SuN Soziologie und Nachhaltigkeit
Beiträge zur sozial-ökologischen Transformationsforschung
Sonderband 3

Urban mobility policy in pandemic times:

An exploration of how Covid-19 affected policy framings and priorities in eight European cities

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Zusammenfassung: Auf der Grundlage einer Analyse offizieller Dokumente von acht europäischen Städten (Barcelona, Brüssel, Dublin, Kopenhagen, Lissabon, Madrid, München, Paris) untersuchten wir in diesem Artikel, inwiefern die Erfahrungen der Pandemie städtische Diskurse bezüglich der Prioritätensetzung für die Mobilitätswende beeinflussten. Unsere Ergebnisse zeigen, dass die meisten Städte davon ausgehen, aus der Pandemie für die Zukunft gelernt und mit ihrer mobilitätsbezogenen Krisenpolitik einen Beitrag zur Mobilitätswende geleistet zu haben. Vor der Pandemie verbuchten die meisten Städte die Dekarbonisierung der Mobilität als positiven Nebeneffekt politischer Maßnahmen mit anderen Zielen, wie der Reduktion von Luftverschmutzung und Stau. Diese fragmentierte Art der Klima- und Mobilitätspolitik wird kritisiert, da sie kaum auf mögliche Zielkonflikte eingeht und oftmals das Ergebnis finanzieller und politischer Einschränkungen darstellt. Wir stellten fest, dass die meisten Städte nicht in der Lage waren, die Coronapandemie für die Überwindung solcher strukturellen Probleme zu nutzen.

Abstract: This article contributes to current debates regarding the implications of Covid-19 for urban mobility transitions. Based on official documents from eight European cities (Barcelona, Brussels, Copenhagen, Dublin, Lisbon, Madrid, Munich, Paris), we analysed how the experience of Covid-19 affected cities' policy framings regarding their mobility transitions. We found that most cities insisted on the necessity of "building back better" after the pandemic, and that their mobility-related responses to the pandemic were aligned with their pre-pandemic priorities. Prior to Covid-19, most cities referred to the decarbonisation of mobility as a corollary benefit of measures that aimed to tackle other problems, such as air pollution or congestion. This way of framing climate action tends to result in fragmented measures and can fail to account for trade-offs between different issues. Our findings resonate with scholarship that explains the tendency to bundle climate action with other policy objectives with the financial constraints and limited political capacities of cities. We conclude that most cities were not able to leverage the pandemic to overcome such structural constraints.

Introduction

The Covid-19 pandemic started its course around the globe in early 2020, and governments responded by implementing lockdowns to contain its spread. Societal and political actors, but also numerous scholars, were quick to identify this disruption as an opportunity for urban planners to accelerate the decarbonisation of urban mobility (Barbarossa 2020, Martí/Espindola 2020). From a sociological perspective, some scholars have viewed the pandemic as a "natural experiment" on a global scale in the sense that it has created a unique situation in which different communities, institutions, and individuals around the world reacted to the same external shock (Patrick/Cormier 2020, Thomson 2020). This rare situation provides social scientists with the opportunity to study similarities and differences in these responses, not only to learn about the pandemic as such, but also to gain insight into societal structures and dynamics that would not have been apparent otherwise (Bauer 2015, Freudendal-Pedersen/Kesselring 2020, Jensen 2021). Also, in the field of transition studies, the interrelations between shock-like crises such as the Covid-19 pandemic or the crash of financial markets in 2008, and longer-term societal transformations aimed at mitigating the looming climate catastrophe, have long been a topic of interest. On the one hand, the disruption caused by shock-like events "offers opportunities for substantial change that deviates from locked-in trajectories" (Geels 2013: 68). On the other hand, recovery programmes may focus on restoring the situation from before the crisis, thus reinforcing and reproducing an unsustainable situation (Loorbach/Lijnis Huffenreuter 2013, Markard/Rosenbloom 2020).

Thus far, the question of how cities' responses to the pandemic relate to their longer-term political strategies and goals remains largely unanswered. In this article, we address this question by analysing how cities related their mobility-related responses to Covid-19 to pre-pandemic policy priorities in this domain. Therein, we pay particular attention to how cities accounted for the necessity to decarbonise urban mobility. We ask two questions:

- In which terms do cities refer to and make sense of the climate catastrophe and Covid-19 in the context of their mobility policy and strategy?
- In how far do cities relate their responses to Covid-19 in the domain of mobility to longer-term transition objectives in this domain?

Thereby, our study contributes to the emerging body of literature that analyses in how far Covid-19 was seized as an opportunity for the decarbonisation of urban mobility, and answers to the call that "[w]e must strive to anticipate and capture the potential consequences of responses to this pandemic, both good and bad", all while being aware that "[l]essons learned from the on-going tragedy will not make up for the pain and suffering it has caused" (Thomson 2020: 15).

In our analysis, we focussed on the discourses and policy framings that cities chose to speak of their mobility-related responses to Covid-19, and how they frame the need to decarbonise mobility in their mobility strategies and plans. Such an analysis of how crises, their causes and solutions are interpreted and framed makes it possible to understand which rationales underpin urban mobility governance (Geels 2013, Markard/Rosenbloom 2020). For instance, framing an event or a development as an emergency implies that action is necessary to avoid catastrophe. Avoiding emergency frames can be a way to avoid having to act (Patterson et al. 2021).

For our study, we analysed policy plans, strategy documents and official statements concerning urban mobility policy and planning from eight western European cities (Barcelona, Brussels, Copenhagen, Dublin, Lisbon, Madrid, Munich, Paris). In our analysis of these documents, we paid particular attention to how cities referred to notions of challenge and opportunity and discuss the implications thereof for climate action in the domain of urban mobility.

1. Shocks, crises, and sustainability transitions

Scholarship in the field of transition studies sug-

gests that, in principle, shock-like crises such as the Covid-19 pandemic or the financial crash from 2008 can become opportunities for the kind of political action and societal change that are needed to transition towards low-carbon societies (Corazza et al. 2021, Geels 2013, Griffiths et al. 2021, Kanda/Kivimaa 2020, Markard/Rosenbloom 2020, Sovacool et al. 2020). Just like other shock-like crises, Covid-19 "loosened institutional constraints and policy imaginations" and "shifted what is thinkable, feasible, and socially and politically acceptable", thereby "licencing social and institutional change" (McGuirk et al. 2021: 188). However, past experiences have shown that such change can either take the form of a shift towards more inclusive and determined forms of climate action, or of a renewal and extension of the governance principles and strategies from before the shock (Loorbach/Lijnis Huffenreuter 2013, Markard/Rosenbloom 2020, McGuirk et al. 2021). Events that strain public finances tend to entail a reduced prioritisation of ecological issues (Geels 2013), and more often than not, recovery programmes miss the opportunity for a transformation of unsustainable and locked-in patterns (Markard/Rosenbloom 2020).

Regarding Covid-19, first observations draw a mixed picture of its impact on urban mobility. Overall mobility dropped, but active modes of travelling (cycling, walking) experienced a boom in many cities (Buehler/Pucher 2021, Dubois et al. 2020). Walking entered the public and political consciousness as a mode of transport in its own right (Corazza et al. 2021), and many cities accompanied the boom in cycling with temporary reallocations of road space from cars to bicycles (Griffiths et al. 2021, Kraus/Koch 2021). Urban planning paradigms based on the notion of proximity such as the 15-minute city gained additional traction (Griffiths et al. 2021). At the same time, after the initial drop in mobility, the private car quickly returned to and in some cities even exceeded its modal share from before the pandemic. Inversely, in most cities, public transport use still hasn't fully recovered (Corazza et al. 2021, Griffiths et al. 2021). The massive and lasting drop in public transport use can also be attributed to governmental campaigns that discouraged its use during the pandemic (Corazza et al. 2021). Furthermore, the first recovery programmes that emerged on national scales did not mention sustainability or climate objectives (Markard/Rosenbloom 2020), and with few exceptions, the stimulus packages implemented by G20 countries are expected to counteract efforts to decarbonise economies (Griffiths et al. 2021). In view of cities' institutional embeddedness in and dependency on national regulatory and spending priorities (da Cruz et al. 2019), such nation-scale developments can be expected to have implications for and shape cities' political responses to crises (Geels 2013).

These observations illustrate that for a crisis such as Covid-19 to become an opportunity for climate action, objectives related to climate action must be intentionally integrated into crisis response programmes (Geels 2013, Griffiths et al. 2021, Markard/Rosenbloom 2020, Sovacool et al. 2020). Research on the implications of the financial crisis of 2008 for sustainability transition efforts stressed that "[w]hether or not these opportunities are taken depends on how (causes and solutions) of crises are interpreted" (Geels 2013: 68). Indeed, to understand (urban) mobility policy, it is essential to study how public actors frame problems and solutions in this domain (Kallenbach 2020). The frames and discourses that policymakers use reflect how they perceive and delimit their domain of governance, and which issues are considered in which way in the policymaking process (McArthur/Robin 2019).

With this article, our aim is to contribute to a better understanding of the implications of urban responses to Covid-19 for the decarbonisation of urban mobility. To achieve this, we analyse how cities framed their priorities in guiding their Covid-19 mobility responses and relate these findings to how cities approached the climate crisis and the imperative to decarbonize mobility in their overall mobility strategies.

2. Analytical approach, case selection, and data

Analytical approach

This article is based on the analysis of documents that convey cities' framings of the Covid-19 pandemic and the climate catastrophe in the context of their urban mobility strategy and policy. Document analysis has been found purposeful to identify the storylines and framings used by different actors (Sovacool et al. 2018), making it an appropriate method for our purposes.

We analysed the data by means of a qualitative content analysis. This method is used for conducting research that starts from well-structured research questions and that focusses on the manifest content of the data (Graneheim/Lundmann 2004, Sovacool et al. 2018). First, we started our analysis with analytical categories that we had developed *ex ante*. These included types of crises (Covid-19 or climate catastrophe), the way in which the impact of the crisis was described (as an opportunity, as a challenge, purely descriptively), and the way in which political action regarding the crisis was framed (as mitigation, as building resilience, as recovery, as response to an urgency). Second, we created summaries of each coded text segment, in which we interpreted them in view of answering the questions of how the Covid-19 pandemic and the climate catastrophe were framed regarding the governance of urban mobility, and discursively related to each other by the corresponding urban actor.

Case selection

We strived to constitute a heterogenous sample that comprises cities that were at different stages of their mobility transition when the Covid-19 pandemic hit, that were differently affected by the pandemic and confronted to different lockdown regimes, and that chose different strategies to respond to the challenges of the pandemic and the lockdowns for mobility. Therefore, after some initial desk research, we selected Barcelona, Brussels, Copenhagen, Dublin, Lisbon, Madrid, Munich, and Paris (see Table 1).

Spain was one of the European countries that was hit worst by the first wave of Covid-19, and that implemented one of the strictest lockdowns. In Madrid, the lockdown measures were feared to deepen socio-economic inequalities (Minder 2020). In Barcelona, the pandemic boosted the city's ambition to create a city of short distances that gives room to active mobilities (Reuters 2021). Both cities had already been facing challenges concerning mobility planning before the outbreak of the pandemic, because Spain had been threatened with legal action by the European Union for violating air pollution standards notably in Madrid and Barcelona (European Commission 2019). France also implemented a strict lockdown, and Paris is among the cities which are said to have undertaken a profound transition of their mobility system during the pandemic, focussing notably on cycling (Aldermann 2020). Brussels, which just like Spain was among the European regions that were worst hit by the first wave of Covid-19, also introduced drastic changes in its mobility system during Covid-19, namely a 30 km/h speed limit covering all its 19 municipalities (EuroCities 2021). Denmark implemented a moderate lockdown, and contrary to most other European cities, Copenhagen, which is among the world's most cycling friendly cities, did not implement any mobility policies during or in response to the pandemic (Weinreich 2021). In Dublin and Lisbon, Covid-19 hit a national and local economy that had only just started to recover from the financial crisis from 2008, which had also weakened the public transport infrastructure (European Union 2020, National Transport Authority 2019). Lisbon's efforts to recover from the financial crisis by investing in the sustainability transition of its mobility sector earned it the European Green Capital award (European Union 2020). Dublin, which had already struggled with congestion prior to the financial crisis, found the situation to have become even worse when it started recovering from the crisis (National Transport Au-

thority 2019). Germany, like Denmark, implemented a moderate lockdown. Though compared with other cities, Munich implemented very few pop-up cycle lanes, these lanes nonetheless created a substantial political upheaval and resulted in a court case (dpa Bayern 2021).

City	Population	Modal split before 2020 (in percent)	Air pollution (PM density in µg/m3)	Congestion (in percent of additional travel time)
Barcelona	1,636,762	Driving: 18 Cycling: 1 Walking: 46 Public transport: 35	16.63	26
Brussels	1,223,520	Driving: 32 Cycling: 4 Walking: 37 Public transport: 26	10.08	34
Copenhagen	805,420	Driving: 34 Cycling: 29 Walking: 19 Public transport: 18	10.24	20
Dublin	554,554	Driving: 59 Cycling: 8 Walking: 17 Public transport: 13	8.08	36
Lisbon	2,957,000	Driving: 45 Cycling: 1 Walking: 30 Public transport: 22	8.7	22
Madrid	3,223,334	Driving: 32 Cycling: 1 Walking: 32 Public transport: 33	8.93	18
Munich	1,562,128	Driving: 34 Cycling: 18 Walking: 24 Public transport: 24	9.5	26
Paris	2,187,526	Driving: 13 Cycling: 3 Walking: 52 Public transport: 32	10.52	36

Table 1: Summarised description of the sample

Data

For each city, we identified policy plans, strategy documents, and official press statements regarding mobility policies. We considered documents that described the city's strategy and policy plans that were active when the Covid-19 pandemic hit, as well as documents and statements that were issued since its outbreak. For all cities, we searched in English and the corresponding national language.[1] We translated the documents that were in Danish to English through Google Translate. In a first round of coding, we identified the documents that referred to the climate catastrophe and/or the Covid-19 pandemic. These documents constituted our final selection (see

1 In bilingual cities, we only considered one national language. For Barcelona, we selected Spanish, for Brussels French, and for Dublin English.

City	N initial selection	N final selecti-on	Types of documents in the final selection
Barcelona	18	16	Mobility strategy plans; press releases on Covid-19 responses and the recovery strategy in the domain of mobility; communications on the superblocks; newspaper articles on the Covid-19 response measures regarding public transports
Brussels	6	4	Mobility strategy plans; Covid-19 recovery strategy plan
Copenhagen	4	2	Mobility strategy plans
Dublin	10	5	Mobility strategy plans; Covid-19 mobility strategy plan; newspaper articles on the Covid-19 response measures in the domain of mobility
Lisbon	5	4	Mobility strategy plans; Covid-19 mobility strategy plan; speech by a member of government
Madrid	13	11	Mobility strategy plans; press releases on the Covid-19 response measures for public transport, for pedestrian mobility, and for car sharing; press releases on the Covid-19 recovery strategy in the domain of mobility; newspaper articles on the impact of the pandemic on public transport
Munich	5	4	Mobility strategy plans; press releases on the Covid-19 response measures for cycling; press releases on the Covid-19 recovery strategy in the domain of mobility
Paris	8	5	Mobility strategy plans; press releases on the Covid-19 response measures for cycling; press releases on the 15-minute city

Table 2: Document sample

Table 2). The comprehensive list of documents that we consulted is given in Appendix A.

3. Results

In this section, we present our findings regarding how each individual city referred to the climate catastrophe in the context of its mobility policy, as well as how each city interpreted the implications of Covid-19 for its mobility policy. Our findings are summarised in Table 3 at the end of this section. We present our findings in a synthesised form.

Barcelona: Building back better to become a city of short distances

Mobility priorities before Covid-19: Barcelona's Plan for Urban Mobility 2019-2024 mentions sustainable mobility as one of its guiding principles. Sustainable mobility is defined as a modal shift towards low-carbon means of transport. The plan states that to achieve such a shift, alternative uses of road space must be promoted, the accessibility of the mobility system enhanced, along with the equity of the mobility system in terms of age, physical condition, gender, income and neighbourhood, and conditions for work-related and everyday mobility must be improved. However, first and foremost, sustainable mobility is framed as being essential to reduce air and noise pollution. The reduction of the energy consumption and greenhouse gas emissions of mobility are framed as corollary benefits of interventions that tackle this primary objective. Similarly, on the website of Barcelona's mobility department, individual motorised mobility is problematised as a public health issue primarily, due to its contribution to air pollution.

Interpretations of the implications of Covid-19: The emphasis on air pollution as one of the main issues regarding urban mobility also appears in the documents eliciting the mobility-related measures that were implemented in response to Covid-19. The Covid-19 pandemic was primarily framed as a challenge for the mobility system and urban planning, because of the many adaptations that were necessary to ensure that everybody could travel safely. The Barcelona City Council interpreted the impact of the pandemic on urban mobility as overall negative, due to the increased popularity of driving and the challenge of ensuring safe travels on public transport. The city's measures in favour of active mobilities deployed during the pandemic were framed as policies aimed at ensuring that social distancing could be respected. Furthermore, the city never discouraged public transport use nor framed it as potentially dangerous, and instead implemented numerous measures to ensure that safe travel on public transport was possible, such as additional stops, disinfection protocols, and a prohibition to talk.

Barcelona was quick to sketch the cornerstones of a recovery strategy from Covid-19 in the domain of mobility. One of the main objectives of this strategy was to ensure that after the lockdown, everybody's health could be protected. Furthermore, in a newspaper article, the city's mayor was quoted insisting on the need to build back better, namely, to avoid that driving and consequently air pollution would recover to pre-pandemic levels. The aim of the recovery strategy was to make Barcelona a city of short distances. A city of short distances was expected to mitigate health risks inherent to densely populated cities, by offering people safe ways of getting around without relying on the car. Furthermore, the mobility department communicated that the recovery strategy should ensure that progress would be made regarding the city's overall mobility strategy and notably regarding its goal to foster active mobilities. It was also noted that the pandemic had, in fact, sped up the implementation of measures in favour of active mobilities that had been kept in the drawer. Furthermore, the mayor insisted that though the coincidence of a triple crisis (economic, climate, and sanitary) was challenging, the actions to address either one of them also contributed to addressing the other ones. In particular, the mobility-related interventions that were deployed in response to Covid-19 were expected to foster economic recovery through the creation of jobs.

Brussels: Protecting the most vulnerable and accelerating the sustainability transition

Mobility priorities before Covid-19: The reduction of carbon emissions is one of the main objectives of Brussels' Good Move Regional Mobility Plan 2020-2030, which was published just before the outbreak of the Covid-19 pandemic. The reduction of private car mobility is described as a cornerstone not only of climate action, but also for the reduction of air pollution. The plan mentions that previous mobility plans had failed to produce the expected improvements in this domain notably due to insufficient investments in infrastructure, and notes that this problem persists: The decarbonisation of Brussels' mobility is expected to generate important costs that are difficult to integrate into the city's already strained budget. Notwithstanding this emphasis on climate action, the focus of the plan is to ensure a high quality of life to Brussels' population, and to allow Brussel's economy to run at full capacity.

Interpretations of the implications of Covid-19: Brussels rapidly launched a Covid-19 recovery strategy that was, however, not specifically focussed on mobility. In the recovery strategy, the pandemic is framed as an urgent crisis, which not only required policies to better protect the population, but also measures to transform the city so that it becomes more attractive to its residents. The recovery strategy stressed the importance of the sustainability transition, which was defined as a transition towards a city in which everybody is safe and can thrive. Climate action, action for public health, and the improvement of the quality of life were mentioned as different aspects of the same transition, which first and foremost must be grounded in a strong solidarity with the most vulnerable

members of the population. Just like the Good Move plan, also the recovery strategy stressed that climate action and economic development do not mutually exclude each other. The recovery strategy insisted that recovery from Covid-19 must be seized as an opportunity to boost policy priorities in the domain of climate action.

Copenhagen: Waiting and observing from a vantage point

Mobility priorities before Covid-19: In 2012, Copenhagen issued an Action Plan for Green Mobility, which opened with the affirmation that Copenhagen focusses on green growth because the city aims to be carbon neutral by 2025, and because the city prioritises investing in the quality of life of its residents. Green mobility was defined as offering everybody the opportunity to choose a green means of transport. The plan mentioned congestion and air and noise pollution as issues related to individual car traffic and projected that these problems might get worse due to an expected increase in car ownership and car traffic in Copenhagen. However, the plan also stated that without the possibility of introducing congestion charges, it is difficult to address these issues, though the introduction of low emission and electric vehicles could reduce air pollution and CO_2 emissions. In 2021, Copenhagen issued a Mobility Statement, which replaced the former bicycle statements and discussed all means of transport. Just like the Action Plan for Green Mobility, the statement reiterated Copenhagen's goal to be carbon neutral by 2025. The statement observed that to reach this goal, quantifiable targets and indicators are needed for the mobility sector that can inform a new green mobility action plan with targeted measures, as well as mobility-related measures in the Climate Plan Roadmap 2021-2025.
Interpretations of the implications of Covid-19: Copenhagen did not issue any Covid-19 strategy for its mobility sector. However, the pandemic was mentioned in the mobility statement 2021. The statement recognised that the pandemic had affected mobility but concluded that the long-term effects of the pandemic on mobility are still unclear. Though home office reduced the need for being mobile, some people might also have increased the distance between their home and workplace, resulting in a mixed effect on total mobility. The statement also observed that whereas the pandemic led to a marked drop in public transport use and a slight drop in cycling, it did not seem to have a lasting impact on driving. Therefore, regarding mobility, the pandemic was neither framed as a challenge nor as an opportunity.

Dublin: Struggling with the relaunch of the economy

Mobility priorities before Covid-19: Ireland's National Transport Authority issued an Integrated Implementation Plan 2019-2024 which mentioned ten national strategic objectives for the mobility sector, among which are sustainable mobility, and the transition towards a low-carbon and climate-resilient society. The plan strived for a mobility system in which people see public transport and active forms of mobility as the optimal ways of getting around, resulting in a reduction of private car use. The plan insisted on the urgency and importance of the climate catastrophe, and that addressing it requires substantial changes to the transport system. Deficiencies in the bus network and the old age of the bus fleet were pointed out as problems. Furthermore, the plan mentioned that measures that aim to address the climate catastrophe, such as the extension of mobility infrastructure, might destroy precious habitats, and thus have a detrimental impact on environmental protection. However, the plan also expected climate action in the domain of mobility to have positive side effects, such as the improvement of the quality of urban spaces, and the reduction of air pollution.
Interpretations of the implications of Covid-19: In response to Covid-19, the Dublin City Council, together with the National Transport Authority, issued an Interim Mobility Intervention Programme for Dublin City with the title "Enabling the city to return to work". This document framed the pandemic and the

reopening after the lockdown as challenges, notably because of the reduced capacity of public transport due to the safety protocols in place. The programme's main aim was to reopen Dublin for economic activities and to allow people to travel, all while respecting sanitary safety protocols, as well as to accommodate the changes in travel patterns. The programme included measures for all means of transport. A national newspaper picked up in particular the introduction of a general speed limit in Dublin of 30 km/h, which aimed to ensure the safety of people travelling by active means of transport, as well as the deployment of pop-up measures for active mobilities, which inspired the newspaper to conclude that the pandemic had been an opportunity to come up with innovative solutions, thus contrasting the overall negative framing of the pandemic by public authorities.

Lisbon: Affirming efforts to fight air pollution and improve neighbourhoods

Mobility priorities before Covid-19: In 2020, Lisbon issued its Move Lisboa – Strategic Vision for Mobility 2030. In this vision, the city affirmed that it aims to contribute to both global and local sustainability, because it expects that this will contribute not only to making the city more resilient to the climate catastrophe or future pandemics, but also to improving the quality of life of residents and visitors, public health, and to building a democratic and egalitarian society. Lisbon's vision for 2030 is a decarbonised, inclusive, and safe mobility. The climate catastrophe was framed as a challenge due to its urgency, which means that there is no time for making mistakes. Nonetheless, climate action, such as policies that aim to reduce the use of the private car, were framed as presenting opportunities for improving the quality of life in the city and contribute to a healthier city. The mobility vision stated that larger cities such as Lisbon have a key role to play regarding global climate action; an observation that was reiterated in Lisbon's Prospective Plan for Investments and Activities for 2022-2026. Among the pillars of this plan figured the intention to make Lisbon a sustainable, as well as a safe and resilient city. The plan stressed that building a sustainable city requires linking environmental issues with social equity, and that the climate catastrophe also threatens precious ecosystems, which the city must protect.

Interpretations of the implications of Covid-19: The Strategic Vision for Mobility and the Prospective Plan for Investments and Activities also mentioned the Covid-19 pandemic. Both described the pandemic as a societal crisis that is challenging notably because of its high degree of uncertainty and unpredictability. This framing was mirrored in a speech by the secretary of state for mobility on the topic of Lisbon's response to Covid-19, in which he affirmed the gravity of the situation by pointing out that it was the first time in its history that Portugal had declared a national state of emergency. The Strategic Vision nonetheless insisted that the pandemic presents opportunities to learn for the future, and that the pandemic affirmed the pertinence of Lisbon's policy priorities to improve air quality and create calm and attractive neighbourhoods. The Prospective Plan for Investments and Activities affirmed that though the pandemic created financial challenges for the city, spending must be maintained. The secretary of state for mobility stressed the importance of maintaining the service levels of public transport, to ensure that essential workers could get to work. The Prospective Plan for Investments and Activities furthermore insisted that the recovery from the pandemic must focus on solidarity within the population. Lastly, in its presentation of the mobility measures that were deployed in response to Covid-19, the city expressed its commitment to building back better, stating that it would be disastrous if the city returned to its high levels of air pollution and congestion from before the pandemic. The deadliness of air pollution was even compared with that of Covid-19. The city highlighted the importance of avoiding a switch from public transport to the private car. The pop-up interventions that the city implemented in response to Covid-19 were framed not only as sanitary measures, but as measures that also contributed to improving the

quality of life in the city and to fostering its economic development.

Madrid: Reinventing the city and promoting public transport

Mobility priorities before Covid-19: Madrid had been operating under a Strategic Plan for Sustainable Mobility 2013-2025, that had been complemented by the Plan A for air quality and climate change in 2017. The former insisted on the urgency of containing the climate catastrophe notably by reducing private car traffic, for which the extension of the public transport system was declared to be a core priority. The Strategic Plan for Sustainable Mobility stressed that the climate catastrophe unfolds in a context of multiple crises that presents considerable challenges for the city's financial viability and thus also for its public transport systems. Next to decarbonising mobility, another core objective of the plan was to ensure that the mobility system contributes to the economic development of the region. The Plan A intended to ensure that Madrid meets the air pollution standards of the European Union by 2020, but also to reduce the greenhouse gas emissions in the mobility sector by 50% until 2030. Most of the proposed measures aimed at restricting private car traffic, but the Plan A also suggested the extension of active mobility infrastructure and the electrification of the bus fleet.
Interpretations of the implications of Covid-19: Public transport played a big role in Madrid's response to the Covid-19 pandemic. The pandemic was exclusively framed as a crisis, and the recovery as challenging. Nonetheless, the city insisted that the pandemic can be an opportunity to learn for the future, and that recovery can be an opportunity to reinvent the city, though the priority must be to alleviate harm and fight poverty. Concomitantly, when presenting its measures to reactivate Madrid after the pandemic, the city insisted that the recovery must prioritise the needs of the most vulnerable members of society and of those who were particularly affected by the pandemic, and that the measures for urbanistic improvement that were planned in this context would contribute to alleviate the negative economic effects of the pandemic. Madrid made it a top priority to ensure the good functioning of the public transport system even at the peak of the Covid-19 pandemic and adapted the offer to account for a shift in the time of the rush hour, extended the offer on crucial lines, and used the drop in car traffic during the lock-down to implement pop-up bus lanes. However, it did not frame these efforts as a form of climate action.

Munich: Affirming the need to develop green neighbourhoods

Mobility priorities before Covid-19: Until the publication of its Mobility Strategy 2035 in 2022, Munich's mobility strategy was guided by the Climate Neutral Bavaria directive and various iterations of the Clean Air Plan. However, Munich had come under scrutiny of the German Federal Government, because the city ignored critical pollution limits imposed by the European Union. An early priority was the reduction of traffic fatalities that was formalised in the "Vision Zero" in 2018. In 2022, Munich issued its Mobility strategy 2035, which reiterated the objective to be carbon neutral by 2035 and to respect air quality standards. The Mobility Strategy insisted that measures in favour of low-carbon means of transport and notably in favour of active mobilities also contribute to improving neighbourhoods and the quality of life of residents. The reduction of individual car traffic and the electrification of the remaining fleet were declared as priorities. Aside from the decarbonisation of mobility and the improvement of air quality, the strategy puts forward the improvement and extension of public spaces, an equitable, inclusive, and accessible mobility system, as well as the extension of digitalised mobility systems, such as automated, shared and on-demand forms of mobility, and digitised traffic management systems.
Interpretations of the implications of Covid-19: The Mobility Strategy 2035 also mentioned the Covid-19 pandemic, which was described as having been an

opportunity for people to discover and adopt cycling, and to discover the beauty of their city and neighbourhoods and appreciate their potential. In its communication on its visions and strategies for the recovery from the pandemic, the city insisted that the pandemic highlighted the importance of attractive neighbourhoods. The pop-up cycle lanes that the city developed during the pandemic were described as valuable contributions to Munich's efforts to decarbonise mobility. Munich also presented a vision for the "post-Covid-19 city", which expressed the intention to develop green corridors that connect Munich's centre to its surroundings.

Paris: Renewed commitment to the 15-minute city and cycling

Mobility priorities before Covid-19: Paris hadn't issued comprehensive mobility strategies or plans either before or during the pandemic. The city had laid out key elements of its mobility agenda in its Cycling Plan 2015-2020, which was met by a follow-up Cycling Plan 2021-2026. Both focussed on the development of infrastructure. The development of cycling was presented as a necessary measure to fight air pollution. Just before the outbreak of the pandemic, Paris' mayor Anne Hidalgo announced her intention to turn Paris into a "15-minute city," a planning concept that emphasises the importance of daily necessities and services within walking or cycling distance. The city expressed the need to reduce air pollution and to improve the quality of life. There was no explicit reference to the climate catastrophe in either the Cycling Plans or the initial argument for the 15-minute city.
Interpretations of the implications of Covid-19: With the outbreak of Covid-19, the idea of the 15-minute city was integrated into Paris' response to the pandemic. The city argued that the pandemic had stressed the necessity of creating a city of short distances in which mobility could be reduced. Developing the 15-minute city was portrayed as a way of better preparing Paris for possible future pandemics and the effects of the climate catastrophe. The pandemic was furthermore presented as an opportunity because it had produced a cycling boom among segments of the population which had been underrepresented among cyclists, such as women, children, and elderly people, and because this boom persisted even once the lockdown was lifted. The city argued that this increasing popularity of cycling required the perpetuation of the pop-up cycling infrastructure that it had developed during the pandemic. The city had developed the pop-up cycle lanes and pedestrian infrastructure to ensure that social distances could be maintained, and to create an alternative to public transport, of which it discouraged the use due to the risk of infection.

Concluding discussion

Covid-19 and urban mobility: a "natural experiment", a reinforcement of existing commitments, or an invitation to change course?

When we assembled the documents for each city, we found that only Barcelona, Dublin, and Madrid had issued dedicated mobility strategies or mobility-related action plans for Covid-19. Together with Lisbon and Brussels, these were also the cities in our sample that explicitly framed the Covid-19 pandemic as a challenge for urban mobility. Copenhagen concluded that the pandemic neither presented specific challenges nor opportunities for urban mobility, and Munich and Paris framed the pandemic unequivocally as an opportunity for urban mobility, on the grounds that it had made cycling more popular and opened people's eyes to the beauty of their neighbourhoods. Thereby, the cases of Munich and Paris represent a slightly different version of the idea that crises like Covid-19 can become opportunities because the disruptions that they cause can be seized for government action (Geels 2013, Griffiths et al. 2021, Markard/Rosenbloom 2020). However, both cities framed the Covid-19 pandemic as an opportunity not primarily for government interventions but for their citizens to reconsider their mobility practices and perceptions.
In line with literature on "natural experiments", which insists that catastrophic events nonetheless

City	Policy priorities for mobility	Priorities for mobility during lockdowns	(Re-)framing of policy priorities following the pandemic
Barcelona	Decarbonisation; social inclusion; air and noise pollution; car-free neighbourhoods	Encouraging active mobilities as social distancing; avoiding a renewed uptake of driving; ensuring safe public transport	Reinforced ambition to create a city of short distances and to promote active mobilities; acceleration of the corresponding plans
Brussels	Decarbonisation; air pollution; reduction of private car mobility; quality of life; economic development	No dedicated mobility strategy but commitment to link recovery to climate action	Seizing the recovery as an opportunity to accelerate sustainability transition efforts that link climate action, the promotion of public health and of the quality of life
Copenhagen	Carbon-neutrality by 2025; quality of life; congestion; air and noise pollution; green growth	none	none
Dublin	Transition to a low-carbon, climate-resilient society; air pollution; improved urban spaces; bus network	Ensuring safe commuting to relaunch the economy	none (crisis response was focussed on the immediate emergency)
Lisbon	Global and local sustainability; social inclusion; social equity; resilience; quality of life; public health	Solidarity; avoiding a renewed uptake of driving	Affirmation of the ambition to fight air pollution and improve neighbourhoods; commitment to public transport; opportunity to "build back better"
Madrid	Decarbonisation; air pollution; public transport; air pollution; economic development	Fighting poverty; ensuring the good functioning of public transport	Seizing the recovery as an opportunity to reinvent the city and to improve neighbourhoods; commitment to solidarity with vulnerable members of society
Munich	Air pollution; traffic fatalities	Ensuring people's quality of life	Promoting access to green spaces; promoting attractive and short-distance neighbourhoods; affirmation of the commitment to promote cycling
Paris	Improving the cycling infrastructure; 15-minute city; air pollution; quality of life	Reducing mobility by creating a city of short distances; leveraging the cycling boom	Reinforced commitment to the 15-minute city and to the promotion of cycling

Table 3. Analysis of policy (re-)framings

offer historically unique opportunities for learning (Thomson 2020), Barcelona, Brussels, Lisbon, Madrid, and Paris insisted on the necessity of taking stock from the experience of Covid-19 and that their crisis response must contribute to building cities that are more resilient and better prepared for future crises of similar extents. Furthermore, Barcelona and Lisbon intended to build back better to avoid that air pollution reached pre-pandemic levels, and Brussels identified the pandemic as an opportunity to build a city that offered a higher quality of life.

Such affirmations point to an intention to adapt and build resilience and thus a need for change. However, at the same time, Barcelona, Lisbon, and Paris insisted that the consequences of the Covid-19 pandemic and their recovery strategies were aligned with and reinforced their pre-pandemic policy priorities and goals. Similarly, Brussels, Madrid, and Lisbon, which had framed the pandemic as a challenge for urban mobility, also insisted on the necessity of seizing it as an opportunity to develop actions in line with their pre-pandemic policy priorities. The insistence of these cities that the impact of the pandemic affirmed, rather than challenged, their pre-pandemic strategies, mirrors previous experiences with crises that showed that more often than not, recovery programmes have a "tendency to return to established trajectories" (Markard/Rosenbloom 2020: 54).

The tendency to return to pre-pandemic policy pri-

orities can, on the one hand, be interpreted as a sign that these cities were already in the process of implementing the kinds of transitions that would allow them to make progress on their longer-term sustainability objectives when the pandemic hit, and that they leveraged the pandemic to accelerate and reinforce these efforts. This interpretation mirrors previous experiences with crises that showed that authorities that are already in the process of decarbonising certain domains of society or the economy can use disruptive events to accelerate or reinforce their efforts (Markard/Rosenbloom 2020).

On the other hand, however, both academic scholarship and European agencies have observed that urban mobility policy has thus far failed to take the radical steps that are needed to break the trend towards ever-increasing carbon emissions from transport, in particular because of its focus on incentives, rather than on restrictions, and because of a lack of comprehensive policy strategies (EEA 2019, Marsden/Docherty 2013). To understand whether Covid-19 was an opportunity for cities to accelerate ambitious plans for a mobility transition, or whether it reaffirmed strategies that have thus far failed to produce the radical overhaul of mobility that expert groups such as the IPCC and EEA have demanded, we are taking a closer look at each city's pre-pandemic mobility policy goals and strategies in the next section.

The challenges of prioritising the decarbonisation of urban mobility

Our analysis revealed differences in how the cities referred to the climate catastrophe in relation to their mobility strategies. Though the mobility sector has been identified as "a major obstacle to realising the EU's climate protection goals" (EEA 2019: 19), only Dublin and Lisbon framed the climate catastrophe explicitly and directly as the main societal challenge that transformative urban mobility policy must tackle. Whereas the other cities also mentioned the decarbonisation of urban mobility as an important objective, they framed it as a positive side-effect of measures that first and foremost were meant to address other mobility-related challenges, such as air pollution, which was at the central challenge that the mobility strategies of Barcelona, Lisbon, Madrid, Munich, and Paris aimed to address, the improvement of neighbourhoods and residents' quality of life, which was an important objective in the mobility strategies of Brussels, Lisbon, Munich and Paris, and economic development, which was mentioned as a core issue related to mobility by Barcelona, Brussels, Copenhagen, and Madrid. Indeed, in their mobility strategies issued both before and during the pandemic, most cities in our sample referred to the decarbonisation of mobility as an additional benefit of measures that aimed at fixing other problems such as air pollution, congestion, or the lack of green spaces.

This finding can be interpreted considering scholarship that concluded that "governments may resist adopting climate emergency stances to avoid expectations for swift and strong action" (Patterson et al. 2021: 845). Moreover, the point has been made that policy strategies that assume that the same measures can address issues that "are different in terms of time-frames, causes and solutions" (Geels 2013: 69) tend to gloss over the complexity of each issue and the trade-offs that might have to be navigated. Indeed, in our sample, only Dublin pointed out trade-offs between the decarbonisation of urban mobility and other policy priorities. Our findings indicate that the ways in which cities framed the decarbonisation of urban mobility may, in fact, avoid commitments to drastic action beyond existing policy goals.

This observation also resonates with scholarship that found that cities tend to "re-fram[e] climate change as an issue related to core agendas (concerning financial savings, congestion, air pollution, urban planning and so on)" (Bulkeley/Castán Broto 2013: 363), as well as with scholarship that observed that "[r]ecently, multiple emergency frames are being bundled", for instance by referring to climate change in conjuncture with public health emergencies (Patterson et al. 2021: 842). This tendency that climate change is increasingly "attached to a range of different projects" has been described as "indicative of a lack of capac-

ity to coordinate and deliver an integrated, planned approach for urban climate governance" (Bulkeley/Castán Broto 2013: 363). Our findings support studies that explain the tendency to bundle climate action together with other urban policy objectives with the difficulties that cities face in the endeavour to reconcile their role in the global response to the climate catastrophe with their arguably limited political and financial capacities (Bulkeley/Castán Broto 2013, da Cruz et al. 2019).

Already prior to the outbreak of the Covid-19 pandemic, several cities in our sample pointed out budgetary and political limitations that prevented them from implementing the kind of measures that they identified as necessary for the decarbonisation of urban mobility. Brussels' government explained that the development of sustainable mobility infrastructure progressed too slowly because of a tight financial situation, mirroring the observation that urban climate action can suffer from budget constraints and austerity policies imposed on cities by national authorities (da Cruz et al. 2019, Geels 2013). Copenhagen expressed regrets about its lack of constitutional authority to implement policies that would restrict cars from entering the city centre, mirroring the observation that institutional shortcomings are a challenge for urban climate governance (Bulkeley/Castán Broto 2013, da Cruz et al. 2019, Geels 2013). Dublin identified the old age of its public transport infrastructure as a challenge for climate action in the domain of mobility.

In the next section, we reflect on the question whether the cities in our sample could seize the Covid-19 pandemic as an opportunity to overcome such limitations and shift to a different strategy for addressing the challenge of decarbonising urban mobility.

In how far was Covid-19 an opportunity for the decarbonisation of urban mobility?

Except for Copenhagen, all cities in our sample implemented measures in favour of low-carbon means of transport during Covid-19. Most cities focussed on promoting active mobilities through the development of pop-up mobility infrastructure. Such interventions can be interpreted as a continuation of the fragmented and piecemeal policy interventions that have been found to be characteristic of urban climate action (Bulkeley/Castán Broto 2013, da Cruz et al. 2019). Thereby, our findings suggest that through their responses to Covid-19, cities may indeed have pursued pre-pandemic efforts to make progress on the decarbonisation of urban mobility, but that these efforts may be insufficient to achieve the kind of radical shift that would be necessary to reach climate targets.

Most cities in our sample focussed on promoting active mobilities during the pandemic with the argument that these forms of mobility were best suited to protect public health, all while pursuing their pre-pandemic policy priorities for urban mobility, such as reducing air pollution, improving neighbourhoods, or decarbonising urban mobility. Though these interventions must be acknowledged as contributions to the sustainability policy priorities, by failing to promote and expand public transport after the lockdowns, these cities have neglected what experts consider one of the pillars of climate-neutral urban mobility (Griffiths et al. 2021).

There were, however, two notable exceptions from this tendency in our sample. Barcelona and Madrid focussed on public transport in their response to Covid-19. Notwithstanding the recommendation from the Spanish government to avoid public transport, these cities insisted that public transport was an essential part of their urban mobility system. During the pandemic, they extended the infrastructure and focussed their communication on the measures that they had implemented to ensure that it could be used safely. Thereby, the experience of these two cities illustrates that public transport emerging weakened from Covid-19 (Corrazza et al. 2021) was not inevitable. The examples of Barcelona and Madrid mirror the observation that the impact of shock-like events such the Covid-19 pandemic on urban mobility depends not so much on the nature of the event, but on the political response to it (Geels 2013, Griffiths et al.

2021, Markard/Rosenbloom 2020).

In sum, our findings suggest that many cities framed the experience of Covid-19 as a learning opportunity to build more liveable – and potentially more resilient - cities. They rhetorically aligned their mobility-related responses to the pandemic with their pre-pandemic policy priorities. This means that, in most cases, cities' responses followed the same problematic patterns that previous studies have identified regarding urban climate action. Indeed, we have argued that, in the framing of many cities, climate action appeared as a corollary benefit to other policy priorities such clean air, reduced congestion, and increased quality of life, rather than a priority in and for itself. The question of whether thereby, cities effectively consolidate scarce resources in the pursuit of diverse yet equally pressing issues or, inversely, overlook potential trade-offs between these issues, thus delaying transition efforts, continues to be a subject of controversy.

Examining the hypothesis that crises like the Covid-19 pandemic present opportunities for policy change, our analysis of policy documents indicates that the majority of cities did not leverage the pandemic to overcome structural constraints that confine them to piecemeal and opportunistic climate action in the domain of mobility. Nevertheless, the cases of Barcelona and Madrid introduce nuances to this conclusion and demonstrate that the common pattern that public transport is weakened by crises can be overcome. Lastly, we acknowledge the limitations of relying solely on policy document analysis to fully capture the array of pandemic-related mobility measures, as well as the underlying motivations and political negotiations shaping the perspectives outlined in these documents.

Acknowledgements

We thank Betsy Middleton for her assistance in consolidating and coding the data. We acknowledge funding by the Federal Ministry of Education and Research through the *MCube – Munich Cluster for the Future of Mobility in Metropolitan Regions*. We also thank two anonymous reviewers for their helpful and constructive comments, and the editors for inviting us to contribute to this special edition.

Disclosure statement

We have no conflicting interests to declare.

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Appendix A: References of the documents in the sample by city

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Impressum

Soziologie und Nachhaltigkeit
Beiträge zur sozial-ökologischen Transformationsforschung

ISSN 2364-1282
Sonderband 3 (2024): Transformation von Mobilitätspraktiken im Kontext multipler Krisen – Beschleunigter Wandel oder nachhaltige Nicht-Nachhaltigkeit? DOI: 10.17879/sun-2024-5270

Eingereicht 03.02.2023 – Peer-Review 07.07.2023 – Überarbeitet 11.08.2023 – Akzeptiert 30.08.2023

Herausgeber*innen: Lisa Ruhrort, Mirijam Mock, Marco Sonnberger

Redaktion: Niklas Haarbusch, Jakob Kreß, Carsten Ohlrogge

Layout/Satz: Niklas Haarbusch

Anschrift: Universität Münster, Institut für Soziologie
Scharnhorststraße 121, 48151 Münster
Telefon: (0251) 83-25440
E-Mail: sun.redaktion@uni-muenster.de
Website: www.sun-journal.org

Gefördert durch die Deutsche Forschungsgemeinschaft (DFG) - Projektnummer 490954504