy	1	18	MP-TP	0	2178	0	0%	1	0	0	1	1	1	
302		2016	03.11.2016	0	1820-1823	1820	1	3	cloudy	1	18	TP-CS	0	728	590	81%	1	6	2	0	0	6	
303		2016	03.11.2016	0	1825-1901	1825	1	36	cloudy	1	18	CS-AG	0	8495	6906	81%	1	16	7	3	2	19	
304		2016	03.11.2016	0	1901-1908	1901	1	7	cloudy	1	18	AG-CQ	0	2014	1709	85%	0	2	1	1	0	3	
305		2016	03.11.2016	0	1908-1928	1908	1	20	cloudy	1	18	CQ-PA	0	3762	1518	40%	0	2	2	0	0	2	
306	75	09.11.2016	2016	09.11.2016	0	1035-1038	1035	0	3	rain	0	20	CS-TP	0	728	590	81%	1	4	3	0	0	4
307		2016	09.11.2016	0	1038-1053	1038	0	15	rain	0	20	MP-EC	0	2751	0	0%	1	2	0	0	0	2	
308		2016	09.11.2016	0	1054-1104	1054	0	14	rain	0	20	MP-EC	0	2751	0	0%	1	2	0	0	0	2	
309		2016	09.11.2016	0	1715-1718	1715	1	3	rain	0	20	TP-CS	0	728	590	81%	1	9	3	1	0	10	
310	76	17.11.2016	2016	17.11.2016	0	0642-0645	642	0	3	clear	1	15	CS-TP	0	728	590	81%	1	3	1	0	0	

375		2017	20.04.2017	0	1130-1135	1130	0	5	clear	1	23	CG-EC	0	1484	1484	100%	1	4	2	0	0	4	48
376		2017	20.04.2017	0	1236-1246	1236	0	10	clear	1	23	MP-TP	0	2178	0	0%	1	7	3	5	3	12	72
377		2017	20.04.2017	0	1247-1250	1247	0	3	clear	1	23	TP-CS	0	728	590	81%	1	3	1	0	0	3	60
378		2017	20.04.2017	0	1903-1906	1903	1	2	clear	1	23	CS-TP	0	728	590	81%	1	9	4	5	0	14	320
379	88	2017	24.04.2017	0	1245-1248	1245	0	3	clear	1	24	CS-TP	0	728	590	81%	1	5	1	13	2	18	460
380		2017	24.04.2017	0	1248-1300	1248	0	12	clear	1	24	TP-MP	0	2178	0	0%	1	3	1	1	1	4	20
381		2017	24.04.2017	0	1300-1312	1300	0	12	clear	1	24	MP-EC	0	2751	2751	100%	1	3	0	2	1	5	25
382		2017	24.04.2017	0	1312-1320	1312	0	8	clear	1	24	EC-CG	0	1484	1484	100%	1	3	1	0	0	3	23
383		2017	24.04.2017	0	1520-1525	1520	0	5	clear	1	24	CG-EC	0	1484	1484	100%	1	6	2	0	0	6	72
384		2017	24.04.2017	0	1525-1537	1525	0	12	clear	1	24	EC-MP	0	2751	2751	100%	1	5	2	1	1	6	72
385		2017	24.04.2017	0	1537-1548	1537	0	11	clear	1	24	MP-TP	0	2178	0	0%	1	6	0	1	0	7	38
386		2017	24.04.2017	0	1548-1551	1548	0	3	clear	1	24	TP-CS	0	728	590	81%	1	2	1	1	1	3	60
387	89	2017	27.04.2017	0	0950-0953	950	1	3	clear	1	18	CS-TP	0	728	590	81%	1	8	2	2	3	10	200
388		2017	27.04.2017	0	0953-1003	953	1	10	clear	1	18	TP-MP	0	2178	0	0%	1	6	0	3	1	9	54
389		2017	27.04.2017	0	1645-1657	1645	0	12	clear	1	18	EC-MP	0	2751	2751	100%	1	10	3	3	1	13	65
390		2017	27.04.2017	0	1657-1706	1657	0	9	clear	1	18	MP-TP	0	2178	0	0%	1	3	0	3	2	6	40
391		2017	27.04.2017	0	1706-1709	1706	1	3	clear	1	18	TP-CS	0	728	590	81%	1	11	2	12	0	23	460
392	90	2017	02.05.2017	0	0755-0810	755	1	15	clear	1	16	PA-CQ	0	3762	2227	59%	0	4	1	2	1	6	24
393		2017	02.05.2017	0	0825-0840	825	1	15	clear	1	16	CQ-PA	0	3762	2227	59%	0	6	2	4	0	10	40
394		2017	02.05.2017	0	1050-1102	1050	0	12	clear	1	25	TP-MP	0	2178	0	0%	1	9	0	13	0	22	110
395		2017	02.05.2017	0	1530-1540	1530	0	10	clear	1	25	MP-TP	0	2178	0	0%	1	3	0	0	0	3	18
396		2017	02.05.2017	0	1540-1543	1540	0	3	clear	1	25	TP-CS	0	728	590	81%	1	2	0	1	0	3	60
397		2017	02.05.2017	0	1543-1617	1543	0	34	clear	1	25	CS-AG	0	8495	6906	81%	1	16	4	18	1	34	60
398		2017	02.05.2017	0	1655-1715	1655	0	20	clear	1	25	CQ-PA	0	3762	2227	59%	0	13	9	2	0	15	45
399	91	2017	04.05.2017	0	0800-0825	800	1	25	cloudy	1	18	PA-CQ	0	3762	2227	59%	0	5	3	0	0	5	12
400		2017	04.05.2017	0	0845-0915	845	1	30	cloudy	1	18	AG-CS	0	8495	6906	81%	1	14	6	6	4	20	40
401		2017	04.05.2017	0	0915-0918	915	1	3	cloudy	1	18	CS-TP	0	728	590	81%	1	4	0	2	1	6	120
402		2017	04.05.2017	0	0918-0930	918	1	12	cloudy	1	18	TP-MP	0	2178	0	0%	1	5	0	1	0	6	30
403		2017	04.05.2017	0	0930-0950	930	1	20	cloudy	1	18	MP-EC	0	2751	2751	100%	1	11	9	2	1	13	39
404		2017	04.05.2017	0	1357-1405	1357	0	8	cloudy	1	18	AG-CQ	0	2014	1709	85%	0	2	1	0	0	2	15
405		2017	04.05.2017	0	1405-1430	1405	0	15	cloudy	1	18	CQ-PA	0	3762	2227	59%	0	5	2	1	0	6	24
406		2017	04.05.2017	0	1625-1650	1625	0	25	cloudy	1	18	PA-CQ	0	3762	2227	59%	0	8	1	2	0	10	24
407		2017	04.05.2017	0	1805-1820	1805	1	15	cloudy	1	18	CQ-PA	0	3762	2227	59%	0	9	1	1	0	10	40
408	92	2017	05.05.2017	0	0927-0930	927	1	3	rain	0	19	CS-TP	0	728	590	81%	1	3	1	1	0	4	80
409		2017	05.05.2017	0	0930-0942	930	1	12	rain	0	19	TP-MP	0	2178	0	0%	1	0	0	0	0	0	0
410		2017	05.05.2017	0	0942-1002	1002	1	18	rain	0	19	MP-EC	0	2751	2751	100%	1	5	2	3	2	7	23
411		2017	05.05.2017	0	1620-1632	1620	0	12	rain	0	19	EC-MP	0	2751	2751	100%	1	3	1	1	0	4	20
412		2017	05.05.2017	0	1632-1641	1632	0	9	rain	0	19	MP-TP	0	2178	0	0%	1	3	2	0	0	3	20
413		2017	05.05.2017	0	1641-1644	1641	0	3	rain	0	19	TP-CS	0	728	590	81%	1	1	0	1	0	2	40
414		2017	05.05.2017	0	1645-1724	1645	0	39	rain	0	19	CS-AG	0	8495	6906	81%	1	16	6	11	0	27	42
415		2017	05.05.2017	0	1725-1735	1725	1	10	rain	0	19	AG-CQ	0	2014	1709	85%	0	2	1	0	0	2	12
416		2017	05.05.2017	0	1735-1755	1735	1	20	rain	0	19	CQ-PA	0	3762	2227	59%	0	1	1	0	0	1	3
417	93	2017	08.05.2017	0	1400-1420	1400	0	20	clear	1	25	PA-CQ	0	3762	2227	59%	0	11	5	0	0	11	33
418		2017	08.05.2017	0	1420-1428	1420	0	8	clear	1	25	CQ-AG	0	2014	1709	85%	0	0	1	1	1	1	8
419		2017	08.05.2017	0	1550-1558	1550	0	8	clear	1	25	AG-CQ	0	2014	1709	85%	0	7	2	1	1	8	60
420		2017	08.05.2017	0	1558-1616	1558	0	18	clear	1	25	CQ-PA	0	3762	2227	59%	0	5	3	2	2	7	23
421	94	2017	10.05.2017	0	0952-0955	952	1	3	cloudy	1	18	CS-TP	0	728	590	81%	1	7	2	3	0	10	200
422		2017	10.05.2017	0	0955-1008	955	1	13	cloudy	1	18	TP-MP	0	2178	0	0%	1	5	3	4	3	9	42
423		2017	10.05.2017	0	1009-1022	1009	0	11	cloudy	1	18	MP-EC	0	2751	2751	100%	1	7	2	2	1	9	45
424	95	2017	15.05.2017	0	1428-1431	1428	0	4	cloudy	1	25	CS-TP	0	728	590	81%	1	4	0	5	0	9	139
425		2017	15.05.2017	0	1431-1442	1431	0	11	cloudy	1	25	TP-MP	0	2178	0	0%	1	3	1	2	2	5	27
426		2017	15.05.2017	0	1442-1455	1442	0	13	cloudy	1	25	MP-EC	0	2751	2751	100%	1	3	1	3	1	6	28
427		2017	15.05.2017	0	1800-1810	1800	1	10	cloudy	1	25	EC-MP	0	2751	2751	100%	1	22	10	5	2	27	162
428		2017	15.05.2017	0	1810-1822	1810	1	12	cloudy	1	25	MP-TP	0	2178	0	0%	1	7	2	3	0	10	50
429		2017	15.05.2017	0	1822-1825	1822	1	3	cloudy	1	25	TP-CS	0	728	590	81%	1	11	2	5	1	16	320
430	96	2017	16.05.2017	0	0750-0810	750	1	20	clear	1	22	PA-CQ	0	3762	2227	59%	0	8	5	0	0	8	24
431		2017	16.05.2017	0	0835-0850	835	1	15	clear	1	22	CQ-PA	0	3762	2227	59%	0	3	0	1	1	4	16
432	97	2017	31.05.2017	0	1100-1105	1100	0	5	clear	1	31	CQ-CG	0	1186	74	6%	1	1	0	0	0	1	12
433		2017	31.05.2017	0	1105-1110	1105	0	5	clear	1	31	CG-EC	0	1484	1484	100%	1	2	1	0	0	2	24
434		2017	31.05.2017	0	1110-1130	1110	0	10	clear	1	31	EC-MP	0	2751	2751	100%	1	9	2	5	0	14	84
435		2017	31.05.2017	0	1130-1140	1130	0	10	clear	1	31	MP-TP	0	2178	0	0%	1	2	1	1	1	3	18
436		2017	31.05.2017	0	1140-1143	1140	0	3	clear	1	31	TP-CS	0	728	590	81%	1	4	2	1	0	5	100
437		2017	31.05.2017	0	1143-1218	1143	0	35	clear	1	31	CS-AG	0	8495	6906	81%	1	23	9	18	12	41	70
438		2017	31.05.2017	0	1218-1226	1218	0	8	clear	1	31	AG-CQ	0	2014	1709	85%	0	6	4	0	0	6	45
439		2017	31.05.2017	0	1226-1241	1226	0	16	clear	1	31	CQ-PA	0	3762	2227	59%	0	10	5	6	0	10	32
440	98	2017	02.06.2017	0	1455-1504	1455	0	9	clear	1	25	MP-TP	0	2178	0	0%	1	4	1	0	0	4	4
441		2017	02.06.2017	0	1505-1508	1505	0	3	clear	1	25	TP-CS	0	728	590	81%	1	8	0	0	0	8	160
442		2017	02.06.2017	0																			

510	2017	15.09.2017	0	0853-0923	853	1	30	clear	1	22	AG-CS	0	8495	6906	81%	1	15	6	2	1	17	34
511	2017	15.09.2017	0	0923-0926	923	1	3	clear	1	22	CS-TP	0	728	590	81%	1	3	0	1	0	4	80
512	2017	15.09.2017	0	0926-0939	926	1	13	clear	1	22	TP-MP	0	2178	0	0%	1	7	2	7	1	14	65
513	2017	15.09.2017	0	0939-0955	939	1	16	clear	1	22	MP-EC	0	2751	2751	100%	1	21	10	13	4	34	128
514	2017	15.09.2017	0	1408-1420	1408	0	12	clear	1	22	EC-MP	0	2751	2751	100%	1	6	1	2	1	8	40
515	2017	15.09.2017	0	1420-1429	1420	0	9	clear	1	22	MP-TP	0	2178	0	0%	1	5	4	5	10	67	10
516	2017	15.09.2017	0	1429-1432	1429	0	3	clear	1	22	TP-CS	0	728	590	81%	1	0	0	0	0	0	0
517	2017	15.09.2017	0	1432-1505	1432	0	33	clear	1	22	CS-AG	0	8495	6906	81%	1	15	2	8	1	23	42
518	2017	15.09.2017	0	1505-1513	1505	0	8	clear	1	22	AG-CQ	0	2014	1709	85%	0	1	0	0	0	1	8
519	2017	15.09.2017	0	1630-1633	1630	0	3	clear	1	22	CS-TP	0	728	590	81%	1	12	5	12	5	24	480
520	2017	15.09.2017	0	1633-1645	1633	0	13	clear	1	22	TP-MP	0	2178	0	0%	1	17	1	4	0	21	97
521	2017	15.09.2017	0	1853-1856	1853	1	3	clear	1	22	TP-CS	0	728	590	81%	1	14	3	5	1	19	380
522	115	22.09.2017	0	0910-0921	910	1	11	par cloudy	1	25	PA-CQ	0	3762	2227	59%	0	2	0	0	0	2	11
523	2017	22.09.2017	0	0921-0928	921	1	7	par cloudy	1	25	CQ-AG	0	2014	1709	85%	0	5	1	0	0	5	43
524	2017	22.09.2017	0	1245-1252	1245	0	7	par cloudy	1	25	AG-CQ	0	2014	1709	85%	0	3	1	0	0	3	26
525	2017	22.09.2017	0	1252-1308	1252	0	16	par cloudy	1	25	CQ-PA	0	3762	2227	59%	0	9	7	0	0	9	34
526	116	26.09.2017	0	0902-0905	902	1	3	clear	1	28	CS-TP	0	728	590	81%	1	5	3	0	0	5	100
527	2017	26.09.2017	0	0905-0916	905	1	11	clear	1	28	TP-MP	0	2178	0	0%	1	3	2	0	0	3	16
528	2017	26.09.2017	0	1425-1437	1425	0	12	clear	1	28	MP-EC	0	2751	2751	100%	1	7	2	0	0	7	35
529	2017	26.09.2017	0	1437-1444	1437	0	7	clear	1	28	EC-CG	0	1484	1484	100%	1	7	3	0	0	7	45
530	117	26.09.2017	0	1705-1709	1705	1	4	clear	1	28	QC-CG	0	1186	74	6%	1	3	2	0	0	3	60
531	2017	26.09.2017	0	1709-1716	1709	1	7	clear	1	28	GC-EC	0	1484	1484	100%	1	6	5	1	0	7	60
532	2017	26.09.2017	0	1716-1727	1716	1	11	clear	1	28	EC-MP	0	2751	2751	100%	1	15	7	6	7	21	115
533	2017	26.09.2017	0	1727-1737	1727	1	10	clear	1	28	MP-TP	0	2178	0	0%	1	10	6	12	5	22	132
534	2017	26.09.2017	0	1737-1740	1737	1	3	clear	1	28	TP-CS	0	728	590	81%	1	16	2	21	0	37	740
535	2017	26.09.2017	0	1740-1814	1740	1	34	clear	1	28	CS-AG	0	8495	6906	81%	1	24	4	11	1	35	62
536	2017	26.09.2017	0	1815-1822	1815	1	7	clear	1	28	AG-CQ	0	2014	1709	85%	0	2	1	0	0	2	17
537	2017	26.09.2017	0	1822-1837	1822	1	15	clear	1	28	CQ-PA	0	3762	2227	59%	0	10	7	1	0	11	44
538	118	27.09.2017	0	1156-1208	1156	0	12	clear	1	28	PA-CQ	0	3762	2227	59%	0	3	2	1	0	4	20
539	2017	27.09.2017	0	1440-1455	1440	0	15	clear	1	28	CQ-PA	0	3762	2227	59%	0	9	2	1	0	10	40
540	119	06.10.2017	0	1127-1139	1127	0	12	clear	1	31	PA-CQ	0	3762	2227	59%	0	8	4	1	0	9	39
541	2017	06.10.2017	0	1140-1146	1140	0	6	clear	1	31	CQ-AG	0	2014	1709	85%	0	12	7	0	0	12	125
542	2017	06.10.2017	0	1328-1334	1328	0	6	clear	1	31	AG-CQ	0	2014	1709	85%	0	2	0	3	0	5	50
543	2017	06.10.2017	0	1334-1349	1334	0	15	clear	1	31	CQ-PA	0	3762	2227	59%	0	9	3	2	1	11	44
544	120	10.10.2017	0	1000-0003	1000	0	3	haze	1	30	CS-TP	0	728	590	81%	1	21	13	14	12	35	700
545	2017	10.10.2017	0	1003-1015	1003	0	12	haze	1	30	TP-MP	0	2178	0	0%	1	5	2	1	0	4	20
546	2017	10.10.2017	0	1050-1057	1050	0	7	haze	1	30	MP-TP	0	2178	0	0%	1	5	0	2	0	7	70
547	2017	10.10.2017	0	1057-1100	1057	0	3	haze	1	30	TP-CS	0	728	590	81%	1	8	4	2	1	10	200
548	2017	10.10.2017	0	1100-1128	1100	0	28	haze	1	30	CS-AG	0	8495	6906	81%	1	34	23	9	3	43	92
549	2017	10.10.2017	0	1128-1136	1128	0	14	haze	1	30	AG-CQ	0	2014	1709	85%	0	9	5	0	0	9	39
550	2017	10.10.2017	0	1136-1151	1136	0	15	haze	1	30	CQ-PA	0	3762	2227	59%	0	11	8	1	1	12	48
551	121	18.10.2017	0	0907-0910	907	1	3	rain	0	20	CS-TP	0	728	590	81%	1	7	1	0	0	7	140
552	2017	18.10.2017	0	0924-0940	924	1	16	rain	0	20	TP-MP	0	2178	0	0%	1	4	1	2	2	6	23
553	2017	18.10.2017	0	1235-1244	1235	0	9	rain	0	20	MP-TP	0	2178	0	0%	1	2	0	1	0	3	20
554	2017	18.10.2017	0	1244-1247	1244	0	3	rain	0	20	TP-CS	0	728	590	81%	1	1	1	0	0	1	20
555	122	31.10.2017	0	1449-1452	1449	0	3	rain	0	22	CS-TP	0	728	590	81%	1	10	4	10	3	20	400
556	2017	31.10.2017	0	1452-1504	1452	0	12	clear	1	22	TP-MP	0	2178	0	0%	1	2	1	0	0	2	10
557	2017	31.10.2017	0	1802-1812	1802	1	10	clear	1	19	MP-TP	0	2178	0	0%	1	3	0	0	0	3	18
558	2017	31.10.2017	0	1812-1815	1812	1	3	clear	1	19	TP-CS	0	728	590	81%	1	3	0	1	0	4	80
559	123	03.11.2017	0	0925-0928	925	1	3	rain	0	19	CS-TP	0	728	590	81%	1	3	0	1	0	4	80
560	2017	03.11.2017	0	0928-0940	928	1	12	rain	0	19	TP-MP	0	2178	0	0%	1	6	4	1	0	7	35
561	2017	03.11.2017	0	1246-1254	1246	0	8	rain	0	19	MP-TP	0	2178	0	0%	1	1	0	0	0	1	8
562	2017	03.11.2017	0	1254-1257	1254	0	3	rain	0	19	TP-CS	0	728	590	81%	1	4	0	2	0	6	120
563	2017	03.11.2017	0	1257-1330	1257	0	33	rain	0	19	CS-AG	0	8495	6906	81%	1	17	2	26	0	43	78
564	2017	03.11.2017	0	1330-1338	1330	0	8	rain	0	19	AG-CQ	0	2014	1709	85%	0	3	2	0	0	3	23
565	2017	03.11.2017	0	1340-1400	1340	0	20	rain	0	19	CQ-PA	0	3762	2227	59%	0	5	1	1	0	5	15
566	124	13.11.2017	0	0640-0643	640	0	3	par cloudy	1	10	CS-TP	0	728	590	81%	1	2	1	0	0	2	40
567	2017	13.11.2017	0	2307-2310	2307	0	3	par cloudy	1	10	TP-CS	0	728	590	81%	1	2	0	0	0	2	40
568	125	14.11.2017	0	0940-0943	940	1	3	clear	1	13	CS-TP	0	728	590	81%	1	5	1	0	0	5	100
569	2017	14.11.2017	0	0943-0955	943	1	12	clear	1	13	TP-MP	0	2178	0	0%	1	5	1	2	1	7	35
570	2017	14.11.2017	0	1910-1917	1910	1	7	clear	1	13	MP-TP	0	2178	0	0%	1	3	2	1	1	4	34
571	2017	14.11.2017	0	1917-1920	1917	1	3	clear	1	13	TP-CS	0	728	590	81%	1	9	4	2	0	11	220
572	126	15.11.2017	0	0827-0830	827	1	3	clear	1	12	CS-TP	0	728	590	81%	1	9	5	1	0	10	200
573	2017	15.11.2017	0	0830-0842	830	1	12	clear	1	12	TP-MP	0	2178	0	0%	1	7	3	3	1	10	50
574	2017	15.11.2017	0	0842-0856	842	1	14	clear	1	12	AG-CQ	0	2014	1709	85%	1	10	4	4	32	137	
575	2017	15.11.2017	0	1420-1429	1420	0	9	clear	1	12	EC-MP	0	2751	2751	100%	1	10	1	3	2	13	87
576	2017	15.11.2017	0	1429-1436	1429	0	7	clear	1	12	MP-TP	0	2178	0	0%	1	4	1	4	0	8	69
577	2017	15.11.2017	0	1436-1439	1436	0	3	clear	1	12	TP-CS	0	728	590	81%	1	4	2	2	0	6	120
578	127	16.11.2017	0	1405-1408	1405	0	3	clear	1	20	CS-TP	0	728	590	81%	1	6	3	3	2	9	180
579	2017	16.11.201																				

645	2017	20.12.2017	0	1551-1628	1551	0	37	clear	1	10	CS-AG	0	8495	6906	81%	1	10	2	2	0	12	19																		
646	2017	20.12.2017	0	1628-1637	1628	0	9	clear	1	10	AG-CQ	0	2014	1709	85%	0	8	2	1	0	9	60																		
647	2017	20.12.2017	0	1639-1655	1639	0	16	clear	1	10	CQ-PA	0	3762	2227	59%	0	14	10	0	0	14	53																		
1187																																								
2321																																								
3508																																								
648	141	12.01.2018	2018	12.01.2018	0	1205-1217	1205	0	12	par cloudy	1	13	PA-CQ	0	3762	2227	59%	0	8	5	0	0																		
649			2018	12.01.2018	0	1217-1225	1217	0	8	par cloudy	1	13	CQ-AG	0	2014	1709	85%	0	0	0	0	0																		
650			2018	12.01.2018	0	1225-1243	1225	0	18	par cloudy	1	13	AG-AC	0	5489	3900	71%	1	11	3	5	0																		
651	142	23.01.2018	2018	23.01.2018	0	0812-0823	812	1	11	clear	1	10	PA-CQ	0	3762	2227	59%	0	2	1	0	0																		
652			2018	23.01.2018	0	0823-0832	823	1	9	clear	1	10	CQ-AG	0	2014	1709	85%	0	2	2	0	0																		
653			2018	23.01.2018	0	0832-0904	832	1	32	clear	1	10	AG-CS	0	8495	6906	81%	1	6	3	1	0																		
654			2018	23.01.2018	0	0904-0907	904	1	3	fog	1	11	CS-TP	1	728	590	81%	1	2	1	0	0																		
655			2018	23.01.2018	0	0913-0925	913	1	12	fog	1	11	TP-MP	1	2178	0	0%	1	9	2	0	0																		
656			2018	23.01.2018	0	0925-0939	925	1	14	haze	1	11	MP-EC	1	2751	2751	100%	1	33	13	10	6																		
657			2018	23.01.2018	0	0940-0948	940	1	8	haze	1	11	EC-CG	1	1484	1484	100%	1	8	1	2	1																		
658			2018	23.01.2018	0	0949-0954	949	1	6	haze	1	11	CG-QC	0	1186	74	6%	1	2	1	1	3																		
659			2018	23.01.2018	0	0956-0959	956	1	3	haze	1	11	CG-QC	0	1186	74	6%	1	2	0	0	0																		
660			2018	23.01.2018	0	0959-1005	959	1	6	haze	1	11	CG-EC	1	1484	1484	100%	1	11	5	0	0																		
661			2018	23.01.2018	0	1210-1218	1210	0	8	haze	1	11	EC-MP	1	2751	2751	100%	1	7	3	1	0																		
662			2018	23.01.2018	0	1218-1229	1218	0	11	haze	1	11	MP-TP	1	2178	0	0%	1	2	0	2	0																		
663			2018	23.01.2018	0	1229-1232	1229	0	3	haze	1	11	TP-CS	1	728	590	81%	1	6	0	7	0																		
664			2018	23.01.2018	0	1232-1305	1232	0	33	haze	1	11	CS-AG	0	8495	6906	81%	1	23	3	19	1																		
665			2018	23.01.2018	0	1305-1313	1305	0	8	haze	1	11	AG-CQ	0	2014	1709	85%	0	1	0	1	0																		
666			2018	23.01.2018	0	1313-1329	1313	0	16	haze	1	11	CQ-PA	0	3762	2227	59%	0	1	0	1	0																		
667	143	05.02.2018	2018	05.02.2018	0	1112-1114	1112	0	2	clear	1	9	CS-TP	1	728	590	81%	1	3	1	1	0																		
668			2018	05.02.2018	0	1116-1118	1116	0	2	clear	1	13	CS-AC	1	728	590	81%	1	2	1	1	0																		
669			2018	05.02.2018	0	1512-1521	1512	0	9	clear	1	9	CS-AC	0	3006	3006	100%	1	2	0	4	0																		
670			2018	05.02.2018	0	1521-1541	1521	0	20	clear	1	9	AC-AG	0	5489	3900	71%	1	8	1	5	3																		
671			2018	05.02.2018	0	1541-1548	1541	0	7	clear	1	9	AG-CQ	0	2014	1709	85%	0	2	0	0	0																		
672			2018	05.02.2018	0	1548-1602	1548	0	4	clear	1	9	CQ-PA	0	3762	2227	59%	0	6	4	0	0																		
673	144	07.02.2018	2018	07.02.2018	0	0917-0937	917	1	20	clear	1	6	PA-CQ	0	3762	2227	59%	0	7	2	0	0																		
674			2018	07.02.2018	0	0937-0945	937	1	8	clear	1	6	CQ-AG	0	2014	1709	85%	0	0	0	0	0																		
675			2018	07.02.2018	0	0945-1009	945	1	24	clear	1	6	AG-AC	0	5489	3900	71%	1	8	4	1	0																		
676			2018	07.02.2018	0	1009-1022	1009	0	13	clear	1	6	AC-CS	0	3006	3006	100%	1	4	2	8	3																		
677			2018	07.02.2018	0	1023-1029	1023	0	16	clear	1	6	CS-TP	1	728	590	81%	0	5	3	0	0																		
678			2018	07.02.2018	0	1028-1040	1028	0	12	clear	1	6	TP-MP	0	2178	0	0%	1	5	1	1	0																		
679			2018	07.02.2018	0	1550-1600	1550	0	10	clear	1	6	MP-TP	1	2178	0	0%	1	6	2	0	0																		
680			2018	07.02.2018	0	1600-1603	1600	0	3	clear	1	6	TP-CS	1	728	590	81%	1	3	1	0	0																		
681			2018	07.02.2018	0	1603-1620	1603	0	17	clear	1	6	CS-AC	0	3006	3006	100%	1	4	1	6	2																		
682			2018	07.02.2018	0	1620-1641	1620	0	21	clear	1	6	AC-AG	0	5489	3900	71%	1	9	2	4	0																		
683			2018	07.02.2018	0	1641-1650	1641	0	9	clear	1	6	AG-CQ	0	2014	1709	85%	0	0	0	0	0																		
684			2018	07.02.2018	0	1650-1705	1650	0	15	clear	1	6	CQ-PA	0	3762	2227	59%	0	7	4	2	1																		
685	145	15.02.2018	2018	15.02.2018	0	1235-1252	1235	0	17	clear	1	6	PA-CQ	0	3762	2227	59%	0	2	2	0	0																		
686			2018	15.02.2018	0	1252-1300	1252	0	8	clear	1	6	CQ-AG	0	2014	1709	85%	0	1	0	0	0																		
687			2018	15.02.2018	0	1543-1603	1543	0	20	clear	1	6	CQ-PA	0	3762	2227	59%	0	5	3	0	0																		
688	146	24.02.2018	2018	24.02.2018	0	1225-1243	1225	0	18	clear	1	13	AG-AC	0	5489	3900	71%	1	47	21	24	6																		
689			2018	24.02.2018	0	1243-1318	1243	0	35	clear	1	13	AC-AG	0	5489	3900	71%	1	54	22	59	9																		
690			2018	24.02.2018	0	1403-1410	1403	0	7	clear	1	13	AG-CQ	0	2014	1709	85%	0	5	4	2	0																		
691			2018	24.02.2018	0	1410-1427	1410	0	17	clear	1	13	CQ-PA	0	3762	2227	59%	0	5	3	5	2																		
692	147	01.03.2018	2018	01.03.2018	0	0923-0931	923	1	8	rain	0	13	AC-CS	0	3006	3006	100%	1	1	0	2	0																		
693			2018	01.03.2018	0	0931-0933	931	1	3	rain	0	13	CS-TP	1	728	590	81%	1	4	1	3	1																		
694			2018	01.03.2018	0	0933-0945	933	1	12	rain	0	13	TP-MP	1	2178	0	0%	1	4	0	0	0																		
695			2018	01.03.2018	0	1430-1437	1430	0	7	rain	0	13	MP-TP	1	2178	0	0%	1	3	1	0	0																		
696			2018	01.03.2018	0	1437-1440	1437	0	3	rain	0	13	TP-CS	1	728	590	81%	1	0	0	0	0																		
697			2018	01.03.2018	0	1443-1459	1443	0	16	rain	0	13	CS-AC	0	3006	3006	100%	1	3	0	2	0																		
698			2018	01.03.2018	0	1459-1429	1459	0	30	rain	0	13	AC-AG	0	5489	3900	71%	1	1	1	3	2																		
699			2018	01.03.2018	0	1429-1436	1429	0	7	rain	0	13	AG-CQ	0	2014	1709	85%	0	0	0	0	0																		
700			2018	01.03.2018	0	1436-1445	1436	0	14	rain	0	13	CQ-PA	0	3762	2227	59%	0	0	0	0	0																		
701	148	08.03.2018	2018	08.03.2018	0	1013-1016	1013	0	3	rain	0	12	CS-TP	1	728	590	81%	1	2	0	0	0																		
702			2018	08.03.2018	0	1016-1028	1016	0	12	rain	0	12	TP-MP	1	2178	0	0%	1	0	0	0	0																		
703			2018	08.03.2018	0	1400-1410	1400	0	10	rain	0	12	MP-EC	1	2751	2751	100%	1	6	2	1	0																		
704			2018	08.03.2018	0	1535-1540	1535	0	5	rain	0	12	CG-EC	1	1484	1484	100%	1	5	1	1	0																		
705			2018	08.03.2018	0	1540-1551	1540	0	11	rain	0	12	EC-MP	1	2751	2751	100%	1	4	0	0	0																		
706			2018	08.03.2018	0	1551-1559	1551	0	8	rain	0	12	MP-TP	1	2178	0	0%	1	0	0	1	0																		
707			2018	08.03.2018	0	1559-1603	1559	0	3	rain	0	12	CS-TP	1	728	590	81%	1	2	0	0	0																		
708			2018	08.03.2018	0	1604-1617	1604	0	13	rain	0	12	CS-AC	0	3006	3006	100%	1	2	0	1	0																		
709			2018	08.03.2018	0	1617-1650	1617	0	33	rain	0	12	AC-AG	0	5489	3900	71%	1	0	0	0	0																		
710			2018	08.03.2018	0	1650-1657	1650	0	7	rain	0	12	AG-CQ	0	2014	1709	85%	0	1	0	0	0																		
711			2018	08.03.2018	0	1657-1716	1657	0	19	rain	0	12	CQ-PA	0	3762	2227	59%	0	2	1	0	0																		
712	149	12.03.2018	2018	12.03.2018	0	0626-0638	626	0	12	par cloudy	1	12	PA-CQ	0	3762	2227	59%	0	1	0	0	0																		
713			2018	12.03.2018	0	0642-0648	642	0	6	par cloudy	1																													

777		2018	02.05.2018	0	1231-1241	1231	0	10	rain	0	17	EC-MP	1	2751	2751	100%	1	6	4	3	0	9	54
778		2018	02.05.2018	0	1241-1252	1241	0	11	rain	0	17	MP-TP	1	2178	0	0%	1	3	3	1	0	4	22
779		2018	02.05.2018	0	1252-1256	1252	0	4	rain	0	17	TP-CS	1	728	590	81%	1	6	5	5	5	11	165
780		2018	02.05.2018	0	1300-1303	1300	0	3	rain	0	17	CS-TP	1	728	590	81%	1	12	2	8	0	20	400
781	161	2018	14.05.2018	0	0642-0645	642	0	3	par cloudy	1	6	CS-TP	1	728	590	81%	1	3	1	1	0	4	80
782		2018	14.05.2018	0	2312-2315	2312	0	3	par cloudy	1	6	TP-CS	1	728	590	81%	1	4	2	0	0	4	80
783	162	2018	23.05.2018	0	0810-0822	810	1	12	par cloudy	1	15	PA-CQ	0	3762	2227	59%	0	4	2	0	0	4	20
784		2018	23.05.2018	0	0822-0830	822	1	8	par cloudy	1	15	CQ-AG	0	2014	1709	85%	0	4	4	0	0	4	30
785		2018	23.05.2018	0	0830-0853	830	1	23	par cloudy	1	15	AG-AC	0	5489	5232	95%	1	5	1	1	0	6	16
786		2018	23.05.2018	0	0853-0906	853	1	13	par cloudy	1	15	AC-CS	0	3006	3006	100%	1	3	2	1	0	4	18
787		2018	23.05.2018	0	0906-0909	906	1	3	par cloudy	1	15	CS-TP	1	728	590	81%	1	7	4	1	0	8	160
788		2018	23.05.2018	0	0910-0924	910	1	14	par cloudy	1	15	TP-MP	1	2178	0	0%	1	6	0	3	0	9	39
789		2018	23.05.2018	0	0924-0939	924	1	15	par cloudy	1	15	MP-EC	1	2751	2751	100%	1	62	14	33	10	95	380
790		2018	23.05.2018	0	1400-1403	1400	0	3	par cloudy	1	22	QC-CG	0	1186	74	6%	1	3	0	0	0	3	60
791		2018	23.05.2018	0	1403-1409	1403	0	6	par cloudy	1	22	CG-EC	1	1484	1484	100%	1	11	0	3	1	14	140
792		2018	23.05.2018	0	1409-1422	1409	0	13	par cloudy	1	22	EC-MP	1	2751	2751	100%	1	21	3	11	1	32	148
793		2018	23.05.2018	0	1422-1433	1422	0	11	par cloudy	1	22	MP-TP	1	2178	0	0%	1	2	1	1	0	3	16
794		2018	23.05.2018	0	1434-1438	1434	0	4	par cloudy	1	22	TP-CS	1	728	590	81%	1	5	2	1	0	6	90
795		2018	23.05.2018	0	1438-1453	1438	0	15	par cloudy	1	22	CS-AC	0	3006	3006	100%	1	7	1	5	0	12	48
796		2018	23.05.2018	0	1453-1519	1453	0	26	par cloudy	1	22	AC-AG	0	5489	5232	95%	1	20	4	15	1	35	81
797		2018	23.05.2018	0	1519-1529	1519	0	10	par cloudy	1	22	AG-CQ	0	2014	1709	85%	0	5	4	0	0	5	30
798		2018	23.05.2018	0	1529-1549	1529	0	20	par cloudy	1	22	CQ-PA	0	3762	2227	59%	0	8	2	2	2	10	30
799	163	2018	28.05.2018	0	0645-0648	645	0	3	par cloudy	1	15	CS-TP	1	3006	3006	100%	1	1	0	0	0	1	20
800		2018	28.05.2018	0	2309-2312	2309	0	3	par cloudy	1	15	CS-TP	1	728	590	81%	1	4	1	0	0	4	80
801	164	2018	07.06.2018	0	0954-0957	954	1	3	rain	0	18	CS-TP	1	728	590	81%	1	4	0	3	1	7	140
802		2018	07.06.2018	0	0957-1008	957	1	11	rain	0	18	TP-MP	1	2178	0	0%	1	18	0	0	0	6	33
803		2018	07.06.2018	0	1327-1334	1327	0	7	rain	0	18	MP-TP	1	2178	0	0%	1	3	1	0	0	3	26
804		2018	07.06.2018	0	2309-2312	2309	0	3	rain	0	18	TP-CS	1	728	590	81%	1	1	0	0	0	1	20
805	165	2018	14.06.2018	0	0852-0855	852	1	3	clear	1	23	CS-TP	1	728	590	81%	1	6	2	2	0	8	160
806		2018	14.06.2018	0	0855-0903	855	1	8	clear	1	23	TP-MP	1	2178	0	0%	1	10	1	0	0	10	75
807		2018	14.06.2018	0	0903-0914	903	1	11	clear	1	23	MP-EC	1	2751	2751	100%	1	42	8	19	9	61	333
808		2018	14.06.2018	0	0914-0924	914	1	10	clear	1	23	EC-MP	1	2751	2751	100%	1	30	8	20	1	50	300
809		2018	14.06.2018	0	1310-1317	1310	0	7	clear	1	23	MP-TP	1	2178	0	0%	1	7	3	0	0	7	60
810		2018	14.06.2018	0	1317-1320	1317	0	3	clear	1	23	TP-CS	1	728	590	81%	1	7	3	2	1	9	180
811	166	2018	16.06.2018	0	1433-1453	1433	0	20	clear	1	26	EC-MP	1	2751	2751	100%	1	21	8	10	2	31	93
812	167	2018	20.06.2018	0	1132-1144	1132	0	13	clear	1	29	TP-CS	1	3006	2227	59%	0	2	7	0	0	9	42
813		2018	20.06.2018	0	1250-1258	1250	0	8	clear	1	29	AG-CQ	0	2014	1709	85%	0	2	1	0	0	2	15
814		2018	20.06.2018	0	1258-1314	1258	0	6	clear	1	29	CQ-PA	0	3762	2227	59%	0	2	1	0	0	2	20
815	168	2018	21.06.2018	0	0920-0923	920	1	3	rain	0	20	CS-TP	1	728	590	81%	1	3	0	2	2	5	100
816		2018	21.06.2018	0	0923-0935	923	1	12	rain	0	20	TP-MP	1	2178	0	0%	1	6	1	2	0	8	40
817		2018	21.06.2018	0	1334-1344	1334	0	10	rain	0	20	MP-TP	1	2178	0	0%	1	3	0	1	0	4	24
818		2018	21.06.2018	0	1344-1347	1344	0	3	rain	0	20	TP-CS	1	728	590	81%	1	7	5	5	12	24	30
819	169	2018	22.06.2018	0	0900-0912	900	1	12	clear	1	28	PA-CQ	0	3762	2227	59%	0	6	1	0	0	6	240
820		2018	22.06.2018	0	1000-1015	1000	0	15	clear	1	28	CQ-PA	0	3762	2227	59%	0	12	9	0	0	12	48
821	170	2018	26.06.2018	0	1610-1613	1610	0	3	clear	1	25	CS-TP	1	728	590	81%	1	6	3	2	2	8	160
822		2018	26.06.2018	0	1613-1618	1613	0	5	clear	1	25	TP-CS	1	728	590	81%	1	6	2	3	0	11	220
823	171	2018	28.06.2018	0	0952-0955	952	1	3	cloudy	1	23	CS-TP	1	728	590	81%	1	7	1	2	0	9	180
824		2018	28.06.2018	0	0955-1007	955	1	12	cloudy	1	23	TP-MP	1	2178	0	0%	1	1	0	3	0	4	20
825		2018	28.06.2018	0	1750-1758	1750	1	8	cloudy	1	23	MP-TP	1	2178	0	0%	1	15	2	1	0	16	120
826		2018	28.06.2018	0	1758-1801	1758	1	3	cloudy	1	23	TP-CS	1	728	590	81%	1	9	3	5	0	14	280
827	172	2018	09.07.2018	0	0940-0943	940	1	3	clear	1	29	CS-TP	1	728	590	81%	1	6	1	4	0	10	200
828		2018	09.07.2018	0	0943-0953	943	1	10	clear	1	29	TP-MP	1	2178	0	0%	1	3	0	1	0	4	24
829		2018	09.07.2018	0	0953-1004	953	1	11	clear	1	29	MP-EC	1	2751	2751	100%	1	29	6	4	1	33	312
830		2018	09.07.2018	0	1004-1014	1004	0	10	clear	1	29	EC-MP	1	2751	2751	100%	1	27	0	25	1	52	310
831		2018	09.07.2018	0	1440-1447	1440	0	7	clear	1	29	MP-TP	1	2178	0	0%	1	5	1	5	0	10	86
832		2018	09.07.2018	0	1447-1450	1447	0	3	clear	1	29	TP-CS	1	728	590	81%	1	3	1	1	0	4	80
833	173	2018	16.07.2018	0	0950-0953	950	1	3	cloudy	1	22	CS-TP	1	728	590	81%	1	5	0	4	0	9	180
834		2018	16.07.2018	0	0953-1001	953	1	8	cloudy	1	22	TP-MP	1	2178	0	0%	1	9	4	9	2	18	135
835		2018	16.07.2018	0	1001-1012	1001	0	11	cloudy	1	22	MP-EC	1	2751	2751	100%	1	38	6	13	5	51	278
836		2018	16.07.2018	0	1012-1018	1012	0	6	cloudy	1	22	EC-CG	1	1484	1484	100%	1	4	2	1	1	5	50
837		2018	16.07.2018	0	1330-1336	1330	0	6	clear	1	26	CG-EC	1	1484	1484	100%	1	9	0	3	0	12	120
838		2018	16.07.2018	0	1405-1414	1405	0	9	clear	1	26	EC-MP	1	2751	2751	100%	1	15	5	7	2	22	147
839		2018	16.07.2018	0	1750-1757	1750	1	7	clear	1	26	MP-TP	1	2178	0	0%	1	8	3	1	0	9	77
840		2018	16.07.2018	0	1757-1800	1757	1	3	clear	1	26	TP-CS	1	728	590	81%	1	8	1	5	3	13	260
841	174	2018	18.07.2018	0	0640-0654	640	0	14	clear	1	23	AG-CQ	0	3006	2227	59%	0	1	0	0	0	1	4
842		2018	18.07.2018	0	0654-0702	654	0	8	clear	1	23	CQ-AG	0	2014	1709	85%	0	1	0	0	0	1	8
843		2018	18.07.2018	0	1945-1952	1945	1	7	clear	1	23	AG-CQ	0	2014	1709	85%	0	6	2	2	0	8	69
844		2018																					

912	2018	25.10.2018	0	0754-0803	754	1	9	cloudy	1	24	CQ-AG	0	2014	1709	85%	0	6	6	0	0	6	40
913	2018	25.10.2018	0	0822-0835	822	1	13	cloudy	1	24	CQ-PA	0	3762	2227	59%	0	9	5	2	1	11	51
914	2018	25.10.2018	0	1458-1512	1458	0	14	cloudy	1	24	PA-CQ	0	3762	2227	59%	0	4	2	3	1	7	30
915	2018	25.10.2018	0	1550-1559	1550	0	9	cloudy	1	24	AG-CQ	0	2014	1709	85%	0	10	4	0	0	10	67
916	2018	25.10.2018	0	1559-1619	1559	0	20	cloudy	1	24	CQ-PA	0	3762	2227	59%	0	10	7	4	2	14	42
917	193	30.10.2018	0	1150-1153	1150	0	3	rain	0	13	CS-TP	1	728	590	81%	1	2	1	0	1	17	340
918	2018	30.10.2018	0	1153-1205	1153	0	12	rain	0	13	TP-MP	0	2178	0	0%	1	2	1	0	0	2	10
919	2018	30.10.2018	0	1416-1424	1416	0	8	rain	0	13	MP-TP	1	2178	0	0%	1	2	0	0	0	2	15
920	2018	30.10.2018	0	1424-1427	1424	0	3	rain	0	13	TP-CS	1	728	590	81%	1	3	0	1	0	4	80
921	194	02.11.2018	0	0915-0918	915	1	3	rain	0	18	CS-TP	1	728	590	81%	1	5	2	1	1	6	120
922	2018	02.11.2018	0	0918-0928	918	1	10	rain	0	18	TP-MP	1	2178	0	0%	1	5	0	1	0	6	36
923	2018	02.11.2018	0	1448-1503	1448	0	15	rain	0	18	MP-EC	1	2751	2751	100%	1	9	0	5	0	14	56
924	2018	02.11.2018	0	1503-1511	1503	0	8	rain	0	18	EC-CG	1	1484	1484	100%	1	11	1	3	1	14	105
925	2018	02.11.2018	0	1511-1518	1511	0	7	rain	0	18	CG-CQ	0	1186	74	6%	1	2	0	0	0	2	17
926	2018	02.11.2018	0	1519-1524	1519	0	5	rain	0	18	CG-CG	0	1186	74	6%	1	1	0	1	0	2	24
927	2018	02.11.2018	0	1530-1534	1530	0	4	rain	0	18	CG-EC	1	1484	1484	100%	1	11	4	7	1	18	270
928	2018	02.11.2018	0	1534-1544	1534	0	10	rain	0	18	EC-MP	1	2751	2751	100%	1	13	5	3	0	16	96
929	2018	02.11.2018	0	1544-1551	1544	0	7	rain	0	18	MP-TP	1	2178	0	0%	1	3	0	0	0	3	26
930	2018	02.11.2018	0	1551-1554	1551	0	3	rain	0	18	TP-CS	1	728	590	81%	1	5	0	2	0	7	140
931	2018	02.11.2018	0	1601-1613	1601	0	12	rain	0	18	CS-AC	0	3006	3006	100%	1	19	3	12	1	31	155
932	2018	02.11.2018	0	1613-1634	1613	0	21	rain	0	18	AC-AG	0	5489	5232	95%	1	27	10	5	3	32	91
933	2018	02.11.2018	0	1634-1643	1634	0	9	rain	0	18	AG-CQ	0	2014	1709	85%	0	4	3	3	2	7	47
934	2018	02.11.2018	0	1643-1702	1643	0	19	rain	0	18	CQ-PA	0	3762	2227	59%	0	1	1	0	0	1	3
935	195	07.11.2018	0	1030-1033	1030	0	3	cloudy	1	17	CS-TP	1	728	590	81%	1	7	1	0	0	7	140
936	2018	07.11.2018	0	1033-1043	1033	0	10	cloudy	1	17	TP-MP	1	2178	0	0%	1	11	3	9	1	20	122
937	2018	07.11.2018	0	1412-1416	1412	0	14	cloudy	1	17	MP-EC	1	2751	2751	100%	1	27	4	5	0	32	137
938	2018	07.11.2018	0	1426-1434	1426	0	12	cloudy	1	17	EC-CG	1	1484	1484	100%	1	8	1	4	0	12	60
939	2018	07.11.2018	0	1510-1514	1510	0	4	cloudy	1	17	CG-EC	1	1484	1484	100%	1	6	1	0	0	6	90
940	2018	07.11.2018	0	1514-1523	1514	0	9	cloudy	1	17	EC-MP	1	2751	2751	100%	1	5	0	5	1	10	67
941	2018	07.11.2018	0	1523-1533	1523	0	10	cloudy	1	17	MP-TP	1	2178	0	0%	1	8	0	2	14	87	
942	2018	07.11.2018	0	1533-1536	1533	0	3	cloudy	1	17	TP-CS	1	728	590	81%	1	3	0	0	0	3	60
943	196	09.11.2018	0	0800-0803	800	1	3	clear	1	9	CS-TP	1	728	590	81%	1	6	3	1	0	7	140
944	2018	09.11.2018	0	0830-0842	830	1	12	clear	1	9	TP-MP	1	2178	0	0%	1	9	5	0	0	9	45
945	197	12.11.2018	0	1048-1051	1048	0	3	fog	1	11	CS-TP	1	728	590	0,81044	1	13	0	0	0	13	260
946	2018	12.11.2018	0	1051-1100	1051	0	9	fog	1	11	TP-MP	1	2178	0	0%	1	1	1	1	0	2	13
947	2018	12.11.2018	0	1144-1155	1144	0	11	fog	1	11	TP-MP	1	2751	2751	100%	1	18	1	6	2	24	131
948	2018	12.11.2018	0	1726-1733	1726	1	7	fog	1	11	AG-CQ	0	2014	1709	85%	0	5	2	0	0	5	43
949	2018	12.11.2018	0	1733-1750	1733	1	17	fog	1	11	CQ-PA	0	3762	2227	59%	0	1	0	0	0	1	4
950	198	13.11.2018	0	0902-0905	902	1	3	clear	1	12	CS-TP	1	728	590	81%	1	6	0	1	0	7	140
951	2018	13.11.2018	0	0905-0917	905	1	12	clear	1	12	TP-MP	1	2178	0	0%	1	6	2	6	2	12	60
952	199	14.11.2018	0	0816-0819	816	1	3	clear	1	13	CS-TP	1	728	590	81%	1	5	3	1	0	6	120
953	2018	14.11.2018	0	0853-0906	853	1	13	clear	1	13	MP-EC	1	2751	2751	100%	1	58	15	23	7	81	374
954	200	15.11.2018	0	0815-0818	815	1	3	clear	1	14	CS-TP	1	728	590	81%	1	4	1	0	0	4	80
955	2018	15.11.2018	0	0818-0829	818	1	11	clear	1	14	TP-MP	1	2178	0	0%	1	2	1	2	1	4	22
956	201	16.11.2018	0	1450-1453	1450	0	3	clear	1	19	CS-TP	1	728	590	81%	1	4	1	0	0	4	80
957	2018	16.11.2018	0	1453-1505	1453	0	8	clear	1	19	TP-MP	1	2178	0	0%	1	5	3	0	0	5	38
958	2018	16.11.2018	0	1725-1733	1725	1	8	clear	1	19	MP-TP	1	2178	0	0%	1	4	1	0	0	4	30
959	2018	16.11.2018	0	1736-1739	1736	1	3	clear	1	19	TP-CS	1	728	590	81%	1	9	3	5	0	14	280
960	202	20.11.2018	0	1427-1430	1427	0	3	rain	0	15	CS-TP	1	728	590	81%	1	5	2	1	0	6	120
961	2018	20.11.2018	0	1430-1442	1430	0	12	rain	0	15	TP-MP	1	2178	0	0%	1	1	0	0	0	1	5
962	2018	20.11.2018	0	1745-1752	1745	1	8	rain	0	15	MP-TP	1	2178	0	0%	1	9	4	0	0	9	68
963	2018	20.11.2018	0	1752-1755	1752	1	3	rain	0	15	TP-CS	1	728	590	81%	1	4	2	1	1	5	100
964	203	22.11.2018	0	0903-0906	903	1	3	rain	0	14	CS-TP	1	728	590	81%	1	3	0	0	0	3	60
965	2018	22.11.2018	0	0906-0916	906	1	10	rain	0	14	TP-MP	1	2178	0	0%	1	9	1	5	1	14	84
966	2018	22.11.2018	0	1208-1214	1208	0	6	rain	0	14	MP-TP	1	2178	0	0%	1	3	0	2	0	5	50
967	2018	22.11.2018	0	1214-1217	1214	0	3	rain	0	14	TP-CS	1	728	590	81%	1	6	0	3	0	9	180
968	204	27.11.2018	0	0748-0805	748	1	17	par cloudy	1	9	PA-CQ	0	3762	2227	59%	0	6	4	1	1	7	25
969	2018	27.11.2018	0	0805-0813	805	1	8	par cloudy	1	9	CQ-AG	0	2014	1709	85%	0	0	0	0	0	0	0
970	2018	27.11.2018	0	0850-0908	850	1	18	par cloudy	1	9	CQ-PA	0	3762	2227	59%	0	8	6	0	0	0	27
971	2018	27.11.2018	0	1435-1450	1435	0	15	par cloudy	1	9	PA-CQ	0	3762	2227	59%	0	6	1	3	1	9	36
972	2018	27.11.2018	0	1758-1609	1758	1	11	par cloudy	1	9	AG-CQ	0	2014	1709	85%	0	8	4	0	0	8	44
973	2018	27.11.2018	0	1610-1632	1610	0	22	par cloudy	1	9	CQ-PA	0	3762	2227	59%	0	3	3	1	0	4	11
974	205	30.11.2018	0	0902-0920	902	1	18	fog/cloudy	1	15	AG-AC	0	5489	5232	95%	1	10	5	1	0	11	37
975	2018	30.11.2018	0	0920-0930	920	1	10	fog/cloudy	1	15	AC-CS	0	3006	3006	100%	1	4	2	4	2	8	48
976	2018	30.11.2018	0	0930-0933	930	0	3	fog/cloudy	1	15	TP-MP	1	2178	0	0%	1	9	1	1	0	2	40
977	2018	30.11.2018	0	0933-0944	933	1	11	fog/cloudy	1	15	TP-MP	1	2178	0	0%	1	9	1	1	0	10	55
978	2018	30.11.2018	0	1316-1324	1316	0	8	fog/cloudy	1	15	MP-TP	1	2178	0	0%	1	4	0	0	0	4	30
979	2018	30.11.2018	0	1324-1327	1324	0	3	fog/cloudy	1	15	TP-CS	1	728	590	81%	1	0	0	1	0	1	20
980	2018	30.11.2018	0	1327-1341	1327	0	14	fog/cloudy	1	15	CS-AC	0	3006	3006	100%	1	4	0	5	1	9	39
981	2018	30.11.2018</																				

1044	2019	05.02.2019	0	1409-1422	1409	0	13	clear	1	11	AC-CS	0	3006	3006	100%	1	8	2	4	2	12	55
1045	2019	05.02.2019	0	1422-1425	1422	0	3	clear	1	11	CS-TP	1	728	590	81%	1	1	1	0	0	1	20
1046	2019	05.02.2019	0	1425-1440	1425	0	15	clear	1	11	TP-MP	1	2178	0	0%	1	0	0	0	0	0	0
1047	2019	05.02.2019	0	1628-1636	1628	0	8	clear	1	11	MP-TP	1	2178	0	0%	1	6	2	2	0	0	8
1048	2019	05.02.2019	0	1636-1640	1636	0	4	clear	1	11	TP-CS	1	728	590	81%	1	7	4	3	0	10	150
1049	2019	05.02.2019	0	1640-1654	1640	0	14	clear	1	11	CS-AC	0	3006	3006	100%	1	4	2	4	1	12	51
1050	2019	05.02.2019	0	1654-1720	1654	0	26	clear	1	11	AC-AG	0	5489	5232	95%	1	20	7	4	0	24	55
1051	2019	05.02.2019	0	1720-1726	1720	1	6	clear	1	11	AG-CQ	0	2014	1709	85%	0	1	1	0	0	1	10
1052	2019	05.02.2019	0	1726-1741	1726	1	15	clear	1	11	CQ-PA	0	3762	2227	59%	0	7	5	0	0	7	28
1053	218	08.02.2019	0	1020-1023	1020	0	3	cloudy	1	11	CS-TP	1	728	590	81%	1	8	1	2	1	10	200
1054	2019	08.02.2019	0	1023-1032	1023	0	9	cloudy	1	11	TP-MP	1	2178	0	0%	1	13	3	12	1	25	167
1055	2019	08.02.2019	0	1032-1043	1032	0	9	cloudy	1	11	MP-EC	1	2751	2751	100%	1	8	1	5	1	13	87
1056	2019	08.02.2019	0	1043-1047	1043	0	4	cloudy	1	11	EC-CG	1	1484	1484	100%	1	4	2	2	2	6	90
1057	2019	08.02.2019	0	1048-1052	1048	0	4	cloudy	1	11	CG-EC	1	1484	1484	100%	1	7	4	2	0	9	135
1058	2019	08.02.2019	0	1052-1102	1052	0	10	cloudy	1	11	EC-MP	1	2751	2751	100%	1	11	6	6	1	17	102
1059	2019	08.02.2019	0	1443-1458	1443	0	15	cloudy	1	11	MP-EC	1	2751	2751	100%	1	14	1	15	1	29	116
1060	2019	08.02.2019	0	1458-1504	1458	0	6	cloudy	1	11	CG-CG	1	1484	1484	100%	1	11	3	0	0	11	110
1061	2019	08.02.2019	0	1607-1612	1607	0	5	cloudy	1	11	CG-EC	1	1484	1484	100%	1	13	3	2	0	15	180
1062	2019	08.02.2019	0	1612-1624	1612	0	12	cloudy	1	11	EC-MP	1	2751	2751	100%	1	30	4	5	0	35	175
1063	2019	08.02.2019	0	1624-1631	1624	0	7	cloudy	1	11	MP-TP	1	2178	0	0%	1	3	1	0	0	3	26
1064	2019	08.02.2019	0	1631-1634	1631	0	3	cloudy	1	11	TP-CS	1	728	590	81%	1	6	2	4	0	10	200
1065	219	13.02.2019	0	0910-0912	910	1	2	clear	1	9	CS-TP	1	728	590	81%	1	5	3	2	1	7	210
1066	2019	13.02.2019	0	0912-0924	912	1	12	clear	1	9	TP-MP	1	2178	0	0%	1	11	4	2	0	13	65
1067	2019	13.02.2019	0	1202-1209	1202	0	7	clear	1	9	MP-TP	1	2178	0	0%	1	3	0	2	0	5	43
1068	2019	13.02.2019	0	1209-1212	1209	0	3	clear	1	9	TP-CS	1	728	590	81%	1	1	0	1	0	2	40
1069	220	19.02.2019	0	1042-1044	1042	0	3	clear	1	12	CS-TP	1	728	590	81%	1	4	2	3	1	7	140
1070	2019	19.02.2019	0	1245-1248	1245	0	3	clear	1	12	TP-CS	1	728	590	81%	1	3	0	2	1	5	100
1071	2019	19.02.2019	0	1248-1301	1248	0	13	clear	1	12	CS-AC	0	3006	3006	100%	1	6	4	1	0	7	32
1072	2019	19.02.2019	0	1301-1339	1301	0	38	clear	1	12	AC-AG	0	5489	5232	95%	1	31	8	31	2	62	98
1073	2019	19.02.2019	0	1339-1346	1339	0	7	clear	1	12	AG-CQ	0	2014	1709	85%	0	3	2	0	0	3	26
1074	2019	19.02.2019	0	1346-1403	1346	0	17	clear	1	12	CQ-PA	0	3762	2227	59%	0	5	0	1	0	6	21
1075	221	22.02.2019	0	0739-0755	739	1	16	clear	1	12	PA-CQ	0	3762	2227	59%	0	7	4	0	0	7	26
1076	2019	22.02.2019	0	0852-0902	852	1	10	clear	1	12	CQ-PA	0	3762	2227	59%	0	3	2	0	0	3	18
1077	2019	22.02.2019	0	1428-1440	1428	0	12	cloudy	1	18	PA-CQ	0	3762	2227	59%	0	6	4	0	0	6	30
1078	2019	22.02.2019	0	1519-1537	1519	0	18	cloudy	1	18	CQ-PA	0	3762	2227	59%	0	19	8	3	1	22	73
1079	222	01.03.2019	0	0907-0911	907	1	4	cloudy	1	13	CS-TP	1	728	590	81%	1	5	0	1	1	6	90
1080	2019	01.03.2019	0	0911-0926	911	1	15	cloudy	1	13	TP-MP	1	2178	0	0%	1	21	4	4	0	25	100
1081	2019	01.03.2019	0	0950-1001	950	1	11	cloudy	1	13	MP-EC	1	2751	2751	100%	1	50	7	14	1	64	349
1082	2019	01.03.2019	0	1750-1758	1750	1	8	cloudy	1	13	MP-TP	1	2178	0	0%	1	15	2	0	0	17	128
1083	2019	01.03.2019	0	1758-1801	1758	1	3	cloudy	1	13	TP-CS	1	728	590	81%	1	12	8	1	1	13	260
1084	223	04.03.2019	0	1140-1143	1140	0	3	par cloudy	1	16	CS-TP	1	728	590	81%	1	2	1	3	2	5	100
1085	2019	04.03.2019	0	1143-1152	1143	0	9	par cloudy	1	16	TP-MP	1	2178	0	0%	1	14	0	10	0	24	160
1086	2019	04.03.2019	0	1325-1334	1325	0	9	par cloudy	1	16	MP-TP	1	2178	0	0%	1	9	1	3	0	12	80
1087	2019	04.03.2019	0	1335-1338	1335	0	3	par cloudy	1	16	TP-CS	1	728	590	81%	1	3	0	5	0	5	160
1088	224	07.03.2019	0	0840-0843	840	1	3	rain	0	10	CS-TP	1	728	590	81%	1	5	2	0	0	5	100
1089	2019	07.03.2019	0	0843-0855	843	1	12	rain	0	10	TP-MP	1	2178	0	0%	1	13	3	5	2	18	90
1090	2019	07.03.2019	0	0855-0909	855	1	14	rain	0	10	MP-EC	1	2751	2751	100%	1	45	10	18	4	63	270
1091	2019	07.03.2019	0	0909-0917	909	1	8	rain	0	10	EC-CG	1	1484	1484	100%	1	19	3	6	1	25	188
1092	2019	07.03.2019	0	0917-0922	917	1	5	rain	0	10	CG-CQ	0	1186	74	6%	1	2	0	0	0	2	24
1093	2019	07.03.2019	0	1223-1227	1223	0	4	rain	0	10	QC-GC	0	1186	74	6%	1	3	0	0	0	3	45
1094	2019	07.03.2019	0	1227-1233	1227	0	6	rain	0	10	CG-EC	1	1484	1484	100%	1	7	0	3	3	10	100
1095	2019	07.03.2019	0	1233-1246	1233	0	7	rain	0	10	EC-MP	1	2751	2751	100%	1	18	1	5	0	23	197
1096	2019	07.03.2019	0	1246-1255	1246	0	9	rain	0	10	MP-TP	1	2178	0	0%	1	9	3	6	4	15	100
1097	2019	07.03.2019	0	1255-1259	1255	0	4	rain	0	10	TP-CS	1	728	590	81%	1	1	0	0	0	1	15
1098	2019	07.03.2019	0	1259-1315	1259	0	16	rain	0	10	CS-AC	0	3006	3006	100%	1	9	1	5	0	14	53
1099	2019	07.03.2019	0	1315-1349	1315	0	34	rain	0	10	AC-AG	0	5489	5232	95%	1	4	0	2	0	6	11
1100	2019	07.03.2019	0	1349-1358	1349	0	9	rain	0	10	AG-CQ	0	2014	1709	85%	0	0	0	0	0	0	0
1101	2019	07.03.2019	0	1358-1418	1358	0	20	rain	0	10	CQ-PA	0	3762	2227	59%	0	0	0	0	0	0	0
1102	225	16.03.2019	0	0750-0753	750	1	3	clear	1	11	CS-TP	1	728	590	81%	1	3	1	0	0	3	60
1103	2019	16.03.2019	0	0950-0953	950	1	3	clear	1	11	TP-CS	1	728	590	81%	1	11	9	2	1	13	260
1104	226	18.03.2019	0	0907-0910	907	1	3	clear	1	11	CS-TP	1	728	590	81%	1	4	0	1	0	5	100
1105	2019	18.03.2019	0	0910-0923	910	1	13	clear	1	11	TP-MP	1	2178	0	0%	1	6	1	1	0	7	32
1106	2019	18.03.2019	0	1210-1216	1210	0	6	clear	1	11	MP-TP	1	2178	0	0%	1	5	1	1	0	6	60
1107	2019	18.03.2019	0	1216-1219	1216	0	3	clear	1	11	TP-CS	1	728	590	81%	1	0	0	1	0	1	20
1108	2019	18.03.2019	0	1518-1551	1518	0	33	clear	1	11	CS-TP	1	728	590	81%	1	3	2	3	3	10	200
1109	2019	18.03.2019	0	1551-1559	1551	0	8	clear	1	11	TP-MP	1	2178	0	0%	1	2	1	0	0	2	15
1110	2019	18.03.2019	0	1826-1833	1826	1	7	clear	1	11	MP-TP	1	2178	0	0%	1	8	1	3	1	11	94
1111	2019	18.03.2019	0	1833-1836	1833	1	3	clear	1	11	TP-CS	1	728	590	81%	1	14	2	0	0	14	280
1112	227	19.03.2019	0	0925-0937	925	1	12	clear	1	16	PA-CQ											

1179		2019	06.05.2019	0	1329-1338	1329	0	7	par cloudy	1	15	EC-CG	1	1484	1484	100%	1	13	0	5	2	18	154
1180	239	2019	13.05.2019	0	0824-0837	824	1	13	clear	1	23	PA-CQ	0	3762	2227	59%	0	13	4	3	1	16	74
1181		2019	13.05.2019	0	0905-0928	905	1	23	clear	1	23	AG-AC	0	5489	5232	95%	1	9	2	3	2	12	31
1182		2019	13.05.2019	0	0928-0941	928	1	13	clear	1	23	AC-CS	0	3006	3006	100%	1	10	5	3	2	13	60
1183		2019	13.05.2019	0	0941-0944	941	1	3	clear	1	23	CS-TP	1	728	590	81%	1	3	1	2	1	5	100
1184		2019	13.05.2019	0	0944-0958	944	1	14	clear	1	23	TP-MP	1	2178	0	0%	1	4	0	1	1	5	21
1185		2019	13.05.2019	0	1615-1621	1615	0	6	clear	1	23	MP-TP	1	2178	0	0%	1	6	0	0	0	6	60
1186		2019	13.05.2019	0	1621-1624	1621	0	3	clear	1	23	TP-CS	1	728	590	81%	1	8	2	7	1	15	300
1187		2019	13.05.2019	0	1735-1751	1735	1	16	clear	1	23	CQ-PA	0	3762	2227	59%	0	11	3	0	0	11	41
1188	240	2019	16.05.2019	0	0916-0927	916	1	9	cloudy	1	16	PA-CQ	0	3762	2227	59%	0	2	1	0	0	2	13
1189		2019	16.05.2019	0	0927-0934	927	1	7	cloudy	1	16	CQ-AG	0	2014	1709	85%	0	1	0	1	0	2	11
1190		2019	16.05.2019	0	1257-1300	1257	0	3	cloudy	1	16	CS-TP	1	728	590	81%	1	6	1	10	5	16	320
1191		2019	16.05.2019	0	1300-1316	1300	0	15	cloudy	1	16	CS-AC	0	3006	3006	100%	1	7	1	8	1	15	60
1192		2019	16.05.2019	0	1316-1343	1316	0	27	cloudy	1	16	AC-AG	0	5489	5232	95%	1	23	2	25	0	48	107
1193		2019	16.05.2019	0	1343-1351	1343	0	8	cloudy	1	16	AG-CQ	0	2014	1709	85%	0	5	2	0	0	5	38
1194		2019	16.05.2019	0	1351-1409	1351	0	18	cloudy	1	16	CQ-PA	0	3762	2227	59%	0	11	6	1	1	12	40
1195		2019	16.05.2019	0	1840-1843	1840	1	3	cloudy	1	16	CS-TP	1	728	590	81%	1	5	2	4	2	9	180
1196	241	2019	21.05.2019	0	1119-1133	1119	0	14	par cloudy	1	18	PA-CQ	0	3762	2227	59%	0	9	7	0	0	9	39
1197		2019	21.05.2019	0	1133-1141	1133	0	8	par cloudy	1	18	CQ-AG	0	2014	1709	85%	0	7	5	0	0	7	53
1198		2019	21.05.2019	0	1236-1246	1236	0	10	par cloudy	1	18	AG-CQ	0	2014	1709	85%	0	7	5	0	0	7	42
1199		2019	21.05.2019	0	1246-1304	1246	0	18	par cloudy	1	18	CQ-PA	0	3762	2227	59%	0	5	1	1	0	6	20
1200		2019	21.05.2019	0	1734-1738	1734	1	4	par cloudy	1	18	CS-TP	1	728	590	81%	1	6	2	1	0	7	105
1201		2019	21.05.2019	0	1738-1750	1738	1	12	par cloudy	1	18	TP-MP	1	2178	0	0%	1	2	0	0	0	2	10
1202		2019	21.05.2019	0	2000-2008	2000	0	8	par cloudy	1	18	MP-TP	1	2178	0	0%	1	5	2	2	1	7	53
1203		2019	21.05.2019	0	2008-2011	2008	0	3	par cloudy	1	18	TP-CS	1	728	590	81%	1	5	1	4	0	9	180
1204	242	2019	29.05.2019	0	0942-0945	942	1	3	clear	1	28	CS-TP	1	728	590	81%	1	28	2	2	0	7	140
1205		2019	29.05.2019	0	0945-0958	945	1	13	clear	1	28	TP-MP	1	2178	0	0%	1	6	2	0	0	6	28
1206		2019	29.05.2019	0	1219-1230	1219	0	11	clear	1	28	MP-EC	1	2751	2751	100%	1	17	6	1	0	18	98
1207		2019	29.05.2019	0	1230-1237	1230	0	7	clear	1	28	EC-CG	1	1484	1484	100%	1	5	1	1	0	6	51
1208		2019	29.05.2019	0	1237-1243	1237	0	6	clear	1	28	CG-CQ	0	1186	74	6%	1	1	1	0	0	1	10
1209		2019	29.05.2019	0	1304-1308	1304	0	6	clear	1	28	CG-CQ	0	1186	74	6%	1	5	0	0	0	5	50
1210		2019	29.05.2019	0	1308-1313	1308	0	5	clear	1	28	CG-EC	1	1484	1484	100%	1	5	2	1	0	6	72
1211		2019	29.05.2019	0	1313-1325	1313	0	12	clear	1	28	EC-MP	1	2751	2751	100%	1	20	1	6	0	26	130
1212		2019	29.05.2019	0	1325-1336	1325	0	11	clear	1	28	MP-TP	1	2178	0	0%	1	1	0	0	0	1	5
1213		2019	29.05.2019	0	1336-1339	1336	0	3	clear	1	28	TP-CS	1	728	590	81%	1	6	0	2	0	8	160
1214	243	2019	31.05.2019	0	1033-1035	1033	0	3	par cloudy	1	20	MP-EC	1	2751	2751	100%	1	29	1	9	1	38	153
1215		2019	31.05.2019	0	1035-1047	1035	0	12	clear	1	28	TP-MP	1	2178	0	0%	1	17	2	30	0	47	235
1216		2019	31.05.2019	0	1047-1101	1047	0	14	clear	1	28	MP-EC	1	2751	2751	100%	1	18	4	16	0	34	146
1217		2019	31.05.2019	0	1452-1457	1452	0	5	clear	1	28	EC-CG	1	1484	1484	100%	1	9	9	1	1	10	120
1218		2019	31.05.2019	0	1459-1503	1459	0	4	clear	1	28	CG-EC	1	1484	1484	100%	1	6	1	2	1	8	120
1219		2019	31.05.2019	0	1503-1513	1503	0	10	clear	1	28	EC-MP	1	2751	2751	100%	1	18	3	5	1	23	138
1220		2019	31.05.2019	0	1615-1623	1615	0	8	clear	1	28	MP-TP	1	2178	0	0%	1	4	2	2	0	6	45
1221		2019	31.05.2019	0	1623-1626	1623	0	3	clear	1	28	TP-CS	1	728	590	81%	1	1	0	1	0	2	40
1222	244	2019	07.06.2019	0	1313-1316	1313	0	3	par cloudy	1	20	CS-TP	1	728	590	81%	1	3	0	1	0	4	80
1223		2019	07.06.2019	0	1316-1331	1316	0	15	par cloudy	1	20	TP-MP	1	2178	0	0%	1	4	0	1	0	5	20
1224		2019	07.06.2019	0	1331-1345	1331	0	14	par cloudy	1	20	MP-EC	1	2751	2751	100%	1	29	1	9	1	38	153
1225		2019	07.06.2019	0	1346-1357	1346	0	11	par cloudy	1	20	EC-MP	1	2751	2751	100%	1	15	3	7	1	22	120
1226		2019	07.06.2019	0	1616-1620	1616	0	4	par cloudy	1	20	TP-CS	1	728	590	81%	1	7	1	9	1	16	240
1227	245	2019	19.06.2019	0	1049-1052	1049	0	3	fog	1	20	CS-TP	1	728	590	81%	1	3	0	1	0	4	80
1228		2019	19.06.2019	0	1052-1104	1052	0	12	fog	1	20	TP-MP	1	2178	0	0%	1	13	1	5	2	18	90
1229		2019	19.06.2019	0	1309-1314	1309	0	5	fog	1	20	MP-TP	1	2178	0	0%	1	3	0	1	1	4	48
1230		2019	19.06.2019	0	1314-1317	1314	0	3	fog	1	20	TP-CS	1	728	590	81%	1	0	0	0	0	0	0
1231	246	2019	10.07.2019	0	1015-1026	1015	0	9	cloudy	1	21	PA-CQ	0	3762	2227	59%	0	11	8	2	1	13	87
1232		2019	10.07.2019	0	1026-1033	1026	0	7	cloudy	1	21	AG-CQ	0	2014	1709	85%	0	3	3	0	0	3	26
1233		2019	10.07.2019	0	1114-1135	1114	0	21	cloudy	1	21	AG-AC	0	5489	5232	95%	1	45	11	49	9	84	269
1234		2019	10.07.2019	0	1135-1150	1135	0	15	cloudy	1	21	AC-CS	0	3006	3006	100%	1	45	15	44	14	89	356
1235		2019	10.07.2019	0	1150-1153	1150	0	3	cloudy	1	21	CS-TP	1	728	590	81%	1	7	2	18	0	25	500
1236		2019	10.07.2019	0	1530-1533	1530	0	3	cloudy	1	21	TP-CS	1	728	590	81%	1	5	2	5	1	10	200
1237	247	2019	12.07.2019	0	1632-1635	1632	0	3	cloudy	1	27	CS-TP	1	728	590	81%	1	4	0	5	1	9	180
1238		2019	12.07.2019	0	1638-1641	1638	0	3	cloudy	1	27	TP-CS	1	728	590	81%	1	9	1	0	0	9	180
1239		2019	12.07.2019	0	1641-1655	1641	0	14	cloudy	1	27	CS-AC	0	3006	3006	100%	1	22	6	12	2	34	146
1240		2019	12.07.2019	0	1935-1958	1935	1	23	cloudy	1	27	AC-AG	0	5489	5232	95%	1	23	12	5	1	28	73
1241		2019	12.07.2019	0	2030-2047	2030	0	17	cloudy	1	27	CQ-PA	0	3762	2227	59%	0	9	2	1	1	10	35
1242	248	2019	16.07.2019	0	1552-1604	1552	0	12	cloudy	1	23	PA-CQ	0	3762	2227	59%	0	14	2	2	0	16	80
1243	249	2019	26.07.2019	0	1043-1053	1043	0	10	clear	1	20	AG-CQ	0	3762	2227	59%	0	16	13	2	0	18	108
1244		2019	26.07.2019	0	1053-1100	1053	0	7	clear	1	20	CQ-AG	0	2014	1709	85%	0	11	8	2	2	13	111
1245		2019	26.07.2019	0	1320-1329	1320	0	9	clear</														

1314	259	23.09.2019	2019	23.09.2019	0	1003-1006	1003	0	3	cloudy	1	21	CS-TP	1	728	590	81%	1	8	4	5	3	13	260
1315		2019	23.09.2019	0	1006-1018	1006	0	12	cloudy	1	21	TP-MP	1	2178	0	0%	1	32	4	22	5	54	270	
1316		2019	23.09.2019	0	1018-1032	1018	0	14	cloudy	1	21	MP-EC	1	2751	2751	100%	1	24	7	7	2	31	133	
1317		2019	23.09.2019	0	1117-1125	1117	0	8	cloudy	1	21	EC-CG	1	1484	1484	100%	1	9	3	0	0	9	68	
1318		2019	23.09.2019	0	1125-1130	1125	0	5	cloudy	1	21	CG-CQ	0	1186	74	6%	1	1	0	0	0	1	12	
1319		2019	23.09.2019	0	1341-1345	1341	0	4	cloudy	1	21	CG-CQ	0	1186	74	6%	1	1	0	0	0	3	45	
1320		2019	23.09.2019	0	1345-1352	1345	0	7	cloudy	1	21	CG-EC	1	1484	1484	100%	1	4	1	1	3	0	7	
1321		2019	23.09.2019	0	1352-1405	1352	0	12	cloudy	1	21	EC-MP	1	2751	2751	100%	1	22	2	5	0	27	135	
1322		2019	23.09.2019	0	1405-1413	1405	0	8	cloudy	1	21	MP-TP	1	2178	0	0%	1	4	0	0	0	4	30	
1323		2019	23.09.2019	0	1413-1416	1413	0	3	cloudy	1	21	TP-CS	1	728	590	81%	1	3	0	2	0	5	100	
1324	260	25.09.2019	2019	25.09.2019	0	1253-1312	1253	0	19	par cloudy	1	24	AG-AC	0	5489	5232	95%	1	66	23	73	20	139	439
1325		2019	25.09.2019	0	1312-1323	1312	0	11	par cloudy	1	24	AC-CS	0	3006	3006	100%	1	16	4	12	1	28	153	
1326		2019	25.09.2019	0	1323-1326	1323	0	3	par cloudy	1	24	CS-TP	1	728	590	81%	1	2	0	1	0	3	60	
1327		2019	25.09.2019	0	1326-1338	1326	0	12	par cloudy	1	24	TP-MP	1	2178	0	0%	1	6	2	0	0	6	30	
1328		2019	25.09.2019	0	1658-1710	1658	0	12	par cloudy	1	24	MP-EC	1	2751	2751	100%	1	32	10	13	5	45	225	
1329		2019	25.09.2019	0	1715-1725	1715	1	10	par cloudy	1	24	EC-MP	1	2751	2751	100%	1	38	4	16	3	54	324	
1330		2019	25.09.2019	0	1725-1734	1725	1	9	par cloudy	1	24	MP-TP	1	2178	0	0%	1	14	4	0	0	14	93	
1331		2019	25.09.2019	0	1736-1739	1736	1	3	par cloudy	1	24	TP-CS	1	728	590	81%	1	7	0	0	0	7	140	
1332	261	01.10.2019	2019	01.10.2019	0	0755-0758	755	1	3	cloudy	1	22	CS-TP	1	728	590	81%	1	7	4	1	0	8	160
1333		2019	01.10.2019	0	0758-0814	758	1	16	cloudy	1	22	TP-MP	1	2178	0	0%	1	1	0	0	0	1	4	
1334		2019	01.10.2019	0	0814-0828	814	1	14	cloudy	1	22	MP-EC	1	2751	2751	100%	1	49	20	6	3	55	236	
1335		2019	01.10.2019	0	0828-0835	828	1	7	cloudy	1	22	EC-CG	1	1484	1484	100%	1	20	2	5	1	25	214	
1336		2019	01.10.2019	0	0835-0841	835	1	6	cloudy	1	22	CG-CQ	0	1186	74	6%	1	7	5	1	1	8	80	
1337		2019	01.10.2019	0	1001-1005	1001	0	4	cloudy	1	22	CG-CQ	0	1186	74	6%	1	3	1	0	0	3	45	
1338		2019	01.10.2019	0	1005-1009	1005	0	4	cloudy	1	22	CG-EC	1	1484	1484	100%	1	11	4	3	1	14	210	
1339		2019	01.10.2019	0	1135-1141	1135	0	12	cloudy	1	22	EC-MP	1	2751	2751	100%	1	15	9	2	1	16	85	
1340		2019	01.10.2019	0	1147-1156	1147	0	9	cloudy	1	22	MP-TP	1	2178	0	0%	1	6	3	0	0	6	40	
1341		2019	01.10.2019	0	1156-1159	1156	0	3	cloudy	1	22	TP-CS	1	728	590	81%	1	2	1	3	0	5	100	
1342	262	10.10.2019	2019	10.10.2019	0	0830-0841	830	1	11	clear	1	23	PA-CQ	0	3762	2227	59%	0	3	1	1	1	4	22
1343		2019	10.10.2019	0	0841-0848	841	1	7	clear	1	23	CQ-AG	0	2014	1709	85%	0	5	4	0	0	5	43	
1344		2019	10.10.2019	0	0848-0902	848	1	14	clear	1	23	AG-AC	0	5489	5232	95%	1	8	4	2	0	10	43	
1345		2019	10.10.2019	0	0904-0920	904	1	16	clear	1	23	AC-AG	0	5489	5232	95%	1	8	5	2	0	10	38	
1346		2019	10.10.2019	0	1200-1203	1200	0	3	clear	1	23	CS-TP	1	728	590	81%	1	20	1	19	0	39	780	
1347		2019	10.10.2019	0	1206-1210	1206	0	4	clear	1	23	TP-CS	1	728	590	81%	1	12	4	2	1	14	210	
1348		2019	10.10.2019	0	1210-1222	1210	0	24	clear	1	23	CS-AC	0	3006	3006	100%	1	18	4	7	0	25	125	
1349		2019	10.10.2019	0	1223-1246	1223	0	24	clear	1	23	AC-AG	0	5489	5232	95%	1	12	2	1	0	14	35	
1350		2019	10.10.2019	0	1246-1252	1246	0	6	clear	1	23	AG-CQ	0	2014	1709	85%	0	1	0	1	0	2	20	
1351		2019	10.10.2019	0	1252-1311	1252	0	19	clear	1	23	CQ-PA	0	3762	2227	59%	0	1	1	3	0	4	13	
1352	263	17.10.2019	2019	17.10.2019	0	0926-0933	926	1	7	rain	0	18	CQ-AG	0	2014	1709	85%	0	1	0	1	0	2	17
1353		2019	17.10.2019	0	1536-1542	1536	0	6	rain	0	20	CQ-AG	0	2014	1709	85%	0	1	0	0	0	1	10	
1354		2019	17.10.2019	0	1745-1752	1745	1	7	rain	0	20	AG-CQ	0	2014	1709	85%	0	1	0	0	0	1	9	
1355		2019	17.10.2019	0	1752-1805	1752	1	13	rain	0	20	CQ-PA	0	3762	2227	59%	0	6	3	1	0	7	32	
1356	264	21.10.2019	2019	21.10.2019	0	0818-0830	818	1	12	clear	1	12	PA-CQ	0	3762	2227	59%	0	5	2	0	0	5	25
1357		2019	21.10.2019	0	0830-0836	830	1	6	clear	1	12	CQ-AG	0	2014	1709	85%	0	2	1	0	0	2	20	
1358		2019	21.10.2019	0	0836-0854	836	1	18	clear	1	12	AG-AC	0	5489	5232	95%	1	5	4	1	1	6	20	
1359		2019	21.10.2019	0	0854-0906	854	1	12	clear	1	12	AC-CS	0	3006	3006	100%	1	15	9	2	1	17	85	
1360		2019	21.10.2019	0	0906-0910	906	1	4	clear	1	12	CS-TP	1	728	590	81%	1	5	1	1	1	6	90	
1361		2019	21.10.2019	0	0910-0922	910	1	12	clear	1	12	TP-MP	1	2178	0	0%	1	6	0	1	0	7	35	
1362		2019	21.10.2019	0	0922-0932	922	1	10	clear	1	12	MP-EC	1	2751	2751	100%	1	42	1	20	0	62	372	
1363		2019	21.10.2019	0	0947-0954	947	1	7	clear	1	12	EC-CG	1	1484	1484	100%	1	24	3	4	0	28	240	
1364		2019	21.10.2019	0	0954-1000	954	1	6	clear	1	12	CG-CQ	0	1186	74	6%	1	0	0	2	1	2	20	
1365		2019	21.10.2019	0	1310-1325	1310	0	15	clear	1	12	EC-MP	1	2751	2751	100%	1	33	6	6	1	39	156	
1366		2019	21.10.2019	0	1325-1334	1325	0	9	clear	1	12	MP-TP	1	2178	0	0%	1	5	1	1	0	6	40	
1367		2019	21.10.2019	0	1334-1337	1334	0	3	clear	1	12	TP-CS	1	728	590	81%	1	15	10	10	7	25	500	
1368		2019	21.10.2019	0	1422-1435	1422	0	13	clear	1	12	CS-AC	0	3006	3006	100%	1	15	2	4	0	19	88	
1369		2019	21.10.2019	0	1435-1505	1435	0	30	clear	1	12	AC-AG	0	5489	5232	95%	1	37	15	41	17	78	156	
1370		2019	21.10.2019	0	1506-1515	1506	0	9	clear	1	12	AG-CQ	0	2014	1709	85%	0	2	1	0	0	3	20	
1371		2019	21.10.2019	0	1515-1532	1515	0	17	clear	1	12	CQ-PA	0	3762	2227	59%	0	3	2	0	0	3	11	
1372	265	22.10.2019	2019	22.10.2019	0	0900-0930	900	1	30	clear	1	11	MP-EC	1	2751	2751	100%	1	133	21	43	13	176	352
1373		2019	22.10.2019	0	1121-1131	1121	0	10	clear	1	15	TP-CS	1	728	590	81%	1	8	5	0	0	8	48	
1374	266	25.10.2019	2019	25.10.2019	0	1520-1550	1520	0	30	clear	1	21	MP-EC	1	2751	2751	100%	1	39	4	15	4	54	108
1375	267	30.10.2019	2019	30.10.2019	0	1015-1043	1015	0	28	rain	0	18	EC-MP	1	2751	2751	100%	1	29	4	9	1	38	81
1376		2019	30.10.2019	0	1310-1320	1310	0	10	rain	0	18	TP-CS	1	728	590	81%	1	17	9	10	9	27	162	
1377	268	31.10.2019	2019	31.10.2019	0	0900-0915	900	1	15	rain	0	19	PA-CQ	0	3762	2227	59%	0	6	3	0	0	6	24
1378		2019	31.10.2019	0	0915-0921	915	1	8	rain	0	19	CQ-AG	0	2014	1709	85%	0	6	1	0	0	1	8	
1379		2019	31.10.2019	0	0923-0944	923	1	21	rain	0	19	AG-AC	0											

1449	2019	04.12.2019	0	1437-1443	1437	0	6	clear	1	9	MP-TP	1	2178	0	0%	1	6	2	1	0	7	70	
1450	2019	04.12.2019	0	1443-1447	1443	0	4	clear	1	9	TP-CS	1	728	590	81%	1	7	0	1	1	8	120	
1451	281	06.12.2019	0	0851-0854	851	1	3	clear	1	11	CS-TP	1	728	590	81%	1	8	3	0	0	8	160	
1452	2019	06.12.2019	0	0930-0947	930	1	9	clear	1	11	TP-MP	1	2178	0	0%	1	6	1	0	0	6	45	
1453	2019	06.12.2019	0	0947-0956	947	1	9	clear	1	11	MP-EC	1	2751	2751	100%	1	50	9	10	1	60	400	
1454	2019	06.12.2019	0	1043-1048	1043	0	5	clear	1	11	EC-CG	1	1484	1484	100%	1	3	1	2	0	12	144	
1455	2019	06.12.2019	0	1054-1059	1054	0	5	clear	1	11	EG-EC	1	1484	1484	100%	1	3	1	1	0	4	48	
1456	2019	06.12.2019	0	1059-1109	1059	0	10	clear	1	11	EC-MP	1	2751	2751	100%	1	10	6	3	1	13	78	
1457	2019	06.12.2019	0	1109-1117	1109	0	8	clear	1	11	MP-TP	1	2178	0	0%	1	11	2	7	0	18	135	
1458	2019	06.12.2019	0	1117-1120	1117	0	3	clear	1	11	TP-CS	1	728	590	81%	1	1	0	0	0	1	20	
1459	282	07.12.2019	0	1609-1613	1609	0	4	par cloudy	1	16	CG-EC	1	1484	1484	100%	1	3	0	3	0	6	90	
1460	2019	07.12.2019	0	1620-1624	1620	0	4	par cloudy	1	16	EC-CG	1	1484	1484	100%	1	14	4	0	0	15	225	
1461	283	11.12.2019	0	0857-0900	857	1	3	cloudy	1	12	CS-TP	1	728	590	81%	1	5	1	0	0	5	100	
1462	2019	11.12.2019	0	0942-0948	942	1	6	cloudy	1	12	TP-MP	1	2178	0	0%	1	6	2	2	0	8	80	
1463	2019	11.12.2019	0	1143-1156	1143	0	13	cloudy	1	12	MP-EC	1	2751	2751	100%	1	12	3	2	0	14	65	
1464	2019	11.12.2019	0	1156-1203	1156	0	10	par cloudy	1	12	EC-CG	1	1484	1484	100%	1	6	2	1	0	7	60	
1465	2019	11.12.2019	0	1217-1221	1217	0	4	cloudy	1	12	EG-EC	1	1484	1484	100%	1	8	0	2	0	10	150	
1466	2019	11.12.2019	0	1221-1229	1221	0	8	cloudy	1	12	EC-MP	1	2751	2751	100%	1	16	2	2	0	18	135	
1467	2019	11.12.2019	0	1231-1239	1231	0	7	cloudy	1	12	MP-TP	1	2178	0	0%	1	9	0	0	0	9	77	
1468	2019	11.12.2019	0	1239-1242	1239	0	3	cloudy	1	12	TP-CS	1	728	590	81%	1	2	0	0	0	2	40	
1469	284	17.12.2019	0	0824-0827	824	1	3	par cloudy	1	9	CS-TP	1	728	590	81%	1	7	3	0	0	7	140	
1470	2019	17.12.2019	0	0827-0835	827	1	8	par cloudy	1	9	TP-MP	1	2178	0	0%	1	3	0	0	0	3	23	
1471	2019	17.12.2019	0	0835-0846	835	1	9	par cloudy	1	9	MP-EC	1	2751	2751	100%	1	28	9	10	3	38	253	
1472	2019	17.12.2019	0	0846-0854	846	1	8	par cloudy	1	9	EC-CG	1	1484	1484	100%	1	22	5	4	0	26	195	
1473	2019	17.12.2019	0	1056-1056	1056	0	6	par cloudy	1	9	EG-EC	1	1484	1484	100%	1	6	1	2	1	8	80	
1474	2019	17.12.2019	0	1056-1106	1056	0	10	par cloudy	1	9	EC-MP	1	2751	2751	100%	1	4	1	4	1	17	102	
1475	2019	17.12.2019	0	1108-1116	1108	0	8	par cloudy	1	9	MP-TP	1	2178	0	0%	1	6	4	0	0	6	45	
1476	2019	17.12.2019	0	1116-1119	1116	0	3	par cloudy	1	9	TP-CS	1	728	590	81%	1	6	2	0	0	6	120	
1477	285	18.12.2019	0	0850-0853	850	1	3	rain	0	15	CS-TP	1	728	590	81%	1	3	0	0	0	3	60	
1478	2019	18.12.2019	0	1008-1011	1008	0	3	rain	0	15	TP-CS	1	728	590	81%	1	3	0	1	0	4	80	
1479	286	19.12.2019	0	0936-0939	936	1	3	rain	0	16	CS-TP	1	728	590	81%	1	3	2	1	0	4	80	
1146																							
3113																							
4259																							
1480	287	07.01.2020	0	0824-0827	824	1	3	par cloudy	1	6	CS-TP	1	728	590	81%	1	2	0	0	0	2	40	
1481	2020	07.01.2020	0	0827-0831	827	1	9	par cloudy	1	6	TP-MP	1	2178	0	0%	1	4	2	3	3	0	7	53
1482	2020	07.01.2020	0	0835-0846	835	1	9	par cloudy	1	6	MP-EC	1	2751	2751	100%	1	40	3	12	3	52	347	
1483	2020	07.01.2020	0	0856-0854	856	1	9	par cloudy	1	6	EC-CG	1	1484	1484	100%	1	24	5	12	3	36	270	
1484	2020	07.01.2020	0	1053-1058	1053	0	5	par cloudy	1	6	CG-EC	1	1484	1484	100%	1	4	1	0	0	4	48	
1485	2020	07.01.2020	0	1058-1107	1058	0	9	par cloudy	1	6	EC-MP	1	2751	2751	100%	1	10	1	4	0	14	93	
1486	2020	07.01.2020	0	1107-1115	1107	0	8	par cloudy	1	6	MP-TP	1	2178	0	0%	1	1	0	1	0	2	15	
1487	2020	07.01.2020	0	1115-1118	1115	0	3	par cloudy	1	6	TP-CS	1	728	590	81%	1	2	1	1	0	3	60	
1488	288	15.01.2020	0	0852-0855	852	1	3	rain	0	14	CS-TP	1	728	590	81%	1	3	0	1	1	4	80	
1489	2020	15.01.2020	0	0941-0947	941	1	6	rain	0	14	TP-MP	1	2178	0	0%	1	4	0	1	0	5	50	
1490	2020	15.01.2020	0	0947-0957	947	1	10	rain	0	14	MP-EC	1	2751	2751	100%	1	17	2	8	1	25	150	
1491	2020	15.01.2020	0	0957-1000	957	1	6	rain	0	14	EC-CG	1	1484	1484	100%	1	2	0	0	0	2	20	
1492	2020	15.01.2020	0	1010-1014	1010	0	4	rain	0	14	EG-EC	1	1484	1484	100%	1	4	1	0	0	4	60	
1493	2020	15.01.2020	0	1014-1022	1014	0	8	rain	0	14	EC-MP	1	2751	2751	100%	1	4	1	4	1	8	60	
1494	2020	15.01.2020	0	1022-1030	1022	0	8	rain	0	14	MP-TP	1	2178	0	0%	1	2	0	4	0	6	45	
1495	2020	15.01.2020	0	1030-1033	1030	0	3	rain	0	14	TP-CS	1	728	590	81%	1	0	0	0	0	0	0	
1496	289	20.01.2020	0	0856-0859	856	1	3	cloudy	1	6	CS-TP	1	728	590	81%	1	4	0	0	0	4	80	
1497	2020	20.01.2020	0	0935-0947	935	1	12	cloudy	1	6	TP-MP	1	2178	0	0%	1	11	1	4	0	15	75	
1498	2020	20.01.2020	0	1203-1212	1203	0	9	cloudy	1	6	MP-EC	1	2751	2751	100%	1	11	1	2	0	13	87	
1499	2020	20.01.2020	0	1212-1217	1212	0	5	cloudy	1	6	EC-CG	1	1484	1484	100%	1	3	1	0	0	3	36	
1500	2020	20.01.2020	0	1217-1221	1217	0	4	cloudy	1	6	CG-CG	0	1186	74	6%	1	0	0	1	0	1	15	
1501	2020	20.01.2020	0	1222-1226	1222	0	4	cloudy	1	6	CG-CG	0	1186	74	6%	1	2	0	0	0	2	30	
1502	2020	20.01.2020	0	1233-1238	1233	0	5	cloudy	1	6	EG-EC	1	1484	1484	100%	1	6	1	0	0	6	72	
1503	2020	20.01.2020	0	1239-1251	1239	0	12	cloudy	1	6	EC-MP	1	2751	2751	100%	1	18	2	6	0	24	120	
1504	2020	20.01.2020	0	1251-1300	1251	0	9	cloudy	1	6	MP-TP	1	2178	0	0%	1	2	0	3	1	5	33	
1505	2020	20.01.2020	0	1300-1303	1300	0	3	cloudy	1	6	TP-CS	1	728	590	81%	1	1	0	0	0	1	20	
1506	290	21.01.2020	0	0819-0822	819	1	3	clear	1	9	CS-TP	1	728	590	81%	1	2	0	0	0	2	40	
1507	2020	21.01.2020	0	0822-0831	822	1	9	clear	1	9	TP-MP	1	2178	0	0%	1	1	0	0	0	1	20	
1508	2020	21.01.2020	0	0831-0844	831	1	13	clear	1	9	MP-EC	1	2751	2751	100%	1	41	13	9	1	50	231	
1509	2020	21.01.2020	0	0845-0852	845	0	7	clear	1	9	EC-CG	1	1484	1484	100%	1	23	8	7	1	30	257	
1510	2020	21.01.2020	0	1153-1156	1153	0	3	clear	1	9	CG-CG	0	1186	74	6%	1	2	1	0	0	2	40	
1511	2020	21.01.2020	0	1157-1159	1157	0	2	clear	1	9	CG-CG	0	1186	74	6%	1	2	0	0	0	4	120	
1512	2020	21.01.2020	0	1206-1210	1206	0	4	clear	1	9	EG-EC	1	1484	1484	100%	1	2	0	0	0	2	30	
1513	2020	21.01.2020	0	1210-1221	1210	0	11	clear	1	9	EC-MP	1	2751	2751	100%	1	15	3	2	0	17	93	
1514	2020	21.01.2020	0	1221-1229	1221	0	8	clear	1	9	MP-TP	1	2178	0	0%	1	2	2	0	0	2	15	
1515	2020	21.01.2020	0	1230-1233	1230	0	3	clear	1	9	TP-CS	1	728	590	81%	1	4	0	14	0	18	360	
1516	291	24.01.2020	0	1654-1715	1654	0	21	cloudy	1	10	AC-AG	0	5489	5232	95%	1	7	4	2	0	9	26	
1517	2020	24.01.2020	0	1715-1722	1715	1																	

1581	2020	26.02.2020	0	1025-1032	1025	0	7	cloudy	1	13	CQ-AG	0	2014	1709	85%	0	6	6	0	0	6	51
1582	2020	26.02.2020	0	1033-1040	1033	0	7	cloudy	1	13	AG-CQ	0	2014	1709	85%	0	7	7	0	0	7	60
1583	2020	26.02.2020	0	1234-1249	1234	0	15	cloudy	1	13	CQ-PA	0	3762	2227	59%	0	9	6	4	3	13	52
1584	308	27.02.2020	0	1035-1038	1035	0	3	par cloudy	1	14	CS-TP	1	728	590	81%	1	7	1	2	1	9	180
1585	2020	27.02.2020	0	1222-1225	1222	0	3	par cloudy	1	14	TP-CS	1	728	590	81%	1	6	2	1	0	7	140
1586	309	02.03.2020	0	1039-1042	1039	0	3	par cloudy	1	16	CS-TP	1	728	590	81%	1	4	0	1	1	5	100
1587	2020	02.03.2020	0	1348-1351	1348	0	3	par cloudy	1	16	CS-TP	1	728	590	81%	1	5	1	1	0	6	120
1588	2020	02.03.2020	0	1351-1359	1351	0	8	par cloudy	1	16	TP-MP	1	2178	0	0%	1	4	1	0	0	4	30
1589	2020	02.03.2020	0	1426-1431	1426	0	5	par cloudy	1	16	EC-CG	1	1484	1484	100%	1	10	1	4	0	14	168
1590	2020	02.03.2020	0	1605-1609	1605	0	4	par cloudy	1	16	CG-EC	1	1484	1484	100%	1	6	1	2	0	8	120
1591	2020	02.03.2020	0	1609-1618	1609	0	9	par cloudy	1	16	EC-MP	1	2751	2751	100%	1	15	4	7	0	22	147
1592	2020	02.03.2020	0	1618-1627	1618	0	9	par cloudy	1	16	MP-TP	1	2178	0	0%	1	7	0	3	0	10	67
1593	2020	02.03.2020	0	1627-1630	1627	0	3	par cloudy	1	16	TP-CS	1	728	590	81%	1	4	0	0	0	4	80
1594	310	03.03.2020	0	1048-1051	1048	0	3	rain	0	14	CS-TP	1	728	590	81%	1	1	0	0	0	1	20
1595	2020	03.03.2020	0	1135-1141	1135	0	6	rain	0	14	TP-MP	1	2178	0	0%	1	3	0	1	0	4	40
1596	2020	03.03.2020	0	1400-1406	1400	0	16	rain	0	14	MP-TP	1	2178	0	0%	1	5	1	1	0	6	60
1597	2020	03.03.2020	0	1406-1409	1406	0	3	rain	0	14	TP-CS	1	728	590	81%	1	0	0	0	0	0	0
1598	311	06.03.2020	0	1509-1512	1509	0	3	par cloudy	1	15	CS-TP	1	728	590	81%	1	3	2	1	0	4	80
1599	2020	06.03.2020	0	1512-1520	1512	0	8	par cloudy	1	15	TP-MP	1	2178	0	0%	1	5	2	2	0	7	53
1600	2020	06.03.2020	0	1808-1815	1808	1	7	par cloudy	1	15	MP-TP	1	2178	0	0%	1	7	0	0	0	7	60
1601	2020	06.03.2020	0	1815-1818	1815	1	3	par cloudy	1	15	TP-CS	1	728	590	81%	1	6	2	0	0	6	120
1602	312	10.03.2020	0	1939-1059	1939	1	20	clear	1	19	PA-CQ	0	3762	2227	59%	0	4	3	1	1	5	15
1603	2020	10.03.2020	0	1959-1107	1959	1	8	clear	1	19	CQ-AG	0	2014	1709	85%	0	10	6	0	0	10	75
1604	2020	10.03.2020	0	1114-1136	1114	0	22	clear	1	19	AG-AC	0	5489	5232	95%	1	26	6	26	2	52	142
1605	2020	10.03.2020	0	1136-1148	1136	0	12	clear	1	19	AC-CS	0	3006	3006	100%	1	18	3	16	3	34	170
1606	2020	10.03.2020	0	1148-1151	1148	0	3	clear	1	19	CS-TP	1	728	590	81%	1	4	1	4	1	8	160
1607	2020	10.03.2020	0	1152-1204	1152	0	12	clear	1	19	TP-MP	1	2178	0	0%	1	4	1	1	0	5	25
1608	2020	10.03.2020	0	1204-1217	1204	0	13	clear	1	19	MP-EC	1	2751	2751	100%	1	21	1	5	0	26	120
1609	2020	10.03.2020	0	1437-1450	1437	0	13	clear	1	19	EC-MP	1	2751	2751	100%	1	22	2	9	1	31	143
1610	2020	10.03.2020	0	1450-1458	1450	0	8	clear	1	19	MP-TP	1	2178	0	0%	1	5	1	0	0	5	38
1611	2020	10.03.2020	0	1625-1632	1625	0	7	clear	1	19	AG-CQ	0	2014	1709	85%	0	4	2	1	1	5	43
1612	2020	10.03.2020	0	1632-1647	1632	0	15	clear	1	19	CQ-PA	0	3762	2227	59%	0	8	5	3	0	11	44
1613	313	17.03.2020	0	0955-1010	955	1	15	clear	1	13	PA-CQ	0	3762	2227	59%	0	2	1	1	0	3	12
1614	2020	17.03.2020	0	1010-1018	1010	0	8	clear	1	13	CQ-AG	0	2014	1709	85%	0	8	3	2	1	10	75
1615	2020	17.03.2020	0	1018-1041	1018	0	23	clear	1	13	AG-AC	0	5489	5232	95%	1	3	1	1	0	4	20
1616	2020	17.03.2020	0	1041-1056	1041	0	15	clear	1	13	AC-CS	0	3006	3006	100%	1	0	0	0	0	3	12
1617	2020	17.03.2020	0	1056-1059	1056	0	3	clear	1	13	CS-TP	1	728	590	81%	1	1	1	0	0	1	10
1618	2020	17.03.2020	0	1101-1111	1101	0	10	clear	1	13	TP-MP	1	2178	0	0%	1	2	1	1	0	3	18
1619	2020	17.03.2020	0	1111-1126	1111	0	15	clear	1	13	MP-EC	1	2751	2751	100%	1	5	1	0	0	5	20
1620	2020	17.03.2020	0	1126-1132	1126	0	6	clear	1	13	EC-CG	1	1484	1484	100%	1	4	2	0	0	4	40
1621	2020	17.03.2020	0	1132-1136	1132	0	4	clear	1	13	CG-QC	0	1186	74	6%	1	0	0	0	0	0	0
1622	2020	17.03.2020	0	1137-1141	1137	0	4	clear	1	13	CG-CG	0	1186	74	6%	1	1	0	0	0	1	15
1623	2020	17.03.2020	0	1141-1146	1141	0	5	clear	1	13	CG-EC	1	1484	1484	100%	1	2	1	0	0	2	24
1624	2020	17.03.2020	0	1146-1159	1146	0	13	clear	1	13	EC-MP	1	2751	2751	100%	1	8	0	2	0	10	46
1625	2020	17.03.2020	0	1159-1207	1159	0	8	clear	1	13	MP-TP	1	2178	0	0%	1	3	0	0	0	3	23
1626	2020	17.03.2020	0	1207-1210	1207	0	3	clear	1	13	TP-CS	1	728	590	81%	1	0	0	0	0	1	20
1627	2020	17.03.2020	0	1210-1220	1210	0	10	clear	1	13	CS-AC	0	3006	3006	100%	1	2	2	3	0	5	30
1628	2020	17.03.2020	0	1220-1238	1220	0	18	clear	1	13	AC-AG	0	5489	5232	95%	1	4	3	1	1	5	17
1629	2020	17.03.2020	0	1238-1244	1238	0	6	clear	1	13	AG-CQ	0	2014	1709	85%	0	2	1	0	0	2	20
1630	2020	17.03.2020	0	1244-1256	1244	0	12	clear	1	13	CQ-PA	0	3762	2227	59%	0	3	2	2	0	5	25
1631	314	26.03.2020	0	1605-1617	1605	0	12	par cloudy	1	15	PA-CQ	0	3762	2227	59%	0	4	1	1	1	5	25
1632	2020	26.03.2020	0	1617-1624	1617	0	7	par cloudy	1	15	CQ-AG	0	2014	1709	85%	0	1	0	0	0	1	9
1633	2020	26.03.2020	0	1624-1641	1624	0	17	par cloudy	1	15	AG-AC	0	5489	5232	95%	1	14	1	4	0	18	64
1634	2020	26.03.2020	0	1641-1652	1641	0	11	par cloudy	1	15	AC-CS	0	3006	3006	100%	1	7	2	1	1	8	44
1635	2020	26.03.2020	0	1652-1655	1652	0	3	par cloudy	1	15	CS-TP	1	728	590	81%	1	0	0	2	0	2	40
1636	2020	26.03.2020	0	1655-1709	1655	0	14	par cloudy	1	15	TP-MP	1	2178	0	0%	1	1	0	1	1	2	9
1637	2020	26.03.2020	0	1709-1722	1709	1	13	par cloudy	1	15	MP-EC	1	2751	2751	100%	1	10	4	3	1	13	60
1638	2020	26.03.2020	0	1722-1730	1722	1	8	par cloudy	1	15	EC-CG	1	1484	1484	100%	1	12	2	2	0	14	105
1639	2020	26.03.2020	0	1730-1735	1730	1	5	par cloudy	1	15	CG-QC	0	1186	74	6%	1	1	0	0	0	1	12
1640	2020	26.03.2020	0	1742-1746	1742	1	4	par cloudy	1	15	CG-CG	0	1186	74	6%	1	2	0	0	0	2	9
1641	2020	26.03.2020	0	1746-1750	1746	1	4	par cloudy	1	15	CG-EC	1	1484	1484	100%	1	7	3	2	1	9	335
1642	2020	26.03.2020	0	1750-1804	1750	1	14	par cloudy	1	15	EC-MP	1	2751	2751	100%	1	13	0	2	2	15	64
1643	2020	26.03.2020	0	1804-1811	1804	1	7	par cloudy	1	15	MP-TP	1	2178	0	0%	1	11	2	4	1	15	129
1644	2020	26.03.2020	0	1812-1815	1812	1	3	par cloudy	1	15	TP-CS	1	728	590	81%	1	1	0	3	0	4	80
1645	2020	26.03.2020	0	1815-1820	1815	1	5	par cloudy	1	15	AC-AG	0	3006	3006	100%	1	2	0	0	0	10	50
1646	2020	26.03.2020	0	1827-1846	1827	1	19	par cloudy	1	15	AG-AC	0	5489	5232	95%	1	20	2	9	2	29	92
1647	2020	26.03.2020	0	1846-1854	1846	1	8	par cloudy	1	15	AG-CQ	0	2014	1709	85%	0	5	4	4	2	9	68
1648	2020	26.03.2020	0	1854-1910	1854	1	16	par cloudy	1	15	CQ-PA	0	3762	2227	59%	0	6	4	2	0	8	30
1649	315	13.04.2020	0	1130-1143	1130	0	13	rain	0													

1716		2020	30.05.2020	0	1759-1806	1759	1	7	par cloudy	1	25	CQ-AG	0	2014	1709	85%	0	10	2	10	3	20	171
1717		2020	30.05.2020	0	1809-1816	1809	1	7	par cloudy	1	25	AG-CQ	0	2014	1709	85%	0	32	9	11	3	43	369
1718		2020	30.05.2020	0	1816-1831	1816	1	15	par cloudy	1	25	CQ-PA	0	3762	2227	59%	0	27	12	14	6	41	164
1719	328	2020	31.05.2020	0	1134-1146	1134	0	12	clear	1	24	PA-CQ	0	3762	2227	59%	0	94	33	26	10	120	600
1720		2020	31.05.2020	0	1148-1154	1148	0	6	clear	1	24	CQ-AG	0	2014	1709	85%	0	43	13	18	8	61	610
1721		2020	31.05.2020	0	1157-1202	1157	0	5	clear	1	24	AG-CQ	0	2014	1709	85%	0	3	18	15	11	48	576
1722		2020	31.05.2020	0	1205-1218	1205	0	13	clear	1	24	CQ-PA	0	3762	2227	59%	0	83	60	19	13	102	471
1723	329	2020	01.06.2020	0	0923-0930	923	1	15	par cloudy	1	25	PA-CQ	0	3762	2227	59%	0	7	3	2	1	9	36
1724		2020	01.06.2020	0	0938-0945	938	1	7	par cloudy	1	25	CQ-AG	0	2014	1709	85%	0	7	3	1	0	8	69
1725		2020	01.06.2020	0	0945-1007	945	1	22	par cloudy	1	25	AG-AC	0	5489	5232	95%	1	16	11	1	1	17	46
1726		2020	01.06.2020	0	1007-1019	1007	0	12	par cloudy	1	25	AC-CS	0	3006	3006	100%	1	10	7	0	0	10	50
1727		2020	01.06.2020	0	1019-1022	1019	0	3	par cloudy	1	25	CS-TP	1	728	590	81%	1	5	0	0	0	5	100
1728		2020	01.06.2020	0	1022-1025	1022	0	3	par cloudy	1	25	TP-CS	1	728	590	81%	1	2	0	1	1	3	30
1729		2020	01.06.2020	0	1325-1338	1325	0	13	par cloudy	1	25	CS-AC	0	3006	3006	100%	1	4	0	3	1	7	32
1730		2020	01.06.2020	0	1338-1403	1338	0	25	par cloudy	1	25	AC-AG	0	5489	5232	95%	1	7	2	2	0	9	22
1731		2020	01.06.2020	0	1403-1412	1403	0	9	par cloudy	1	25	AG-CQ	0	2014	1709	85%	0	1	0	0	0	0	7
1732		2020	01.06.2020	0	1412-1430	1412	0	18	par cloudy	1	25	CQ-PA	0	3762	2227	59%	0	1	0	0	0	1	3
1733	330	2020	15.06.2020	0	1126-1146	1126	0	20	par cloudy	1	21	PA-CQ	0	3762	2227	59%	0	11	7	2	1	13	99
1734		2020	15.06.2020	0	1146-1153	1146	0	7	par cloudy	1	21	CQ-AG	0	2014	1709	85%	0	10	7	1	1	11	94
1735		2020	15.06.2020	0	1246-1253	1246	0	7	par cloudy	1	21	AG-CQ	0	2014	1709	85%	0	3	1	0	0	3	26
1736		2020	15.06.2020	0	1253-1308	1253	0	15	par cloudy	1	21	CQ-PA	0	3762	2227	59%	0	12	9	3	3	15	60
1737	331	2020	17.06.2020	0	0857-0909	857	1	12	cloudy	1	20	PA-CQ	0	3762	2227	59%	0	16	11	0	0	16	80
1738		2020	17.06.2020	0	0910-0917	910	1	7	cloudy	1	20	CQ-AG	0	2014	1709	85%	0	1	1	0	0	1	9
1739		2020	17.06.2020	0	0918-0938	918	1	20	cloudy	1	20	AG-AC	0	5489	5232	95%	1	17	10	3	0	20	60
1740		2020	17.06.2020	0	0940-0951	940	1	9	cloudy	1	20	AC-CS	0	3006	3006	100%	1	3	2	1	0	4	27
1741		2020	17.06.2020	0	0951-0954	951	1	3	cloudy	1	20	CS-TP	1	728	590	81%	1	5	4	0	0	5	100
1742		2020	17.06.2020	0	0956-1008	956	1	12	cloudy	1	20	TP-MP	1	2178	0	0%	1	11	6	0	0	11	55
1743		2020	17.06.2020	0	1008-1021	1008	0	14	cloudy	1	20	MP-EC	1	2751	2751	100%	1	18	5	2	2	23	99
1744		2020	17.06.2020	0	1226-1229	1226	0	3	cloudy	1	20	TP-CS	1	728	590	81%	1	5	1	0	0	5	100
1745		2020	17.06.2020	0	1229-1244	1229	0	15	cloudy	1	20	CS-AC	0	3006	3006	100%	1	10	2	2	0	12	48
1746		2020	17.06.2020	0	1245-1316	1245	0	31	cloudy	1	20	AC-AG	0	5489	5232	95%	1	15	7	0	0	15	29
1747		2020	17.06.2020	0	1320-1328	1320	0	8	cloudy	1	20	AG-CQ	0	2014	1709	85%	0	8	4	5	2	13	98
1748		2020	17.06.2020	0	1328-1350	1328	0	12	cloudy	1	20	CQ-PA	0	3762	2227	59%	0	4	3	3	0	7	35
1749	332	2020	23.06.2020	0	1803-1806	1803	1	3	clear	1	25	CS-TP	1	728	590	81%	1	11	1	5	2	16	320
1750		2020	23.06.2020	0	1854-1857	1854	1	3	clear	1	25	TP-CS	1	728	590	81%	1	12	2	3	0	15	300
1751		2020	23.06.2020	0	1858-1912	1858	1	14	clear	1	25	AC-AC	0	3006	3006	100%	1	22	7	9	3	30	129
1752		2020	23.06.2020	0	1912-1936	1912	1	24	clear	1	25	AC-AG	0	5489	5232	95%	1	49	17	14	1	63	158
1753		2020	23.06.2020	0	1936-1945	1936	1	9	clear	1	25	AG-CQ	0	2014	1709	85%	0	24	14	12	1	36	240
1754		2020	23.06.2020	0	1946-2002	1946	1	16	clear	1	25	CQ-PA	0	3762	2227	59%	0	22	10	8	1	30	113
1755	333	2020	24.06.2020	0	1815-1808	1815	1	3	clear	1	24	CS-TP	1	728	590	81%	1	10	3	4	0	14	280
1756		2020	24.06.2020	0	1914-1917	1914	1	3	clear	1	24	TP-CS	1	728	590	81%	1	33	9	7	0	40	800
1757	334	2020	09.07.2020	0	1007-1014	1007	0	7	cloudy	1	27	CQ-AG	0	2014	1709	85%	0	10	8	3	3	13	111
1758		2020	09.07.2020	0	1028-1050	1028	0	22	cloudy	1	27	AG-AC	0	5489	5232	95%	1	15	10	3	1	18	49
1759		2020	09.07.2020	0	1110-1112	1110	0	3	clear	1	27	CS-TP	1	728	590	81%	1	5	2	2	0	7	140
1760	335	2020	24.07.2020	0	1154-1209	1154	0	15	clear	1	23	PA-CQ	0	3762	2227	59%	0	38	27	9	8	47	188
1761		2020	24.07.2020	0	1209-1216	1209	0	7	clear	1	23	CQ-AG	0	2014	1709	85%	0	6	1	0	0	6	51
1762		2020	24.07.2020	0	1216-1236	1216	0	20	clear	1	23	AG-AC	0	5489	5232	95%	1	6	1	5	2	11	33
1763		2020	24.07.2020	0	1236-1248	1236	0	12	clear	1	23	AC-CS	0	3006	3006	100%	1	3	3	3	0	6	30
1764		2020	24.07.2020	0	1248-1251	1248	0	3	clear	1	23	CS-TP	1	728	590	81%	1	2	1	2	0	4	80
1765		2020	24.07.2020	0	1253-1305	1253	0	12	clear	1	23	TP-MP	1	2178	0	0%	1	7	3	1	0	8	40
1766		2020	24.07.2020	0	1310-1324	1310	0	14	clear	1	23	MP-EC	1	2751	2751	100%	1	15	3	6	0	21	90
1767		2020	24.07.2020	0	1325-1332	1325	0	7	clear	1	23	EC-CG	1	1484	1484	100%	1	5	2	3	0	8	69
1768		2020	24.07.2020	0	1603-1606	1603	0	3	clear	1	23	TP-CS	1	728	590	81%	1	3	0	0	0	3	60
1769		2020	24.07.2020	0	1611-1626	1611	0	15	clear	1	23	CS-AC	0	3006	3006	100%	1	4	1	3	2	7	28
1770		2020	24.07.2020	0	1627-1656	1627	0	30	clear	1	23	AC-AG	0	5489	5232	95%	1	19	3	7	3	26	52
1771		2020	24.07.2020	0	1656-1704	1656	0	8	clear	1	23	AG-CQ	0	2014	1709	85%	0	5	2	3	1	8	60
1772		2020	24.07.2020	0	1704-1722	1704	1	16	clear	1	23	CQ-PA	0	3762	2227	59%	0	13	6	5	2	18	68
1773	336	2020	27.07.2020	0	1217-1220	1217	0	3	clear	1	26	CS-TP	1	728	590	81%	1	3	0	1	0	4	80
1774		2020	27.07.2020	0	1220-1232	1220	0	12	clear	1	26	TP-MP	1	2178	0	0%	1	8	4	3	1	11	55
1775		2020	27.07.2020	0	1300-1309	1300	0	9	clear	1	26	MP-TP	0	2178	0	0%	1	10	0	2	1	12	80
1776		2020	27.07.2020	0	1309-1311	1309	0	3	clear	1	26	TP-CS	1	728	590	81%	1	3	3	0	0	3	60
1777		2020	27.07.2020	0	1311-1320	1311	0	9	clear	1	26	CS-AC	0	3006	3006	100%	1	5	0	3	0	8	53
1778	337	2020	05.08.2020	0	1115-1129	1115	0	14	clear	1	20	PA-CQ	0	3762	2227	59%	0	8	2	1	1	9	39
1779		2020	05.08.2020	0	1129-1137	1129	0	8	clear	1	20	CQ-AG	0	2014	1709	85%	0	8	7	4	4	12	90
1780		2020	05.08.2020	0	1227-1235	1227	0	8	clear	1	20	AG-CQ	0	2014	1709	85%	0	4	2	1	0	7	53
1781		2020	05.08.2020	0	1255-1310	1255	0	15	clear	1	20	CQ-PA	0	3762	2227	59%	0	7	4	2	1	1	5
1782	338	2020	08.0																				

1851		2020	21.11.2020	0	1003-1007	1003	0	4	clear	1	13	QC-CG	0	1186	74	6%	1	5	3	0	0	5	75	
1852		2020	21.11.2020	0	1016-1021	1016	0	5	clear	1	13	CG-EC	1	1484	1484	100%	1	9	7	3	0	0	12	144
1853		2020	21.11.2020	0	1021-1032	1021	0	9	clear	1	13	EC-MP	1	2751	2751	100%	1	37	24	5	2	2	42	280
1854		2020	21.11.2020	0	1033-1041	1033	0	8	clear	1	13	MP-TP	1	2178	0	0%	1	10	9	1	0	1	11	83
1855		2020	21.11.2020	0	1041-1044	1041	0	3	clear	1	13	TP-CS	1	1728	590	81%	1	30	24	5	2	35	700	
1856		2020	21.11.2020	0	1149-1200	1149	0	11	clear	1	13	MP-EC	1	2751	2751	100%	1	67	33	25	8	92	502	
1857		2020	21.11.2020	0	1200-1207	1200	0	7	clear	1	13	EC-CG	1	1484	1484	100%	1	28	15	13	5	41	351	
1858		2020	21.11.2020	0	1232-1236	1232	0	4	clear	1	13	CG-EC	1	1484	1484	100%	1	41	18	16	4	57	855	
1859		2020	21.11.2020	0	1236-1250	1236	0	14	clear	1	13	EC-MP	1	2751	2751	100%	1	41	17	19	4	60	257	
1860		2020	21.11.2020	0	1250-1302	1250	0	12	clear	1	13	MP-TP	1	2178	0	0%	1	21	4	8	3	29	145	
1861		2020	21.11.2020	0	1302-1305	1302	0	3	clear	1	13	TP-CS	1	1728	590	81%	1	7	4	5	2	12	240	
1862	348	28.11.2020	2020	28.11.2020	0	0911-0915	911	1	4	cloudy	1	14	CS-TP	1	728	590	81%	1	13	10	0	0	13	195
1863		2020	28.11.2020	0	0916-0929	916	1	13	cloudy	1	14	TP-MP	1	2178	0	0%	1	2	1	0	0	2	9	
1864		2020	28.11.2020	0	0929-0945	929	1	16	cloudy	1	14	MP-EC	1	2751	2751	100%	1	9	2	9	0	18	68	
1865		2020	28.11.2020	0	0945-0951	945	1	6	cloudy	1	14	EC-CG	1	1484	1484	100%	1	22	13	12	9	34	340	
1866		2020	28.11.2020	0	0958-1003	958	1	5	cloudy	1	14	CG-CG	0	1186	74	6%	1	0	0	1	1	1	12	
1867		2020	28.11.2020	0	1004-1008	1004	0	4	cloudy	1	14	QC-CG	0	1186	74	6%	1	7	4	4	3	11	165	
1868		2020	28.11.2020	0	1015-1021	1015	0	6	cloudy	1	14	CG-EC	1	1484	1484	100%	1	16	11	10	4	26	260	
1869		2020	28.11.2020	0	1145-1158	1145	0	13	cloudy	1	14	MP-EC	1	2751	2751	100%	1	50	16	21	7	71	328	
1870		2020	28.11.2020	0	1202-1208	1202	0	6	cloudy	1	14	EC-CG	1	1484	1484	100%	1	39	14	18	10	57	270	
1871		2020	28.11.2020	0	1222-1226	1222	0	4	cloudy	1	14	CG-EC	1	1484	1484	100%	1	11	4	3	3	14	210	
1872		2020	28.11.2020	0	1226-1238	1226	0	12	cloudy	1	14	EC-MP	1	2751	2751	100%	1	23	10	10	4	33	165	
1873		2020	28.11.2020	0	1238-1248	1238	0	10	cloudy	1	14	MP-TP	1	2178	0	0%	1	22	7	10	4	30	180	
1874		2020	28.11.2020	0	1248-1251	1248	0	13	cloudy	1	14	TP-CS	1	1728	590	81%	1	7	4	2	1	9	42	
1875	349	17.12.2020	2020	17.12.2020	0	0853-0904	853	1	9	par cloudy	1	10	PA-CQ	0	3762	2227	59%	0	8	6	0	0	8	53
1876		2020	17.12.2020	0	0907-0937	907	0	7	par cloudy	1	10	CS-AG	0	2014	1709	85%	0	5	1	0	0	9	77	
1877		2020	17.12.2020	0	1030-1049	1030	0	19	par cloudy	1	10	AG-AC	0	5489	5232	95%	1	18	9	3	1	21	66	
1878		2020	17.12.2020	0	1049-1100	1049	0	11	par cloudy	1	10	AC-CS	0	3006	3006	100%	1	5	2	3	1	8	44	
1879		2020	17.12.2020	0	1100-1103	1100	0	3	par cloudy	1	10	CS-TP	1	728	590	81%	1	3	3	1	1	4	80	
1880		2020	17.12.2020	0	1104-1116	1104	0	12	par cloudy	1	10	TP-MP	1	2178	0	0%	1	2	1	1	0	3	15	
1881		2020	17.12.2020	0	1116-1132	1116	0	16	par cloudy	1	10	MP-EC	1	2751	2751	100%	1	20	6	4	2	24	90	
1882		2020	17.12.2020	0	1132-1140	1132	0	8	par cloudy	1	10	EC-CG	1	1484	1484	100%	1	5	1	5	1	10	75	
1883		2020	17.12.2020	0	1140-1145	1140	0	5	par cloudy	1	10	CG-CG	0	1186	74	6%	1	0	0	0	0	0	0	
1884		2020	17.12.2020	0	1147-1150	1147	0	3	par cloudy	1	10	QC-CG	0	1186	74	6%	1	1	0	1	0	2	40	
1885		2020	17.12.2020	0	1150-1155	1150	0	5	par cloudy	1	10	CG-EC	1	1484	1484	100%	1	9	3	2	1	11	132	
1886		2020	17.12.2020	0	1156-1211	1156	0	15	par cloudy	1	10	EC-MP	0	2751	2751	100%	1	17	8	5	26	104		
1887		2020	17.12.2020	0	1212-1222	1213	0	9	par cloudy	1	10	MP-TP	1	2178	0	0%	1	10	3	0	0	10	67	
1888		2020	17.12.2020	0	1223-1226	1223	0	3	par cloudy	1	10	TP-CS	1	1728	590	81%	1	4	2	0	0	4	80	
1889		2020	17.12.2020	0	1352-1404	1352	0	12	par cloudy	1	10	AG-CQ	0	2014	1709	85%	0	10	5	4	2	14	70	
1890		2020	17.12.2020	0	1405-1419	1405	0	24	par cloudy	1	10	CQ-PA	0	3762	2227	59%	0	6	3	2	1	8	20	
1891	350	22.12.2020	2020	22.12.2020	0	1335-1343	1335	0	8	clear	1	17	AG-CQ	0	2014	1709	85%	0	15	7	3	0	18	135
2683																						128	Oeiras	
2490																						92	Lisboa	
3750																						6495	304	Overall

1892	351	28.01.2021	2021	28.01.2021	0	1512-1526	1512	0	14	cloudy	1	14	PA-CQ	0	3762	2227	59%	0	7	4	0	0	7	30
1893		2021	28.01.2021	0	1526-1533	1526	0	7	cloudy	1	14	CQ-AG	0	2014	1709	85%	0	5	2	2	0	7	60	
1894		2021	28.01.2021	0	1637-1637	1637	0	3	cloudy	1	14	CS-AG	0	728	590	81%	1	5	1	1	0	5	100	
1895		2021	28.01.2021	0	1630-1641	1630	0	11	cloudy	1	14	TP-MP	1	2178	0	0%	1	8	3	1	1	9	49	
1896		2021	28.01.2021	0	1643-1650	1643	0	7	cloudy	1	14	MP-TP	1	2178	0	0%	1	12	7	1	0	13	111	
1897		2021	28.01.2021	0	1650-1653	1650	0	3	cloudy	1	14	TP-CS	1	1728	590	81%	1	6	3	0	0	6	120	
1898		2021	28.01.2021	0	1747-1753	1747	1	6	cloudy	1	14	AG-CQ	0	2014	1709	85%	0	3	0	0	0	3	30	
1899	352	29.01.2021	2021	29.01.2021	0	1543-1550	1543	0	7	cloudy	1	12	AG-CQ	0	2014	1709	85%	0	3	1	0	0	3	26
1900		2021	29.01.2021	0	1551-1558	1551	0	7	cloudy	1	12	CQ-AG	0	2014	1709	85%	0	5	2	1	0	6	51	
1901	353	19.02.2021	2021	19.02.2021	0	0834-0850	834	1	16	rain	0	14	PA-CQ	0	3762	2227	59%	0	2	1	0	0	2	8
1902		2021	19.02.2021	0	0850-0900	850	1	10	rain	0	14	CQ-AG	0	2014	1709	85%	0	1	0	0	0	1	6	
1903		2021	19.02.2021	0	0900-0922	900	1	8	rain	0	14	AG-AC	0	5489	5232	95%	1	4	1	1	0	5	38	
1904		2021	19.02.2021	0	0922-0934	922	1	12	rain	0	14	AC-CS	0	3006	3006	100%	1	0	0	0	0	9	45	
1905		2021	19.02.2021	0	0934-0937	934	1	3	rain	0	14	CS-TP	1	728	590	81%	1	3	1	0	0	3	60	
1906		2021	19.02.2021	0	0938-0951	938	1	13	rain	0	14	TP-MP	1	2178	0	0%	1	4	0	0	0	4	18	
1907		2021	19.02.2021	0	0952-1005	952	1	13	rain	0	14	MP-EC	1	2751	2751	100%	1	6	0	4	0	10	46	
1908		2021	19.02.2021	0	1007-1014	1007	0	21	rain	0	14	EC-CG	1	1484	1484	100%	1	5	2	0	0	5	14	
1909		2021	19.02.2021	0	1014-1020	1014	0	6	rain	0	14	CG-CG	0	1186	74	6%	1	1	1	0	0	1	10	
1910		2021	19.02.2021	0	1115-1121	1115	0	6	rain	0	14	QC-CG	0	1186	74	6%	1	1	0	0	0	1	10	
1911		2021	19.02.2021	0	1121-1129	1121	0	8	rain	0	14	CG-EC	1	1484	1484	100%	1	6	5	1	1	7	53	
1912		2021	19.02.2021	0	1130-1147	1130	0	17	rain	0	14	EC-MP	1	2751	2751	100%	1	36	11	1	0	37	131	
1913		2021	19.02.2021	0	1147-1147	1147	0	10	rain	0	14	MP-TP	1	2178	0	0%	1	5	0	0	0	5	30	
1914		2021	19.02.2021	0	1157-1200	1157	0	3	rain	0	14	TP-CS	1	1728	590	81%	1	3	2	0	0	3	60	
1915		2021	19.02.2021	0	1201-1216	1201	0	15	rain	0	14	CS-AC	0	3006	3006	100%	1	6	3	3	0	9	36	

1983	365	19.05.2021	2021	19.05.2021	0	0855-0910	855	1	15	clear	1	17	CQ-PA	0	3762	2227	59%	0	14	10	1	0	15	60		
1984		2021	2021	19.05.2021	0	1605-1614	1605	0	9	clear	1	17	AG-CQ	0	2014	1709	85%	0	10	5	5	1	15	100		
1985	366	24.05.2021	2021	24.05.2021	0	0846-0853	846	1	7	cloudy	1	18	EC-CG	1	1484	1484	100%	1	33	13	13	5	46	394		
1986		2021	2021	24.05.2021	0	0853-0859	853	1	6	cloudy	1	18	CG-CQ	0	1186	1186	100%	1	5	2	4	2	9	90		
1987		2021	2021	24.05.2021	0	1027-1031	1027	0	4	cloudy	1	18	QC-CG	0	1186	1186	100%	1	2	1	1	0	2	30		
1988		2021	2021	24.05.2021	0	1031-1038	1031	0	7	cloudy	1	18	CG-EC	1	1484	1484	100%	1	12	2	4	1	16	137		
1989		2021	2021	24.05.2021	0	1039-1052	1039	0	13	cloudy	1	18	EC-MP	1	2751	2751	100%	1	24	8	4	0	28	129		
1990		2021	2021	24.05.2021	0	1052-1101	1052	0	9	cloudy	1	18	MP-TP	1	2178	0	0%	1	3	0	0	0	3	20		
1991		2021	2021	24.05.2021	0	1103-1106	1103	0	3	cloudy	1	18	TP-CS	1	728	590	81%	1	0	0	0	0	0	0		
1992	367	02.06.2021	2021	02.06.2021	0	1447-1458	1447	0	11	cloudy	1	18	PA-CQ	0	3762	2227	59%	0	3	0	6	1	9	49		
1993		2021	2021	02.06.2021	0	1553-1606	1553	0	13	cloudy	1	18	CQ-PA	0	3762	2227	59%	0	12	1	1	0	13	60		
1994	368	22.06.2021	2021	22.06.2021	0	0944-0954	944	1	10	cloudy	1	18	PA-CQ	0	3762	2227	59%	0	10	8	2	1	12	72		
1995		2021	2021	22.06.2021	0	1127-1141	1127	0	14	cloudy	1	18	CQ-PA	0	3762	2227	59%	0	14	10	2	0	16	69		
1996	369	28.06.2021	2021	28.06.2021	0	1218-1222	1218	0	4	clear	1	21	QC-CG	0	1186	1186	100%	1	5	1	1	0	6	90		
1997		2021	2021	28.06.2021	0	1222-1227	1222	0	5	clear	1	21	CG-EC	1	1484	1484	100%	1	6	1	3	0	9	108		
1998		2021	2021	28.06.2021	0	1228-1238	1228	0	10	clear	1	21	EC-MP	1	2751	2751	100%	1	29	11	2	0	31	186		
1999		2021	2021	28.06.2021	0	1240-1247	1240	0	7	clear	1	21	MP-TP	1	2178	0	0%	1	3	1	1	1	4	34		
2000		2021	2021	28.06.2021	0	1247-1250	1247	0	3	clear	1	21	TP-CS	1	728	590	81%	1	5	3	2	0	7	140		
2001	370	08.07.2021	2021	08.07.2021	0	0852-0855	852	1	3	clear	1	22	CS-TP	1	728	590	81%	1	7	4	5	2	12	240		
2002		2021	2021	08.07.2021	0	0855-0908	855	1	13	clear	1	22	TP-MP	1	2178	0	0%	1	6	0	3	1	9	42		
2003		2021	2021	08.07.2021	0	0908-0922	908	1	14	clear	1	22	MP-EC	1	2751	2751	100%	1	34	8	17	1	51	219		
2004		2021	2021	08.07.2021	0	0923-0930	923	1	7	clear	1	22	EC-CG	1	1484	1484	100%	1	18	5	12	6	30	257		
2005		2021	2021	08.07.2021	0	0931-0936	931	1	5	clear	1	22	CG-CQ	0	1186	1186	100%	1	5	1	0	0	5	60		
2006		2021	2021	08.07.2021	0	1105-1110	1105	0	5	clear	1	22	QC-CG	0	1186	1186	100%	1	4	1	2	1	6	72		
2007		2021	2021	08.07.2021	0	1110-1115	1110	0	5	clear	1	22	CG-EC	1	1484	1484	100%	1	13	6	4	1	17	204		
2008		2021	2021	08.07.2021	0	1115-1128	1115	0	13	clear	1	22	EC-MP	1	2751	2751	100%	1	18	7	5	1	23	106		
2009		2021	2021	08.07.2021	0	1129-1136	1129	0	7	clear	1	22	MP-TP	1	2178	0	0%	1	4	3	2	0	6	51		
2010		2021	2021	08.07.2021	0	1136-1139	1136	0	3	clear	1	22	TP-CS	1	728	590	81%	1	3	1	0	1	4	80		
2011		2021	2021	08.07.2021	0	1139-1149	1139	0	10	clear	1	22	CS-AC	0	3006	3006	100%	1	12	6	3	2	15	90		
2012		2021	2021	08.07.2021	0	1149-1210	1149	0	21	clear	1	22	AC-AG	0	5489	5232	95%	1	32	14	9	2	41	117		
2013		2021	2021	08.07.2021	0	1258-1305	1258	0	7	clear	1	22	AG-CQ	0	2014	1709	85%	0	6	3	1	1	7	60		
2014		2021	2021	08.07.2021	0	1305-1322	1305	0	17	clear	1	22	CQ-AG	0	2014	1709	85%	0	10	4	2	1	12	42		
2015	371	29.07.2021	2021	29.07.2021	0	1637-1650	1637	0	13	clear	1	26	CQ-PA	0	3762	2227	59%	0	14	4	1	0	15	69		
2016		2021	2021	29.07.2021	0	2057-2103	2057	0	6	clear	1	26	AG-CQ	0	2014	1709	85%	0	2	0	1	0	3	30		
2017	372	06.09.2021	2021	06.09.2021	0	0813-0816	813	1	3	fog	1	19	CS-TP	1	728	590	81%	1	4	3	0	0	4	80	VC21	
2018		2021	2021	06.09.2021	0	2150-2153	2150	0	3	fog	1	19	TP-CS	1	728	590	81%	1	4	1	2	0	6	120	VC21	
2019	373	07.09.2021	2021	07.09.2021	0	0850-0853	850	1	3	cloudy	1	22	CS-TP	1	728	590	81%	1	4	1	2	0	6	120	VC21	
2020		2021	2021	07.09.2021	0	2226-2229	2226	0	3	cloudy	1	22	TP-CS	1	728	590	81%	1	6	0	3	0	9	180	VC21	
2021	374	08.09.2021	2021	08.09.2021	0	0842-0845	842	1	3	cloudy	1	21	CS-TP	1	728	590	81%	1	3	0	0	0	3	60	VC21	
2022	375	09.09.2021	2021	09.09.2021	0	0812-0815	812	1	3	cloudy	1	21	CS-TP	1	728	590	81%	1	5	0	0	0	5	100	VC21	
2023		2021	2021	09.09.2021	0	1602-1605	1602	0	3	cloudy	1	21	TP-CS	1	728	590	81%	1	10	3	7	0	17	340	VC21	
2024		2021	2021	09.09.2021	0	2022-2039	2022	0	17	cloudy	1	21	CQ-PA	0	3762	2227	59%	0	12	5	5	3	17	60		
2025	376	10.09.2021	2021	10.09.2021	0	1745-1755	1745	1	10	clear	1	25	AG-CQ	0	2014	1709	85%	0	8	2	0	0	8	48		
2026		2021	2021	10.09.2021	0	1755-1812	1755	1	17	clear	1	25	CQ-PA	0	3762	2227	59%	0	13	5	2	0	15	53		
2027	377	17.09.2021	2021	17.09.2021	0	1027-1030	1027	0	3	cloudy	1	21	CS-TP	1	728	590	81%	1	10	3	3	0	13	260		
2028		2021	2021	17.09.2021	0	1222-1225	1222	0	3	cloudy	1	21	TP-CS	1	728	590	81%	1	8	3	17	1	25	500		
2029	378	19.09.2021	2021	19.09.2021	0	1250-1257	1250	0	7	clear	1	24	AG-CQ	0	2014	1709	85%	0	27	13	11	3	38	326		
2030		2021	2021	19.09.2021	0	1257-1307	1257	0	14	clear	1	24	CQ-PA	0	3762	2227	59%	0	21	12	9	4	30	129		
2031	379	23.09.2021	2021	23.09.2021	0	1152-1206	1152	0	14	clear	1	24	CQ-PA	0	3762	2227	59%	0	13	7	2	0	15	64		
2032	380	11.10.2021	2021	11.10.2021	0	1242-1253	1242	0	11	cloudy	1	26	CQ-PA	0	3762	2227	59%	0	9	6	0	0	9	49		
2033	381	15.10.2021	2021	15.10.2021	0	1127-1130	1127	0	3	par cloudy	1	23	CS-TP	1	728	590	81%	1	5	3	1	0	6	120		
2034		2021	2021	15.10.2021	0	1244-1247	1244	0	3	par cloudy	1	23	TP-CS	1	728	590	81%	1	6	1	0	0	6	120		
2035		2021	2021	15.10.2021	0	1344-1351	1344	0	7	par cloudy	1	23	AG-CQ	0	2014	1709	85%	0	5	1	2	0	7	60		
2036	382	18.10.2021	2021	18.10.2021	0	1005-1008	1005	0	3	fog	1	19	CS-TP	1	728	590	81%	1	6	2	1	0	7	140		
2037		2021	2021	18.10.2021	0	1132-1135	1132	0	3	fog	1	19	TP-CS	1	728	590	81%	1	12	2	1	0	13	260		
2038		2021	2021	18.10.2021	0	1135-1149	1135	0	14	fog	1	19	CS-AC	1	3006	3006	100%	1	8	2	1	0	9	39		
2039		2021	2021	18.10.2021	0	1149-1210	1149	0	21	fog	1	19	AC-AG	1	5489	5232	95%	1	25	8	15	8	40	114		
2040		2021	2021	18.10.2021	0	1216-1223	1216	0	7	fog	1	19	AG-CQ	0	2014	1709	85%	0	8	3	2	0	10	86		
2041		2021	2021	18.10.2021	0	1224-1239	1224	0	15	fog	1	19	CQ-PA	0	3762	2227	59%	0	2	2	2	2	4	16		
2042	383	19.10.2021	2021	19.10.2021	0	1448-1451	1448	0	3	clear	1	24	CS-TP	1	728	590	81%	1	8	2	3	0	11	220		
2043	384	26.10.2021	2021	26.10.2021	0	0904-0924	904	1	20	clear	1	19	AG-CQ	0	2014	1709	85%	0	20	15	2	1	22	66	walking	
2044																										