

Monika Grubbauer, Alessandra Manganelli,
Louis Volont (eds.)

CONFLICTS IN URBAN FUTURE-MAKING

Governance, Institutions,
and Transformative Change

[transcript]

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Conflicts in Urban Future-Making

Urban Future-Making | Volume 1

Editorial

In the light of existing and looming crises, cities have become crucial sites where desired futures have to be developed, negotiated, and eventually implemented. The book series **Urban Future-Making** addresses the agency of built environment professionals – ‘urban future-makers’ – in the face of future requirements, present options, and past experiences. The series publishes timely research work related to the interdisciplinary research training group of the same name, jointly organized by the HafenCity University Hamburg, Universität Hamburg, and Hamburg University of Technology. The different volumes are of interest for various disciplines linked to the urban built environment, in both the academic and the professional realms. The series is edited by Monika Grubbauer, Katharina Manderscheid, and Joachim Thiel.

Monika Grubbauer is a professor in history and theory of the city at the HafenCity University Hamburg. She teaches historical and theoretical foundations in urban planning and urban design and is the spokesperson of the DFG-funded research training group Urban Future-Making, established in 2022 and jointly organized by the three Hamburg universities. Her research focuses on urban development politics, housing and urban policy, and knowledge practices in architecture and planning.

Alessandra Manganelli is an urban studies scholar working on socioecological transformations in contemporary cities. Her doctoral research (KU Leuven, Vrije Universiteit Brussel, and Toronto Metropolitan University) has focused on the hybrid governance of urban food movements in Europe and North America. As a postdoctoral researcher at the HafenCity University Hamburg, her research deals with urban experimentation, urban environmental governance, and socioecological justice.

Louis Volont explores the modern metropolis through a cultural-sociological lens and is a postdoctoral researcher in sociology at the HafenCity University Hamburg. He was previously a Fulbright Fellow at the MIT’s Program in Art, Culture, and Technology (ACT), where he collaborated on the Choreographing the City project. His work looks at the cultural, temporal, and moral dimensions of urban life.

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Funded by the Deutsche Forschungsgemeinschaft (German Research Foundation, DFG) – Projektnummer 445103843 – GRK 2725.

Bibliographic information published by the Deutsche Nationalbibliothek

The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data are available in the Internet at <https://dnb.dnb.de/>



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First published in 2024 by transcript Verlag, Bielefeld

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Cover layout: Maria Arndt, Bielefeld

Logo: OPS Vision(Beta), Our Polite Society

Copy editing: Erin Troseth

Proofreading: Erin Troseth

Printed by: Majuskel Medienproduktion GmbH, Wetzlar

<https://doi.org/10.14361/9783839474679>

Print-ISBN: 978-3-8376-7467-5

PDF-ISBN: 978-3-8394-7467-9

ISSN of series: 2944-0106

eISSN of series: 2944-0114

Printed on permanent acid-free text paper.

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1. Introduction to the volume

Monika Grubbauer, Alessandra Manganelli, and Louis Volont

In a time of social, cultural, and economic crisis, it is safe to say that the question of the 'urban future' is at the forefront of public attention. Socially, cities are places where violence, poverty, and inequality are concentrated and very visible. Culturally, urban populations segregate and individualize. Economically, urban infrastructures and housing stock are highly dependent upon financial fluctuations, considering the urban fabric's worsening material conditions after the 2008–2009 economic crisis. But beyond these dynamics, something else is going on: The city suffers vastly from the consequences of anthropogenic climate change.

On the one hand, cities are major contributors to changing ecological and climatic patterns, given the extraction of natural resources such as coal and gas for electrification and heating, and the emission of greenhouse gases due to the insatiable thirst for automobility. On the other hand, cities suffer disproportionately from the effects of climate change, becoming places of extreme and unforeseeable weather patterns. Rising temperatures lead to urban heat island effects, meaning that urbanized areas are subject to higher temperatures than their hinterlands, rendering cities vulnerable in terms of droughts and fires. Moreover, as cities have historically been established along rivers or in coastal areas, today this makes them severely affected by floods and even dynamics of sinking. Additionally, minuscule objects such as carbon particles and microplastics now permeate every pore of the urban fabric, from building materials to the bodily cells of urbanites via the water they drink and the air they breathe. One may thus argue that there exists a 'to-and-fro' between the socio-material system of the city and the broader climatic conditions in which it exists.

It is therefore not surprising that built environment professionals as well as ever-larger groups of urbanites are asking what the future of the city shall entail (Savini, 2019). However, adding to the current malaise is the element

of uncertainty. In the 19th century, architects, engineers, and planners, confronted with the experience of life-threatening epidemics such as cholera, sought to tame the future through sanitation systems and hygienic measures. In the 20th century, urban reformers, also aiming to ameliorate social and health problems, began to anticipate urban futures using statistical analysis and forecasting. In our current regime of volatile geopolitical relationships, environmental depletion, new epidemics, and changing climatic conditions, the reliability of prediction and control has largely receded into the background (Scoones and Stirling, 2020). The linear and upward trajectory through which 19th- and 20th-century architects and planners imagined the modern metropolis to evolve has decidedly started to crumble (Adam and Groves, 2007). Uncertainty, also, has its consequences: collective anxiety and a sense of urgency. As cities continue to suffer the consequences of droughts, fires, and floods, the phenomenon of 'climate anxiety' continues to spread through the urban world's collective consciousness. Simultaneously, the notion of urgency has become prevalent, expressing the fact that taking action in the face of the crises described above should be on urban agendas today, not tomorrow (Wallace-Wells, 2020). As those active in the world of 'post-apocalyptic' urban thinking rightfully argue, the crumbling of the urban life-world is happening now, as we speak, and it is precisely the realization of such ruination that might instigate concerted action for safe, just, and equitable urban futures to emerge.

Against this backdrop, actions are being taken which seek to reduce the anthropogenic impact on planetary ecosystems and to pave the way for alternative urban futures. These actions address a multiplicity of built environment domains through forward-looking measures designed to tackle problems such as greenhouse gas emissions, resource depletion, pollution, and environmental degradation. In the field of energy, for instance, initiatives tailored to develop alternative energy infrastructures and to lower carbon emissions are spreading in many cities, both in Europe and around the globe. By experimenting with restorative projects such as energy retrofitting in existing building stock, alternative energy communities, or zero-net districts, such initiatives intend to showcase tangible low-impact alternatives (Bulkeley et al., 2011). Yet the effects of climate change are unevenly distributed, and such environmentally led interventions are not always engaged in addressing social justice challenges (Castán Broto and Westman, 2019). Energy transition strategies need continued monitoring and refinement in order to ensure that benefits are equally shared across diverse communities.

In the field of sustainable transport, projects and policies aiming to foster alternative uses of space, based on pedestrian or sustainable mobility, are trying to leave their mark on cities amidst the dominance of car-oriented developments. City administrations in Barcelona, Paris, Milan, New York, and elsewhere have been leading the way towards new patterns of sustainable mobility, often building on the momentum of grassroots experiments emerging from local communities (Evans et al., 2018). Many localities across Europe and the globe have been imitating pioneer examples yet have often faced opposition from diverging interests and contrasting agendas over the course of urban development. A key question then becomes how the many local experiments can be transformed into a new norm, not only in discourses but also in practices of future-making (Bertolini, 2020).

Urban greening interventions such as nature-based solutions, green infrastructures, edible landscaping, and other types of nature- or food-driven actions constitute a further field of future-making. These interventions are praised for their potential to combine ecological goals – such as nature restoration and biodiversity enhancement – with the fostering of socio-economic benefits for citizens and users (Kabisch et al., 2017). As such, nature-based interventions feature in policy discourses and public debates at multiple levels as desirable strategies for developing synergetic relations between nature and city, and between humans and non-humans. Climate mitigation and adaptation plans that seek to connect urban greening interventions with other fields of future-making action, in order to have an impact that exceeds policy demarcations and overcomes spatial and temporal boundaries, are flourishing (Smeds and Acuto, 2018). Ultimately, the hope is that the emerging experiments, far from remaining exceptional projects, will provide concrete guidance on what the future city might look like.

In a broader sense, one might argue that the notion of the ‘future city’ has intrinsically permeated the urban public sphere and thus become, as anthropologist Arjun Appadurai (2013) argues, a ‘cultural fact’. Yearly conferences such as Futurebuild (London), Ecopolis (Brussels), and Urban Future (nomadic) have seen the light of day. Media platforms and publications such as *The Guardian* and *The Atlantic* now contain thematic sections on urban futures. Corporations including Siemens and IBM claim to offer technological solutions for the city of tomorrow. It is within this context that the 2023 International Architecture Exhibition in Venice – themed ‘The Laboratory of the Future’ – can be read. Whilst world-renowned architect Rem Koolhaas has long been concerned with the future of cities since his Project on the City at

the Harvard School of Design (Jameson, 2003), 'the city of the future' plays an equally pivotal part in the designs and discourses of architects and planners newly entering the scene. As Austin Zeiderman and Katherine Dawson (2022: 262) rightfully argue, 'If one takes time to notice, it can easily begin to feel like the urban future is everywhere'.

Professionals in the fields of architecture, engineering, and planning have long taken up the call for a fundamental transformation of cities in the light of evident demands. Whereas in earlier times, issues involving the natural sciences, medicine, or economics often dominated public debates, the built environment disciplines have since raised their public profile. Professionals in these fields are sought out as relevant experts in the various urban initiatives and programs noted above (da Schio and van Heur, 2022). In public discourse, they are even addressed as 'the new heroes' of our times (Matzig, 2021). This dovetails with research and academic discourses of the past years becoming largely reoriented around the themes of urban transformation. The outcome is a remarkable spectrum of new technologies, innovations in building materials, experimental architectural concepts, and new planning schemes that built environment professionals are able to offer to local governments and the private sector, with the promise of addressing ecological and, at least in part, social challenges.

It is notable how this search for the 'city of the future' has also led to the intensification of the transnational exchange of ideas between cities along with new forms of cooperation between science, practice, administrations, and citizens. Knowledge about successful pilot projects and urban experiments is circulated widely within the various types of city-to-city networks that have emerged over the past two decades. These networks answer the need of local governments and public sector officials for first-hand experience and peer-to-peer exchange. By now, it has become clearer that learning from 'best practice' examples, which dominated policy transfer in the past, also needs personal encounters and communication (Healey, 2012). Such city-to-city networks, particularly involving built environment professionals as officials in public administration, are also supported by the proliferation of funding schemes that prioritize transdisciplinary research and require cooperation between science and the public sector.

The techno-optimism of some ideas currently circulating certainly raises doubts. Some approaches of geoengineering and large-scale remaking of cities and infrastructural systems are reminiscent of earlier periods of modernism (Hajer and Versteeg, 2019). Also, the narrow and policy-driven logic

found in the funding streams of European and national research agencies does not necessarily lead to innovation. Yet, it is evident that a more fundamental rethinking of the disciplinary foundations of built environment disciplines is also going on: well aware that resource use in construction as well as land use for new building must be drastically reduced, many practitioners are exploring more radical approaches of reuse, circularity, and degrowth. This goes along with new social roles: They transgress disciplinary boundaries, initiate projects also from the bottom up, and act as experts in civil society initiatives.

Planning projects and interventions are, as documented by the contributions to this volume, often heavily contested, or even a source of societal polarization and political conflict. However, there is hope that these conflicts can contribute to a more fundamental change in the ways in which the built environment is governed. The current reconfiguration of the professional field has the potential to expand opportunities for transformative action for multiple reasons: First, professional expertise mobilized to address issues of the built environment is putting into question market-based systems of norms and standards, dominated by lobby groups of the large building companies and suppliers. Second, professional associations in built environment domains are acquiring greater political voice and presence in public debates. Additionally, new collaborative practices are emerging that have put together diverse actors and interdisciplinary constellations. This, finally, might open up opportunities for new modes of involving civil society and addressing the public good.

This volume offers an intellectual journey throughout the conflictual dynamics arising from imagining, negotiating, and materializing different urban futures in contemporary times of crisis. Under the header of 'Urban Future-Making as a Lens', two theoretical excursions will set the scene. In the first of two chapters in this section, Monika Grubbauer, Louis Volont, and Alessandra Manganelli theorize the notion of conflict within the larger scheme of urban future-making practices. The chapter opens by exploring how debates about urban futures unfold within key 'arenas of conflict'. The authors then argue that amidst these conflictive arenas, built environment professionals emerge as 'agents of conflict', faced with the complex task of applying scientific knowledge and communicating with conflictive publics while invariably holding their own values and worldviews. The chapter subsequently outlines three 'modes of negotiating conflict', whereby differing urban imaginaries, layered political frames of reference, and clashing temporalities enter professionals' day-to-day practice. Lastly, the authors delve into the role of affect and emotion in conditions of conflict. It is argued that urban future-

making, beyond its seemingly rationalistic outlook, constitutes an affective practice, unlocking emotionalized responses from citizens and professional peers alike. This is not surprising, given the highly symbolic value that is more often than not attached to urban materiality. In the second chapter, Monika Grubbauer, Katharina Manderscheid, and Joachim Thiel endeavour to conceptualize agency, namely social actors' ability to act, within the world of urban future-making. In the first part of the chapter, the authors examine different theoretical approaches, from various strands of practice theory to concepts of agency found within mainstream economics. This is put into dialogue with literature that is more closely concerned with the professional cultures of architects, engineers, and planners. The second part of the chapter explores the field of action constituted by these built environment disciplines. The authors highlight how uncertainty profoundly affects decision-making of professionals on different levels. The paper then gives an overview of responses to uncertainty, showing how professional agency is currently transformed through new modes of action, new actor constellations, and new modes of dealing with the future. In the conclusion the authors argue that, while incorporated routines and dispositions of built environment disciplines are called into question, taking into account socio-material contexts as a key to professional agency might also open up opportunities for enlarging the scope of action.

The book's first thematic cluster, 'Contested Governance and Policy-Making', assembles four chapters that zoom in on conflictive futures within political contexts. Emilie D'Amico opens the discussion by examining cities' net-zero pledges in the post-Paris Agreement climate regime. D'Amico shares rich empirical insights derived from ethnographic work at the COP26 climate conference in Glasgow in 2021. Mobilizing dramaturgical theory, the chapter focuses on how narratives of urban futures are shaped through practices of scripting, staging, performing, and reframing. D'Amico also reflects on the transformative potential of the net-zero pledges made in Glasgow. She advances the argument that despite the mayors' commitment to a decarbonized urban commonwealth, they have nevertheless continued to embrace the neo-liberal paradigm of green capitalism. Consequently, more painful debates concerning high levels of urban consumption and inequality are kept in the background. The cluster then continues with Alessandro Arlati's chapter on how futures of urban greening are discussed within national parliamentary contexts in Germany and Italy. Arlati finds that despite the general parliamentary agreement on the importance of urban greening, several latent lines

of conflict can nevertheless be identified as running between step-by-step approaches and immediate action; between differing imaginations of urban futures; between majority statements and oppositional critique; between differing interpretations of the notion of 'nature'; and, finally, between possible relationships with the European Union. Next, Per Carlborg and Sophie-Marie Ertelt analyse the prospects of urban energy futures. More specifically, the authors ask whether the European project of Positive Energy Districts (PEDs) allows for a just and equitable energy transition in European cities. Guided by the concept of restorative justice, the chapter tests whether the PED programme eliminates or rather reproduces urbanites' structurally unequal access to green modes of living. It is found that policy discourse on PED development is intrinsically permeated by a threefold conflict: technocratic modes of decarbonization clash with the overall mission of citizen inclusion; imperatives of economic viability are at odds with the mitigation of citizens' vulnerability; and the construction of new buildings clashes with the alternative of energy-positive retrofitting. The book's first cluster ends with Fabian Namberger's chapter on the conflicts arising during the development of autonomous driving and its corresponding prerequisite, HD mapping. Deploying the Testfeld Autonomes Fahren Baden-Württemberg (TAF BW, a test field for autonomous driving) in south-west Germany as a central case, Namberger highlights in detail how digital replicas of the city aim to manage and mitigate the unpredictability of urban streetscapes. This, however, stirs up a threefold conflict, namely a conflict of governance (as diverse actors at different institutional levels have to align goals and preferences); a conflict of regulation (regarding safety aspects, technical requirements, and data laws); and a conflict of imagination (as different visions of the 'machine-readable city' are publicly dispersed through a variety of visual and videographic carriers).

The second thematic cluster, titled 'Contrasting Cultures and Institutions', focuses on how place-based action can induce wider-scale transformations in the presence of divergent institutional logics and cultural worlds. Taking the city of Hamburg as a case study, Tom Hawxwell's chapter illustrates how the hegemonic status of car-oriented urban development has shifted over time. The author embeds this account in the larger field of transition studies and is specifically interested in 'pressure fronts' (from civil society, political ideologies, material circumstances, budgetary constraints, and so on) and 'turning points' (ruptures between different phases and styles of urban development). Five historical blocks are investigated, spanning the period from the

late 1970s until the present, tracing incremental steps as well as more radical changes in transportation planning and policy. For each period, the author explains which pressure fronts effectively generated the shift in governmental direction. In their chapter, Malene Freudendal-Pedersen and Sven Kesselring designate the world of mobility future-making as one permeated by friction, but promptly add that such friction constitutes a highly needed and valuable asset for democratic mobility futures to materialize. The chapter firmly links urban mobility with the issue of climate change and takes an explicitly critical stance towards the lack of significant efforts in the transportation sector to reduce greenhouse gas emissions. In doing so, Freudendal-Pedersen and Kesselring shed an analytic light on the mobility transition in the German state of Baden-Württemberg. Although unfinished and continuously subject to debate, Baden-Württemberg's Climate Protection and Climate Change Adaptation Act reinvigorates hope for sustainable mobility futures to emerge. Such futures, the authors argue, may become a reality only when the state's techno-optimistic focus is combined with the insights, practices, and participation of urban citizens. The contribution by Hannes Langguth delves into the conflicts arising in Eastern Germany during the implementation of Chinese gigafactories for the production of electric vehicle batteries. The chapter focusses in detail on the largely overlooked 'internal' conflicts occurring between planners, policy-makers, and administration professionals. The methodology of institutional ethnography allows the author to shed light on the planning and approval processes related to one successful implementation case in Thuringia and one failed case in Saxony-Anhalt. These conflicts are analysed as 'formations of the political', in which the underlying actor and power relations merge and clash at the crossroads between different state and local levels, and with global investors. Langguth shows how deviating planning cultures, different expectations, and even issues of deception and false promises complicate Sino-German cooperation on this new generation of factories. The chapter by Lucas Pohl closes the cluster by depicting the effect of sea level rise on coastal cities – Bangkok in particular – yet stresses that sea level rise does not affect (urban) communities in equal measure. The chapter's key argument is that sea level rise exerts both challenges and potentials upon the urban fabric. In terms of challenges, sea level rise reproduces pre-existing urban inequalities. As rising shorelines gradually erode habitable land, water becomes a key determinant that demarcates who can afford to live in waterfront areas and whose lives and homes are sacrificed. However, the author sees profound potential in the chal-

lenges of sea level rise. It demands that urbanites experiment with new forms of life and politicize the unequal effects of a changing climate.

Finally, the third and final cluster, 'Grounding Conflicts in Everyday Practices' zooms in on place-based practices of introducing and negotiating material interventions in cities. In his contribution, Robbie Gilmore expands on the role that greening may play in conflicts about urban futures. Examining actors' imaginaries around a greenway project in the Northern Irish city of Belfast, Gilmore shows how greening interventions are ascribed with multiple political meanings. Digging into struggles around urbanized nature, the author shows how different actors create and form relationships with different forms of greenness in order to exert agency over the development and maintenance of urban projects and borders. In doing so, Gilmore disentangles how greening features as a means to articulate, mediate, or negotiate actors' conflicts between different urban futures. The cluster continues with Melis Günay's analysis of conflictual dynamics in a traffic experiment in the German municipality of Giessen, aimed at reallocating street space for active forms of mobility, such as walking or cycling. Providing an alternative lens to two common modalities of theorizing conflicts – communicative planning theories on the one hand, and agonistic planning approaches on the other – Günay's focus is on how conflicts are practically 'done', and for whom such conflicts become productive. Thus, by analysing 'conflicts in action', Günay generates original perspectives on the diverse modalities through which relevant actors negotiate conflicts. Finally, Alessandra Manganelli closes the cluster and the book by investigating urban experiments in the cross-cutting domains of urban mobility, nature-based solutions, and public space design. Through the experience of the Barcelona Superblocks and green axes, her chapter frames conflicts as tensions between opposing or contradictory dynamics around place. In particular, while tensions reveal deep frictions between a particular experiment and underlying power dynamics and structural challenges of the city, Manganelli shows how these tensions can open up opportunities for transformative action. By identifying tensions in dynamics of governance, participation, socio-ecological justice, power, and politics, Manganelli seeks to unravel what happens when a transformative idea is translated into a concrete and potentially disruptive urban intervention.

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Urban Future-Making as a Lens

2. Understanding conflicts in urban future-making

Arenas, negotiation, and affect

Monika Grubbauer, Louis Volont, and Alessandra Manganelli

Introduction

Research in the field of planning and urban studies has a long history of addressing conflicts. This literature has documented how conflicts are constitutive for urban societies. Cities have always served as key sites not only for conflicts but also for developing democratic institutions and formats of political deliberation (Harvey, 2012; Dikeç, 2017; Sennett, 2017). After all, the very notion of politics contains within itself the root word of *polis*. Against this backdrop, contemporary European planning practice is understood to have evolved from rational approaches centred around comprehensive planning to communicative and collaborative approaches. These are characterized by a range of participatory mechanisms that allow conflicts to be resolved by involving stakeholders and citizens (Gualini, 2015). However, the limits of institutionalized participation have also been widely recognized in the literature (Holden, 2011). Authors have highlighted the explosion of dissensus and discontent as moments of political resurgence against techno-managerial decision-making arrangements (Swyngedouw, 2018).

Most recently, agonistic approaches to planning theory have proposed a more central role for conflict as a productive force in liberal democracies (Pløger, 2017). While this has been a rich source of inspiration, at least in academic debates, important shortcomings to this argument remain: One key issue is that empirical evidence at the level of social practices remains thin, particularly in understanding the productive dimension of conflicts (Gualini, 2015). Furthermore, in the face of heightened conflicts around planning projects and interventions in urban space, recent work has questioned the

dualistic understanding of collaborative versus agonistic approaches (Kühn, 2021; Hesse and Kühn, 2023). Markus Hesse and Manfred Kühn point out how these conflicts have also challenged the notion of a linear evolution of planning towards a progressive democratization. They note – for the German context – that there is currently a regressive tendency to gradually limit participation in order to accelerate planning processes (Hesse and Kühn, 2023).

Indeed, the setting in which planners and other built environment professionals operate has seemingly become more complex: Cities serve as key sites and objects of transformation in the face of climate change and its related social, political, and economic crises. This is particularly the case for transformative measures aimed at urban spaces and settlement patterns. The result is that, in the European context, conflicts around the transformation of the built environment, including energy systems, transport infrastructure, and housing stock, have acquired enormous weight and momentum in public debates. This is connected to new constellations of actors and constantly shifting lines of conflict in debates which are often highly emotionalized and connected to larger questions of societal development and the distribution of wealth and privilege. Institutionalized planning, with its formats of deliberation and participation, is not able to establish consensus here, and conflicts are often resolved via jurisdictional ruling.

Seen more broadly, conflicts around planning, as well as transformative measures aimed at the built environment in general, can be seen as a challenge to the current functioning of Western liberal democracies (Metzger et al., 2015). Whether and how such conflicts point to a more fundamental polarization of European societies in terms of socio-economic stratification is subject to ongoing debate (Mau, Lux, and Westheuser, 2024). What is evident from the European context, however, is that heightened levels of inequality as a result of several decades of neoliberal dismantling of welfare state policies are a key factor in explaining present political dynamics. Fears connected to the loss of social status and security are very present up to the higher middle classes (Nachwey, 2018). A decisive factor in driving inequality over the past decades has been the uneven allocation of land, structured through uneven property relations. As a large part of global economic wealth is constituted by land and real estate, rising prices have had a growing influence on levels of economic inequality since the 2008–2009 economic crisis (Piketty, 2020; Savage, 2021).

In light of these developments, we argue that some of the fundamental assumptions about the role of planning in Western democracies are currently being challenged, or, to put it more broadly, normative expectations towards

disciplines dealing with the built environment are being questioned. These expectations refer to aims and strategies, institutional and regulatory frameworks, and mechanisms of decision-making. Thus, we posit that the field of action concerning the built environment, together with established professional routines and knowledge bases, is now under drastic reconfiguration, as Monika Grubbauer, Katharina Manderscheid, and Joachim Thiel argue in this volume. The central question is whether disciplines such as architecture, engineering, and planning are (still) able to contribute to solving complex problems in the interest of the public good rather than benefiting privileged groups. Professionals find themselves involved in complicated and highly emotionalized debates around planning projects and material interventions, with heightened demands for communicating and interacting with diverse publics (Iveson, 2007). Whether reflexive and responsible professional agency is possible in such contexts is an open question.

We propose to understand conflicts related to planning projects and interventions in the built environment as conflicts about 'urban future-making'. In essence, our conception of urban future-making is one of purposeful decisions and actions that impact the urban built environment in order to achieve transformative change. We suggest that this conceptual lens opens up new perspectives along three avenues: Theoretically, it prompts focusing and reflecting on the particular qualities of the built environment in shaping decisions related to the future. Empirically, it allows the actions of built environment professionals to be situated and examined within the broader field of future-making practices. Finally, in terms of practical and political relevance, it provides the opportunity to discuss the role of these professionals as agents in the larger context of key conflicts in contemporary European societies. For the purpose of this volume, we define professionals from the disciplines of architecture, engineering, and planning broadly as 'built environment professionals', i.e. agents dealing with both material and strategic aspects of urban change.

In this chapter, we first explore the kinds of conflict that can emerge within and in relation to the modern city. As a starting point for developing our argument, we draw from the recent sociological analysis of Steffen Mau, Thomas Lux, and Linus Westheuser (2024) on how conflicts in contemporary German society are enacted and play out in several distinct arenas. In each of these discursive arenas, a different dimension of inequality is negotiated. The first step in our argument is to materialize, and thus to explore, the urban referents of these key arenas of conflict. We then move on to centre the figure of the built

environment professional, viewed more precisely as ‘an agent of conflict’. In the third section, we theorize three ‘modes of conflict’, namely, those between differing urban imaginaries, differing political frames of reference, and differing temporalities. The fourth section, finally, considers the role of affect, highlighting the way that the built environment as a constitutive element of everyday life is a crucial source of emotions in contemporary societal conflicts.

Arenas of conflict and the built environment

The arenas of conflict identified by Mau, Lux, and Westheuser (2024) address different fundamental aspects of inequality. In their typology, four arenas are proposed: The first entails conflicts around the distribution of wealth and welfare; the second deals with conflicts around migration and the challenges of integration; the third addresses questions of identity, gender, and changing social norms; and the fourth is constituted by conflicts around the costs of climate change and the strategies to counter it. The role of the built environment, or spatial relations more generally, is not explicitly addressed in their macro-sociological analysis. However, we can show how the built environment enters the conflicts of each arena in distinct ways: through property relations, through practices of use, through residential patterns and transport infrastructures, and through direct costs of construction and maintenance.

In the first arena, centred on conflicts around the distribution of wealth and welfare, issues such as the uneven allocation of urban land as well as the reproduction of unequal property relations play a key role (Piketty, 2020; Savage, 2021). Although subject to policy and planning decisions, physical elements such as land, urban spaces, infrastructures, and housing stock are scarce and finite entities. As such, they are the subject of diverging claims regarding development modalities, and of frictions over the inequitable distribution of wealth and material benefits. Thus, when the transformation of the built environment is at stake, tensions arise because of conflicting values associated with land use as well as diverging societal positions regarding property (Godschalk, 2004; Haila, 2016). On a broader level, practices of land speculation, corporate-led housing, and other market-driven modes of urban development are based on criteria of space allocation that stand in contrast with alternative modalities of land use (Brenner and Theodore, 2013; Theodore, 2020). Such modalities can, for instance, be based on the collective reappropriation of land, spaces, and ur-

ban infrastructures for commoning purposes and collective uses (Eizenberg, 2012; Bresnihan and Byrne, 2015).

In both the second and third arenas, conflicts are not centred explicitly on the built environment as a target. Rather, spatial structures fundamentally shape these conflicts around migration and cultural identity in more implicit but no less profound ways. For instance, conflicts about migration, which are negotiated in the second arena, often become visible and tangible through uses of urban space. This leads to heated conflicts about cultural differences in the use of public space, or unequal rights in accessing housing, services, and citizenship. Conflicts around identity and social norms, which constitute the third arena, are also fundamentally shaped by the built environment through socio-spatial residential patterns that either allow or impede the mixing of heterogeneous social groups, or that privilege certain lifestyles and exclude others. Urban development dynamics inevitably touch upon the sphere of the everyday, including the behaviours, lifestyles, and associated value systems of different individuals and social groups, which can generate conflicts (Acuto, 2014; Castán Broto and Westman, 2020). Such practices of 'spatial othering' crystallize in precise urban geographies and material realities (Aylett, 2010; Labbaf and Norouzi, 2023). They manifest in long-lasting patterns of social differentiation across urban space, which have a symbolic dimension in specific urban forms and aesthetic registers (Neckel, 2018).

This links to the fourth arena, conflicts around climate politics, which are visibly centred on questions of the built environment. Challenges related to climate action are of central importance in the field of urban future-making, since all transformative strategies aiming for reductions in carbon emissions involve more or less far-reaching changes to built space and infrastructural systems (Long and Rice, 2018). This leads to fierce conflicts about the priorities, ethics, costs, and responsibilities, as well as time frames, for implementation. In particular, problems of greenhouse gas emissions, resource depletion, and environmental degradation require combining immediate action with long-term systemic changes to urban development. Choices and actions taken in the present will largely determine what kind of urban spaces humans will inhabit in the future. A lot of hope is connected to experimentation, described by Harriet Bulkeley as a 'paradigm-shifting break with established norms and practices' (2023: 1). Yet, a great deal of local interventions struggle to overcome a short-sighted approach. So far, local greening solutions and mobility experiments risk remaining merely project-based, contested, or linked to a particular political cycle, thus failing to engender a more structural and long-term impact

on the built environment, infrastructure systems, and behavioural patterns in cities (Torrens and von Wirth 2021; Kohler and Manderscheid, 2024; see also contributions by Günay and Manganelli in this volume).

We suggest that the conflicts around socio-economic inequality in all four arenas are fuelled, and potentially emotionalized, by the particular quality of the built environment as a resource of everyday life. A key insight of Mau, Lux, and Westheuser (2024) that lends itself to our analysis is that there are specific moments in public debates – called ‘trigger points’, or *Triggerpunkte* in German – which unlock strong emotions and lead to affective modes of discourse. A key moment that triggers emotion, as those authors show, is when transformative demands impose themselves onto everyday life. We argue that such dynamics are crucially bound up with the built environment as a constitutive element of everyday life that provides for basic needs, structures social practices, and forms cultural identity. Material changes to housing stock, the implementation of new technical infrastructures, and the redesign of streets and public spaces all influence daily life in multiple ways: They require the adaptation of household routines and logistics, they impact mobility patterns and housing allocation, and they transform the identification of inhabitants with particular buildings, places, and neighbourhoods. This threatens to disrupt the normality of lived routines and the autonomy of decision-making around questions of everyday life. Moreover, such transformations are also associated with gentrification and the threat of gradual expulsion from an urban neighbourhood. Thus, material changes are not only experienced on a cognitive level but are felt physically and emotionally.

Built environment professionals as agents in societal conflict

Professionals in built environment disciplines are involved in mediating and solving conflicts in the four different arenas on various levels. They have a variety of roles: Built environment professionals are engaged in planning and engineering work, either on the side of private firms or as part of public administration, and often need to implement strategies defined at the political level in ever more complex urban government arrangements (Castán Broto, 2020; McGuirk and Dowling, 2020). Architects, engineers, and planners are also sought as experts for assessing the costs and effects of specific interventions and as consultants for governments but also NGOs and social movements (da Schio and van Heur, 2022). As members of professional bodies, they influ-

ence policy-making through norms and standards, through lobbying and networking, and through contributions to public debates and media. In all of these roles, professionals not only respond to their clients' wishes and fulfil their designated tasks as public employees; they also have professional ethics and act as members of professional communities (Marcuse, 1976). In light of this multiplicity of roles, professionals act as agents in conflicts on at least three levels, as we show in the following, with reference to insights from the contributions to this volume.

The first level of action relates to the mobilization of scientific knowledge and concerns strategies and tools that allow dealing with the 'wicked problems' of the present (Rittel and Webber, 1973; Zellner and Campbell, 2015; Tutton, 2017). In particular, decisions about allocating land and material resources in order to implement physical interventions require built environment professionals to adopt calibrated strategies and act responsibly (Marcuse, 1976; Healey, 2015). In many circumstances, projects promoted under the banner of sustainable urban development and circularity end up reproducing suboptimal outcomes in terms of their long-term social and ecological effects. Examples are urban regeneration or redevelopment projects turning into 'ecological enclaves' or net-zero energy districts that give rise to unfair outcomes such as energy price increases, which severely affect low-income communities (Bulkeley and Castán Broto, 2014). In order to avoid or remedy these unwanted effects, architects, engineers, and planners are urged to weigh environmental benefits against social costs of transformative interventions (Pineda-Pinto et al., 2021).

In their contribution to this volume, Per Carlborg and Sophie-Marie Ertelt show the complexity of this task. Through the example of Positive Energy Districts, they elucidate some of the equity and justice questions accompanying a new generation of low-carbon urban solutions. In particular, they highlight how, when it comes to embedding restorative justice principles into material interventions, built environment professionals are urged to deal with key lines of conflicts and establish restorative measures to address injustices. Another layer of complexity is added by new digital technologies and the scaling of AI systems in cities. The contribution by Fabian Namberger digs deeply into the challenges faced by architects, engineers, and planners operating in a 'real-time city' (Kitchin 2014). The author shows how these professionals must attend to the uncertainties associated with the introduction of AI-driven devices into the urban fabric, weighing the potentials of new technologies against possible risks.

A second level of action for professionals relates to communication with the public and an ever-widening range of stakeholders and interest groups, both in public consultation and informal dialogue. Professionals are tasked with moderating public participation around planning and engineering projects, responding to political priorities of local governments, and engaging with residents in direct dialogue, all at the same time. In all of these activities, and because of their multiple roles and levels of engagement, professionals have to bridge and translate between scientific and lay knowledge (da Schio and van Heur, 2022). This is not new, and as one learns from urban social movements in the 1960s, this has been the daily bread of architects, planners, and (to a lesser degree) engineers. However, in the contemporary situation, and in light of the key arenas of conflict highlighted above, this translation task has become more challenging. Increasingly, built environment professionals also need to deal with arenas that connect the urban to wider governance scales, where climate adaptation or mitigation measures are discussed or publicly negotiated (Rossi and Vanolo, 2012; Tozer and Klenk, 2018).

As the contribution of Emilie D'Amico in this volume shows, the new requirements of deep urban decarbonization are negotiated in political platforms and arenas that go beyond the operational sphere of built environment professionals. Yet, these platforms and networks are relevant in influencing discourses also at the urban level. Consequently, architects, engineers, and planners are asked to rethink their roles and tasks in light of this wider governance landscape. A complementary insight is provided by Alessandro Arlati, showing how in times of climate change the future of urban greening is discussed and debated by parliamentary politicians at the national level. Likewise, Hannes Langguth's contribution sheds light on the complex and conflictual dynamics that arise when local planners are faced with the task of coordinating their visions for the future city with international and state actors.

Third, professionals engage in urban conflict as members of professional communities. Typically, built environment professionals are part of occupational groups with certain ethics and world-views; these are shaped by professional socialization during education and practice and translates into modalities of performing duties and taking responsibility for action (Grubbauer and Steets, 2014; Dimitrova et al., 2021). A strong argument is made by Mau, Lux, and Westheuser (2024) as well as other scholars (see e.g. Meloni et al., 2019) that the varied attitudes and preferences in controversial debates, particularly about climate issues, do not primarily reflect socio-economic status but rather

the world-views and mindsets of different occupational groups. Indeed, it is quite visible that due to social and political demands, as well as ethical requirements for transformative change, built environment disciplines are now increasingly urged to rethink traditional duties and value systems.

Several chapters of this volume illustrate the struggles of individuals and communities of practitioners when engaging with ethical issues. Through an analysis of greening interventions in Barcelona, Alessandra Manganelli reveals how built environment professionals need to pay heed to ethical aspects related to embedding different dimensions of justice into experimental strategies. Robbie Gilmore illustrates how greening interventions serve as a means to advance, or hinder, particular urban futures. As such, professionals act as mediators of different voices and imaginaries on what urban futures should look like, possibly favouring a plurality and diversity of perspectives. Or to use the words of Malene Freudendal-Pedersen and Sven Kesselring in this volume: While 'friction' constitutes a highly needed dynamic within the production of the future city, urban future-makers having to deal with that friction often face difficulties resolving it.

Three modes of negotiating conflict

As argued above, the urban fabric can be seen as both the source and the receptacle of conflicts concerning urban futures. Amidst the aforementioned discussions stands the figure of the built environment professional: a human being, tasked with the complex assignment to mediate within arenas of conflict. The contributions to this volume highlight how these conflicts play out and are negotiated in multiple ways and forms. In this section, we show that such conflicts can be understood in terms of three fundamental challenges and suggest that built environment professionals face a triple task of reconciliation, namely: between differing urban imaginaries; between differing political frames of reference; and between differing temporal horizons. Although every conflict around future-making is spatio-temporally unique, the elements that effectively clash lend themselves to theoretical categorization.

The first mode of conflict is between differing urban imaginaries. We define urban imaginaries as visions of desired urban futures, held by alliances of built environment professionals – including market-based entrepreneurs – concertedly working to materialize them (Healey, 2004; Savini, 2019). Urban imaginaries might thus be thought of as collective consciousnesses of what

'the good life' in the metropolis of tomorrow ought to entail. The two predominant urban imaginaries currently floating through the urban public sphere are the 'the smart city', focused on a digitally governed urban life, and the 'green city', leaning towards natural solutions for the city in times of climate change (Zeiderman and Dawson, 2022). Yet more urban imaginaries can be pointed to: The '15-minute city' (Khavarian-Garmsir et al., 2023), the 'fossil-free city' (Chatterton, 2018), and the 'compact city' (Burton, 2000) all constitute shared visions for the city of tomorrow. Such concerted visions for the future tend to emerge in the minds of individual professional actors, while subsequently becoming collective signifiers that are discursively distributed and institutionally performed. Nick Dunn (2018), for instance, distilled a taxonomy of more than 1,000 future cities, as conceived by various architects and planners since the dawn of the 20th century. Out of those individual imaginations, Dunn abstracted over 25 collectively held urban imaginaries, such as 'garden cities', 'floating cities', 'moving cities', 'layered cities', and so on.

Friction exists between differing imaginations of the future city. The urban imaginary of the smart city, an imaginary based on techno-optimistic mind-sets, has been particularly opposed by collective visions of catastrophe-struck cities (Rothe, 2020; Cassegård and Thörn, 2022). Increasingly present in the urban public sphere are collective visions of 'the drowning city' (Goh, 2019), 'the empty city' (Pohl, 2022), and 'the radiant city' (Dobraszczyk, 2010). Actors adhering to catastrophic collective visions do, of course, not conceive of these visions as desirable futures. Rather, dystopic imaginaries are deployed as potential urban realities that can nevertheless still be prevented: not through 'smart' technological interventionism but rather through practices of 'urban repair' (Balaban, 2022) and 'urban tinkering' (Tate, 2012). Thus, friction exists not only between the contrasting ways the future city is imagined but also between the kinds of actions derived from those imaginations.

Arlati's contribution to this volume highlights the clash between imaginaries particularly well. Arlati discusses the dividing lines between parliamentary discourses on urban greening in Italy and Germany; his chapter shows how differing political ideologies come with particular procedural stances (on techno-optimism versus incremental change, for instance) and future imaginations ('smart', 'compact') of urban greening. Tom Hawxwell's chapter on the shifting forms of Hamburg's transport and mobility politics constitutes another example of how collective visions of the future city emerge, coexist, and clash. Tracing the historical shifts from the late 1970s to the present day, Hawxwell illustrates how the hegemony of the automobile in Hamburg's planning politics has

been both strengthened and disrupted through the clash between right-wing and left-wing political forces as well as through the influence of civil society. In both of these studies, urban imaginaries emerge as 'clusters of meaning' in which ideologies, values, world-views, and imaginations of the future city merge into coherent wholes with which, and through which, urban futures are fabricated.

Secondly, in their day-to-day practice, architects, engineers, and planners deal with different political frames of reference, both horizontally (different administrative domains) and vertically (different political levels). National systems of infrastructure provision tie in with regional and local infrastructure systems; this has led to competition between municipalities and regions as local governments tap into federal and state subsidies for large infrastructural projects and compete for private sector investment (Pagano, 1996; Koppenjan and Enserink, 2009). In turn, the local government has, at least in the German context, had a strong position through its authority over legally binding land-use plans and building permissions. Currently, however, different levels of government as well as different fractions of the state bureaucracy are increasingly in disagreement – and engaged in legal disputes – about the distribution of costs and responsibilities for the transformation of energy, transport, and building sectors (Coutard and Rutherford, 2010). Also, claims to basic resources, most importantly water, are increasingly disputed as municipalities try to secure their hold on the groundwater needed for local consumption. Frames of reference thus diverge, depending on the administrative territory and the electorate.

The picture becomes more complicated when we contrast 'institutionalized politics', where the above disputes largely play out, with the notion of 'the political'. The latter refers to citizens' power struggles for just urban futures 'outside and beyond' the regulated echelons of local, regional, and federal politics. This point has repeatedly been made by scholars with 'post-foundational' leanings (Mouffe, 2013; Rancière, 2010; Landau et al., 2021), who argue that each institutionalized (urban) political order can at any moment be disrupted by those actors that refuse to be positioned within the system's coordinates. As Jacques Rancière (2010) famously argued, political orders come with what he calls a 'partition of the sensible'. Groups of urbanites may refuse to be positioned within a system's partition of the 'sensible' in order to dispute not only a certain state of affairs but also the very frame of reference within which these issues are to be tackled. That is: not in the closed corridors of the town hall and its planning department, but on the streets and in the urban public sphere. As

agents of conflict, built environment professionals are increasingly affected by bottom-up political forces: They may engage in such initiatives as individual citizens but may also question the established political order from within.

Langguth's chapter concerning the conflicts that arise during the realization of Chinese gigafactories in Eastern Germany demonstrates how political framings intersect horizontally and vertically. On the horizontal plane, the chapter offers a rich description of the differences between German and Chinese planning cultures: differences which may give rise to conflictual expectations, false and broken promises, and mutual ignorance. On the vertical plane, Langguth encapsulates the many levels of decision-making power – state, regional, and local levels – that both merge and clash during Sino-German practices of future-making. Furthermore, the clash between institutionalized politics and bottom-up practices gains central significance in the chapters by Gilmore, Manganelli, and Melis Günay. Both Gilmore and Manganelli look at the politics of urban greening (in Belfast and Barcelona, respectively), while Günay investigates traffic experiments in the German city of Giessen. What unites these three chapters is the continued conflict between top-down levels of organized urban politics and bottom-up worlds of political activism. Günay's notion of 'doing conflict' is indicative of these chapters: When political frames of reference intersect, conflict is not something the involved parties seek to move away from but is a continual and even welcomed everyday praxis.

Third, architects, engineers, and planners need to make compromises to navigate contradictory temporal horizons, based on which projects and interventions in the built environment are argued for or against. Iddo Tavory and Nina Eliasoph (2013), in their sociology of future anticipations, distinguish between three time frames within which actors may interpret their actions: 'protentions', 'trajectories', and 'landscapes'. Protentions are moment-by-moment anticipations. Acting in a protentional way means having a 'feel' for the immediate future, constantly calibrating the next moment. Trajectories, then, go beyond the immediate future and thus constitute larger stretches of time within which actions may unfold. A fine example of a trajectory is the idea of the 'project'. When 'projecting', actors teleologically pinpoint goals and ends that determine action in the present moment. Landscapes, finally, are temporal schemes that actors experience as inevitable, such as the sequence of grades in education or the placement of public holidays throughout the year. These kinds of temporal landscapes are taken for granted so deeply that they become experienced as universal and unchangeable (which doesn't mean, of

course, that they are not perpetually produced and performed through human agency).

Discussions about urban interventions in the new climatic regime (Latour, 2018) constitute a prominent arena where built environment professionals have to juggle differing temporal horizons. As can be glimpsed through the temporal notion of a 'window of opportunity', architects, engineers, and planners will all agree that taking measures against the urban effects of the climate crisis must not be postponed. Measures targeting the built environment that are not taken now will only be increasingly difficult and costly in the future. Invoking Tavory and Eliasoph's (2013) scheme, 'protections' for the immediate future thus constitute a guiding force when making decisions about urban climate futures. Yet, longer stretches of time are equally present. For example, despite the difficulty of assessing the ecological footprint of urban projects, built environment professionals are increasingly attracted to ideas of 'inter- and intragenerational justice' in order to deliver their work to the city's next generations in a fair and sustainable way (Manderscheid, 2012; Skillington, 2019; Vanderbeck and Worth, 2015). Lastly, while dealing with the conflicting temporalities of protections versus (long-term) trajectories, professionals are faced with institutionalized temporal landscapes too. Often nestled within urban political administrations, the usual policy cycles of four to five years both structure and limit the scope of future-making actions that can be undertaken.

Lucas Pohl's chapter in this volume, on sea level rise and contested urban future-making in Bangkok, is indicative in this regard. As local future-makers and residents battle against the sinking of the city, protections, trajectories, and landscapes intersect. Rising sea levels, first, can be seen as a 'temporal landscape': a temporal scheme that is experienced, by now, as inevitable. Trajectories, then, can be found in the projects set up by built environment professionals to alter, mitigate, or adapt to this temporal arrow. Pohl explains, with vivid empirical detail, how measures to mitigate sea level rise have tended to safeguard the city's central commercial areas while sacrificing its hinterlands. This means, finally, that those dwelling in 'sacrifice zones' are faced with a 'protectional' disruption of their way of life as the rising water gradually gnaws on their homes and means of subsistence; day-to-day tweaking of and engagements with a crumbling life-world become the order of the day. Pohl ultimately concludes that sea level rise exacerbates already existing inequalities while it also contains within itself the seeds of new forms of life. In other words: a perceived unfolding of time constitutes a politically potent event.

Urban future-making and affect

At first sight, professional practices of urban future-making seem guided by rationality. This, however, must not veil the multiple affective discourses that professionals are faced with (Gunder and Hillier, 2007). The built environment forms the locus in which people build their lives, care for significant others, move to desired destinations, and aspire for certain futures to materialize. The urban fabric is a site of everyday life and an object of emotional attachment. That interventions within a drastically changing built environment trigger emotional responses in those inhabiting this change is no surprise. How does affect figure in the world of urban future-making? We approach this question by assessing how affect cuts through the three types of negotiations outlined above. The key argument is this: Urban future-making also constitutes an 'affective praxis' unlocking reactive emotions, held individually or socially, among the urbanites affected by it.

Concerning the contrasting urban imaginaries, first, emotionalized debates are particularly triggered when one constellation of actors perceives itself to be disproportionally burdened vis-à-vis another constellation that keeps its own habits, ethics, and privileges unchanged. Conflicts about the financing and localization of climate change measures are fuelled by this kind of affect. The urban sphere includes discourses of anger and blame towards those who are held responsible for urban problems (waste, decay, pollution, and so on), as well as discourses of hope among those striving for a fair distribution of the costs and locations of adaptation and mitigation projects (Tozer, 2019). Regarding the second challenge, of bridging different frames of reference, affective responsiveness emerges when political decisions imposed by upper levels of government are interpreted as not respecting local needs and contexts, or vice versa, when local resistance is blocking measures and projects (Gualini, 2015). In a similar but reversed vein, one might think of groups of urbanites blocking interventions that are *de facto* and *de jure* accepted by different levels of government and their constituencies. For instance, the need for renewable energy is largely accepted by society, but the actual installation of wind turbines in a specific location is often heavily contested by local inhabitants (Eichenauer, 2023). Finally, when looking at diverging temporal horizons, debates become particularly affective when one considers the 'too-fast-too-slow continuum'. Fast change may be said to threaten people's established routines, while slow change can be perceived as undermining the living conditions of future generations (Rosa, 2003).

Urban interventions carry a potent reactivity, and affective discourses circulate throughout arenas of conflict. We suggest that one explanation for this can be found in the 'political aesthetics' of urban materiality (Harvey and Knox, 2015; Dawney, 2021). Urban materiality – the city's streets, squares, buildings, dwellings, ornaments, and supporting infrastructures – comprises not only the technical texture through which urban life unfolds but is also, and more importantly, a symbolic carrier of imagined forms of life. As Leila Dawney (2021: 408) has argued, energy, water, and transportation projects 'border, territorialize and produce imagined communities.' The nuclear power plant, for example, may be said to constitute the archetypical symbol of post-war modern progress whilst the wind turbine can be seen as the semiotic carrier of future life in the new climatic regime. Urban materiality – still the daily concern of built environment professionals – thus 'represents' the kind of spatio-temporal plot line upon which a certain community finds itself and through which pasts-presents-futures are materially narrated (Blokker et al., 2021). Intervening in a community's material substratum means intervening in the community's collective consciousness, and deciding to preserve material objects means shaping a community's collective identity (Tunbridge and Ashworth, 1996). Günay's chapter shows with great clarity how traffic experiments may lead to emotions running high among activists, civil society, and local politicians.

Kregg Hetherington (2016: 40) once argued that 'the tense of infrastructure is therefore the future perfect, an anticipatory state around which different subjects gather their promises and aspirations.' Thus, urban materialities hold a certain promise – they point beyond themselves, namely into the future – and built environment professionals can be seen as makers of those promises (Tutton, 2017; Zeiderman and Dawson, 2022). However, one may argue that within many urban landscapes, we currently find a plethora of what we may call 'material memories of lost futures' (Fisher, 2014). At the height of the post-war Fordist regime, symbols such as the automobile with a combustion engine, rectangular urban arteries, and phallic high-rise towers promised the advent of modernist urban forms – they told, in Hetherington's 'future perfect tense', how urban modernity 'will have happened'. Depending on the point of view from which these legacies of modernism are perceived, their material traces can trigger feelings of grief, melancholia, nostalgia, and anger, but also feelings of optimism, hope, bliss, and relief. Similarly, new kinds of meaningful matter in the context of the contemporary city trigger affective responses on a continuum from ecstasy to despair: the material symbols of energy futures, food futures, mobility futures, housing futures, and so on. In all, the city con-

stitutes a palimpsest of futures, around which different affective publics crystallize. This point becomes particularly clear in D'Amico's analysis in this volume of the urban climate futures that were staged by mayors of cities worldwide at COP26 in Glasgow. D'Amico detects at COP26 'an emotionally charged rhetoric of emergency, hope, and heroism, [fostering] a discursive momentum' during political negotiations concerning low-carbon urban futures.

This brings us to a final assertion, made at the intersection of professional praxis, urban matter, and affect. We argue that a new line of distinction emerges. This distinction is of a particularly temporal nature and can be linked to Mau, Lux, and Westheuser's (2024) 'today' versus 'tomorrow' as the fourth arena of conflict around climate politics. Future-oriented urban interventions are distributed unequally throughout the urban fabric. Certain areas can be perceived as already being in the future (focused on tomorrow), whereas others remain stuck in the present (focused on today). Indeed, while certain city regions cluster around narratives of greenness, cleanliness, sustainability, and so on, others remain stuck in a non-green, non-clean, non-sustainable era. From the work of sociologist Barbara Adam (1995) to that of anthropologist Johannes Fabian (1983), several scholars have shown how forms of 'othering' emerge between different temporalities: 'our time' (heading towards the future) versus 'their time' (stuck in the present and the past). Doreen Massey (2005) gave a particularly spatial outlook to this argument, criticizing the modernist idea that certain places can be 'ahead of time' compared to others. These affectivities undeniably shape interventions in specific areas, often legitimated by the assumption that inhabitants of those areas are 'out of time', unable to progress into the future (Chamberlain, 2022). Vice versa, a much-evolving dynamic is that urban communities might feel forgotten, neglected, or overlooked when water, energy or transport interventions are woven into the urban environment elsewhere. At present, built environment professionals increasingly have to navigate such discursive terrains, where legitimation for interventions is subject to affectivities and exceeds rationalities of scientific knowledge.

Conclusion

The urban built environment, we have shown throughout this chapter, constitutes the source and the receptacle of conflicts over urban futures. The city is an object of conflict and the place par excellence where conflict is fought

out. We opened our discussion by noting Mau, Lux, and Westheuser's (2024) seminal discussion of 'trigger points' leading to explicit conflict between societal groups in different discursive arenas. Whilst these trigger points concern discussions about wealth, migration, identity, and climate, we argued that each of them can be applied to urban spaces and urban materiality as well. Heated debates around property relations, migrant infrastructures, relations of belonging, and the justness of climate adaptation and mitigation measures, respectively, prove this point. Amidst these complex dossiers stands the built environment professional – in our conceptualization: the 'urban future-maker' – as an agent of conflict. Beyond the mere act of 'making' the built environment, these professionals are increasingly faced with the task of mobilizing scientific knowledge, communicating with ever-wider ranges of societal stakeholders, and navigating different value-driven groups. Lastly, we theorized three 'modes of conflict', namely between differing imaginaries, differing political frames of references, and differing temporalities; all of these are intrinsically ignited by affect and emotion among both the makers and the prospective inhabitants of urban futures, as we showed in the prior section.

Architects, engineers, and planners are variously addressed as 'heroes of our time' (Matzig, 2021) or as 'secular prophets' (Adam and Groves, 2007) capable of solving complex issues on a hitherto unimaginable scale through new forms of geoengineering. At the same time, they are also deemed responsible for failing to deliver planning projects on time or guarantee the functionality of infrastructures. It is obvious that interventions in the built environment move us; they *trigger* something. One important insight emerging from situating built environment professionals in the wider field of future-making is that their role in existing debates is not merely a matter of Habermasian rationalistic deliberation. The emotional world of the soul – anger, hope, grief – equally pervades the arenas in which conflicts over urban futures are fought out. Thus, professionals such as architects, engineers, and planners intervene not only in mere matter but also in *meaningful* matter and, by extension, in urbanites' collective consciousness concerning the kind of life they are living.

Finally, in a context of systemic and intersecting inequalities, the most profound political conflicts at present are essentially conflicts about the distribution of costs and burdens in adapting social systems to a new economic reality. The building sector has faced trouble from rising construction costs and prices for various resources and raw materials; this may indicate that the 'imperial mode of living' (Brand and Wissen 2021), which relies on unlimited appropriation of resources and constant externalization of social and ecological

costs, has reached its limits. As questions of justice now need to be recalibrated, to consider global contexts as well as future generations, it has clearly become more challenging – but also more important – to calculate, legitimate, and implement transformative action with regard to the built environment (Zellner and Campbell, 2015; Basta, 2016). Professionals in the disciplines of architecture, engineering, and planning emerge as key actors in the conflicts they face. On the one hand, they have the critical task to refrain from fuelling (conscious or unconscious) practices of ‘othering’ or affirming affective responses of shaming and blaming, in which some groups have the privilege of being on the ‘right’ temporal plot line. On the other hand, they carry a responsibility to translate technical and scientific knowledge into meaningful scenarios that allow futures to be imagined collectively. This volume aspires to explore the conflictual dynamics that emerge when taking up such responsibility.

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3. Understanding professional agency in urban future-making

Acting in the face of uncertainty

Monika Grubbauer, Katharina Manderscheid, and Joachim Thiel

Introduction: What is urban future-making?

When it comes to the future of cities, it seems that much is currently shaped by an absolute imperative to act. The future seems to be everywhere, and, fundamentally, at stake. Major ecological and social threats to the future of human settlements, and to the planet as a whole, need to be urgently addressed (Wallace-Wells, 2019). Against this backdrop, urban areas have become crucial sites where aspired pathways towards desirable futures are imagined, forecasted, and variously negotiated (Hajer and Versteeg, 2019; Dixon and Tewdwr-Jones, 2021). Also, cities are often the places where the objectives of international agreements, e.g. on climate protection, are sought to be implemented. More specifically, experts, administrators, and policy-makers are compelled to, as soon as possible, take far-reaching decisions and devise appropriate strategies and interventions that can reduce carbon emissions, energy consumption, and resource use related to the urban built environment (Long and Rice, 2018; Bulkeley, 2023). This urgency to act derives primarily from prospects for the future, with looming expectations of ever-larger threats and risks to urban societies that must be addressed. Yet, the pressing need to act pre-emptively to tackle difficulties expected in the future is intricately interwoven with the immediate requirements of maintenance and adaptation that the physical materiality of existing buildings and infrastructures constantly generates.

We mobilize the concept of ‘urban future-making’ to refer to the activities of experts and administrators who seek to respond to the perceived threats to urban societies with measures related to the urban built environment. At

its core, we understand urban future-making to mean purposeful decisions and actions that impact the urban built environment with the aim of engendering transformative change. Engaging in such urban future-making, built environment professionals take decisions based on their expertise while negotiating political demands and accounting for their decisions in respect to, or even collaborating with, civil society (Kenis and Lievens, 2016; da Schio and van Heur, 2022). Yet, urban future-making also encompasses administrative, legal, discursive, and symbolic dimensions, which relate to modes of governance, bureaucratic procedures, and different discursive framings of multiple or contested urban futures (Goh and Bunnell, 2018; Wachsmuth and Angelo, 2018). Consequentially, future-making practices involve all societal spheres and are shaped by the interaction between political, professional, and civic actors (Wenzel et al., 2020).

In this chapter, we seek to provide theoretical foundations for understanding the crucial role of built environment professionals as urban future-makers as well as their capacity to act in the face of multiple crises. These professionals form a highly diverse group, found in the state administration, private sector, non-profit sector, and civil society initiatives. Even though their role is of strategic significance for the futures of cities amid multiple crises, little is known about their core values and motivations, about the ways they (can) act, fail to act, or legitimize their agency, or about ways to engage their experience in a more fruitful way. We maintain that experts and administrators dealing with the urban built environment are facing profound uncertainty.

As we will show in this chapter, classic modes of urban future-making, which had served to reduce or negotiate uncertainty in the past, increasingly appear insufficient. At present, experts and administrators are responding with experimental, adaptive, and flexible attitudes in conceiving transformative urban change. Against the backdrop of global multiple interdependencies and uncertain time horizons of climate change, the key question addressed in this chapter is how, under present conditions, professional agency concerning urban future-making can be conceptualized and – related more closely to professional practice – might be possible at all. Conceptually, we point out and seek to connect two different foundational approaches to professional agency: One draws on first-generation practice theories (e.g. Bourdieu, 1984; Giddens, 1984) and focuses on incorporated routines and dispositions that shape the respective professional fields and the agency of field actors; another regards agency as necessarily distributed in socio-material constellations (e.g.

Latour, 2005; Shove et al., 2012). Seen in this way, action presupposes and only happens through a structural environment.

The chapter is organized in two parts: The first part engages with different theoretical approaches which allow us to conceptualize agency in the context of urban future-making. We start from a broad understanding of agency that is based in social theory, with a focus on practice theories and relational sociology. Then we explore more narrow concepts of agency found within mainstream economics, as these concepts provide useful insights into the operational mode of professional agency. An additional strand of literature that we draw on addresses professions as core elements of contemporary societies; it allows for an understanding of the professional cultures of architects, engineers, and planners as based on expert knowledge, socialization and routines, as well as values and ethics. In the second part of the chapter, we draw on these theoretical foundations to explore the field of action constituted by practices of urban future-making. We argue that four types of sources contribute to heightened uncertainty at present, all of which derive from the specific challenges that arise when dealing with and intervening in the urban built environment. Subsequently, we discuss how these conditions are fundamentally challenging established professional routines and knowledges, then show how current approaches to urban future-making entail new modes of action, new actor constellations, and new modes of dealing with the future for built environment professionals.

Conceptualizing professional agency

Within the field of tension between structure and action, the notion of agency is situated in differing ways. Thus, agency, as an agent's capacity to act, is always socially conditioned (e.g. Sewell, 1992). The common thread of social scientific understandings of agency can be summarized as addressing the question of 'who or what has what kind of agency or is attributed such agency, or, to what and to whose influence something is due' (Helfferich, 2012: 10, translated by the authors). Conceptualizations differ in terms of where focus is placed when explaining and empirically reconstructing agency. Given our interest in built environment disciplines, we unfold our attempt to conceptualize professional agency in three steps. First, we look into what practice-theoretical approaches can offer to address particular professional practices; second, we discuss how the specific and straightforward approach of the principal-agent

setting can be broadened and further built on; and third, we carve out the key dispositions, value systems, and knowledge bases of the three disciplines of architecture, engineering, and planning.

Possibilities to act in society

The first generation of practice theorists, including Pierre Bourdieu (1984) and Anthony Giddens (1984), understand action primarily as routinized practices that lead to the stabilization and reproduction of existing conditions. Bourdieu in particular focuses on the habitus as a crucial means of this stabilization and reproduction of social order. The habitus as a set of deeply ingrained skills, dispositions, and orientation schemes incorporates history in the form of traditions and values as well as individual-, class-, and gender-specific experiences. Individuals acquire their specific habitus through primary socialization as children and through life experiences. In this context, dispositions are the tendencies or propensities to act, think, and perceive the world in certain ways (Bourdieu, 1984). On a similar note, Giddens speaks of the ‘duality of structures’ (1984: 16), wherein structures both enable and constrain action, and action, in turn, is able to recursively reshape structures. This ability to reshape structures, “to act otherwise” [...] with the effect of influencing a specific process or state of affairs’ (ibid.: 14) is what Giddens refers to as agency.

Both Bourdieu’s concept of habitus as an element that structures action and Giddens’s idea of structuration are not limited to individuals but can also be (and have been) applied to organizations and professions. Acquiring professional knowledge and skills also entails processes of socialization, incorporating past experiences, schemes of orientation, and organizational dispositions (e.g. Robinson et al., 2022). At the same time, professional actors are, by means of their own actions, able to add to their experience and change these schemes and dispositions (Ortmann et al., 1997). In addition, professionals use specific symbols and act in specific ways to signify their belonging to their profession and their distinction from other professions and non-professionals, which is then externally perceived as professional competence. This perspective allows an understanding of professional agency as situated within a broader professional field, with its own specific symbolic capital, rules, and goals. In addition, the notion of ‘hysteresis effects’ helps explain why changes and transformations are often resisted or even counteracted by professionals themselves. The term describes the phenomenon that dispositions and practices, because

they are shaped by past social conditions, lag behind and may not align with changing contexts (Koll and Ernst, 2022).

The second generation of practice theories is characterized by a decentring of the subject as author of action. Instead, social practices constitute the unit of analysis (Schatzki, 1996; Reckwitz, 2002; Shove et al., 2012). A practice, then, is understood as a 'temporally and spatially dispersed nexus of doings and sayings' (Schatzki, 1996: 89). More specifically, practices consist of interdependencies between diverse elements including 'forms of bodily activities, forms of mental activities, "things" and their use, a background knowledge in the form of understanding, know-how, states of emotion and motivational knowledge' (Reckwitz, 2002: 249). Although these contemporary approaches to practice theory are often seen as focussing primarily on the reproduction of practices, they also deal with agency. In the words of Elizabeth Shove, Mika Pantzar, and Matt Watson, 'human agency is loosely but unavoidably contained with a universe of possibilities defined by historically specific complexes of practice. It is in this sense that practices make agency possible, a conclusion that is not at all incompatible with the related point that practices do not exist unless recurrently enacted by real-life human beings' (2012: 126).

This relational understanding of agency is not limited to everyday lives but also holds true for organizations and professions (e.g. Nicolini, 2012). In the context of urban future-making, the practice theory lens exposes the inter- and intra-dependencies between human agents and physical, material objects. This perspective also allows for an analysis of changes within professional strategies, which may occur through the dynamic interplay of material conditions, social meanings, and goals, as well as competencies, where shifts in any of these elements can lead to the evolution of collective routines and habitual actions. In this perspective, the success of intentional changes to professional practices depends on the relative fit or lack of fit with respect to the objects, bodies, and meanings in the already-existing order of things (Spaargaren, 2011: 817).

When it comes to urban future-making, the materiality of the built fabric must be systematically taken into account. This materiality, due to its specific permanence and ineluctable presence, structures – but does not determine – the room for manoeuvre of individuals as well as of professional actors related to the built environment. Here, approaches from science and technology studies propose the concept of distributed agency in socio-technical constellations (Latour, 2005). According to this literature, (socio-material) structures do not primarily frame the possibilities to act but are inherently interwoven

with, and are a constitutive part of, agency itself. Complementing the above approaches of relational sociology, Mustafa Emirbayer and Ann Mische (1998) argue in favour of an analytical differentiation of the agency concept by adding a temporal dimension. In this vein, they conceive of agency as a 'temporally embedded process of social engagement, informed by the past (in its habitual aspect), but also oriented towards the future (as a capacity to imagine alternative possibilities) and towards the present (as a capacity to contextualize past habits and future projects within the contingencies of the moment)' (ibid.: 963). In the context of urban future-making, importantly, the materiality of the built environment, due to its longevity and the major time investment required to transform it, also has a decisive impact on the temporal dimensions of agency.

Acting on behalf of others

We find a more straightforward understanding of agency in microeconomics and business studies. Here, professional agency is modelled in a bilateral contractual relation between client (principal) and contractor (agent). The straightforwardness of this approach is exemplified in two central aspects that well reflect the way economic theorizing addresses social phenomena in general: First, agency is seen as part of a relationship between two different parties, in which one actor acts on behalf of the other (e.g. Arrow, 1985). While this basic analytical setting contextualizes individual action, it does so in the narrowest possible fashion: as a bilateral relation. Second, business economics (and several related literatures) discusses the nature of the agency relationship primarily as a problem. The relation involves an '*information asymmetry* – agents typically know more about their tasks than their principals do' (Pratt and Zeckhauser, 1985: 3; emphasis added). Thus, scholars in this field see, first and foremost, a challenge in the fact that an actor appointed by somebody else has some ability to act autonomously, based on his or her advanced professional knowledge and expertise.

Research that builds upon the principal–agent setting abounds, partly seeking to translate the problem of information asymmetry into the formalized language of economic modelling, partly applying the theory to a variety of economic and organizational contexts (for an overview, see Eisenhardt, 1989). One important strand of research addresses contractual and institutional 'mechanisms and arrangements' (Pratt and Zeckhauser, 1985: 3) that help mitigate the agency problem by trying to incentivize the agent to behave in accordance with the principal's interests. With regard to organizational

research, Kathleen Eisenhardt (1989: 71) argues that agency theory is particularly useful where 'contracting problems are difficult' and goal conflicts between managers and professionals are likely to arise. As an example, the author points to 'topics such as innovation and settings such as technology-based firms' (ibid.) because of the uncertainty inherent in the assessment of outcomes and the different attitudes of principals and agents to risk.

On the one hand, applying agency theory to innovation and uncertainty resonates well with our focus on future-making. Also, the principal-agent constellation can be applied to the professional agency that we address here. Built environment professionals generally act on behalf of others: building owners, policymakers, or senior staff in public administration, for instance. And, in their activities, they do have advantages over these principals in terms of expertise and knowledge. On the other hand, however, dealing with this constellation in the narrow sense of principal-agent theory is misleading for three reasons: First, framing the relation primarily as a problem, i.e. as involving the risk of misalignment with the principal's goals, tends to overlook that future-making and innovation require more than the accomplishment of predetermined goals. Therefore, being able to act differently can also be an asset with regard to tackling a future that is either uncertain or characterized by looming perils. Second, while reducing the organizational context to a bilateral constellation helps sharpen analytical focus, this falls short when looking into innovation (and, hence, future-making) as a 'complex relational process' (Garud et al., 2016). Professionals critically need to associate with others, in a variety of principal-agent patterns. Third, the activities of built environment professionals not only take place in interpersonal relations, but essentially affect and are affected by the actual built material world.

Thus, while conceptualizing agency in a principal-agent relation is a fruitful analytical element with respect to the professional making of urban futures, a comprehensive analysis requires more than looking into the difficulties of how bilateral contracts are fulfilled. Eisenhardt, in this spirit, calls for the use of agency theory '*with complementary theories*' (Eisenhardt, 1989; emphasis in original) in order to embrace the complexity of professional activities related to the built environment in (not only) organizational contexts. Therefore, for the purpose of urban future-making, using agency theory requires, above all, considering a capacity to act *otherwise*, on the basis of expertise as a potential from which urban futures may arise. This requirement also calls for a more pronouncedly sociological approach to agency, and recent literature on organizations, it seems, is already following such a call, partly drawing on Gid-

dens's theory of structuration (e.g. Pontikes and Rindova, 2020), partly mobilizing actor–network theory and related work (e.g. Czarniawska, 2004; Steen et al., 2006).

Acting as built environment professionals in society

Over the preceding two sections, we have maintained that both social scientific and business-related approaches to agency offer useful starting points for understanding the professional activities that we are primarily concerned with in this volume. In this section, we seek to further substantiate our conceptualization of professional agency by clarifying some of the key characteristics of the actual professions of urban future-making. In principle, these professions involve the academic disciplines of architecture, (civil and construction) engineering, and planning. When it comes to execution, these disciplines are complemented by skilled crafts and trades as well as by non-specialist support staff.

The three disciplines of architecture, engineering, and planning have different historical and academic roots and traditions, which also differ depending on the national context. Speaking for European contexts, some general characteristics can nevertheless be identified: Architecture, typically, is seen to build on the arts and humanities. Creativity is perceived to be at the centre of the design process, and the myth of the 'creative genius' still shapes the professional identity and public perception of architects (Cuff, 1992; Stevens, 1998). Engineering, in contrast, is characterized by a natural sciences paradigm, with elements from mathematics, mechanics, and material sciences. This goes along with a problem-solving habitus. Typically, the public profile of engineers is less pronounced than that of architects (Bulleit et al., 2015). Planning is the youngest of the three disciplines and has acquired its formalized status only in the context of the post-war welfare state, typically associated with tasks of the public sector. It combines elements of both architecture and engineering, together with a variety of social science approaches, which has contributed to decades-long debates about what the actual core of the discipline is (for a starting point, see Wildavsky, 1973).

Applying our discussion regarding professional agency to these three disciplines requires, first and foremost, dealing with them as professions. Following the sociological scholarship on professionalism (Abbott, 1988), professionals are defined by their authority to act within certain predetermined jurisdictional boundaries. This authority derives from specialized as well

as standardized forms of knowledge and is secured by controlled access to professional associations. Educational curricula maintain this exclusivity; they are standardized around core components that form the prerequisite for becoming a member of these professional associations as a practitioner. Along with providing the legal base of the profession, education is also a major source of socialization, where professional networks are established and typical elements of professional practice are introduced and taught (Cuff, 1992). This involves studio work in architecture, laboratory experiments in engineering, and project-based courses in planning. Competitions are a core element of professional culture across the three disciplines and are a prime tool of peer-to-peer recognition and source of cultural capital (Lipstadt, 2003).

As already elaborated above, Bourdieu's work on the concept of the habitus lends itself particularly well to the analysis of the generative systems of dispositions, values, and ethics that define professional cultures (Stevens, 1998; Grubbauer and Steets, 2014): Breaking this professional habitus down to its essence, we can identify a key disposition towards creativity for architecture, a key disposition towards problem-solving for engineering, and a key disposition towards the public good for planning. For all three, tensions are notable when these dispositions conflict with the requirements deriving from contractual relations to the client (Marcuse, 1976). In contrast to what principal-agent theory suggests, these tensions do not primarily add to client uncertainty but rather affect the professional autonomy of the built environment-related disciplines. Take architecture: Where money rules and wealthy clients raise their demands, the values of architects may be compromised. Similar problems are encountered by engineers: Being perceived as serving the architectural design, their practices depend on the decisions of architects and clients alike. Both can contradict engineers' habitualized orientations towards functionality or material efficiency. Planners, finally, are often seen as being largely dependent on politics, with the public sector being employer or client. Planning decisions, then, are shaped by power relations which often pay little respect to professional expertise (Flyvbjerg, 2002). Professional practice (and expertise) thus continuously faces competing value systems, and built environment professionals have to deal with these in order to act effectively and in line with their own habitual orientations.

Importantly, the three built environment professions are all characterized by a specific knowledge base. While rooted in different academic worlds, all three are applied disciplines, with an implicit orientation towards action. Action is, thus, shaped by professional routines and techniques – i.e. practices

– such as modelling, calculating, forecasting, scenario planning, and prototyping as tools of decision-making. These routines and techniques allow for developing ideas, reducing complexity, and testing solutions. In accordance with practice theory (see above; Reckwitz, 2002; Nicolini, 2012), an important role can be ascribed to material objects in these processes, in the sense of ‘acting with things’ (Beauregard, 2015). These artefacts assume different and varying communicative functions throughout design and implementation processes (Ruge et al., 2022). The latest practices in each professional field are reflected in building norms and standards which legally regulate professional action and have decisive impact on risk assessment and project costs; the relation of norms and standards to innovations, i.e. changes in professional practices, however, is a deeply ambivalent one. While norms and standards are incrementally adapted to technological change, they provide little room for flexibility and, in practice, often have to be circumvented in creative ways (Grubbauer and Dimitrova, 2021).

Professional agency in the light of uncertainty

In a nutshell, the insights from the above discussion can be summarized as follows: Professional backgrounds, on the one hand, afford and frame specific agency for urban future-makers by providing them with authority based on specialized expertise and competences, underpinning their professional habitus, and providing routinized practices that reinforce and reproduce both authority and habitus (Schön, 1983; Cuff, 1992). On the other hand, this agency of professionals in the architecture, engineering, and planning disciplines is necessarily entangled with relational and institutional environments beyond the narrow professional context (Schatzki, 1996; Latour, 2005). Consequently, agency in urban future-making is also distributed throughout a wide and diverse field of agents and their varying sources of authority, value systems, and knowledge bases (Garud et al., 2016; Pontikes and Rindova, 2020). Moreover, this agency essentially involves the actual materiality of the built environment, which represents the legacy of past decisions and, at the same time, shapes temporal contexts of present action (Emirbayer and Mische, 1998).

To reiterate Giddens’s (1984: 14) account of agency, producing an ‘effect of influencing a specific process or state of affairs’ with regard to urban future-making therefore presupposes taking into account – i.e. establishing, stabilizing, building on, or mobilizing – the socio-material structures pro-

professional agents are entangled with. Recent scholarship has increased the expectations placed on professional agency, looking to professionals as 'front runners' (Loorbach et al., 2017) and agents of change within today's unstable and rapidly transforming societies (Doucet and Cupers, 2009; de Roo, 2017). However, heightened instability and rapid transformation, in our view, add to the uncertainty that professionals in the built environment face. The next step in our argumentation is therefore to address this uncertainty and to examine its role in present-day professional contexts more thoroughly.

Sources of uncertainty

Dealing with uncertainty as part of urban contexts is nothing new, especially when the future is involved (Zeiderman et al., 2015). Indeed, the tools and techniques of built environment disciplines have been developed in the modern era exactly in order to enable decision-making in the context of uncertainty (Christensen, 1985). In the social sciences, uncertainty, typically, is conceptualized by distinguishing it from risk (Beck, 1992). While the latter is considered predictable and calculable, uncertainty essentially exhibits incalculability and fundamental openness (Knight, 1921; Scoones and Stirling, 2020). Technologies of forecasting and risk assessment have long sought to reduce uncertainty to a calculable range of possible outcomes in all spheres of economic action (Beckert, 2016). Pertinent literature, however, highlights that contemporary processes of urban transformation are increasingly characterized by unpredictability, side effects, and non-linear outcomes (Balducci et al., 2011; de Roo, 2017). For instance, despite the capacity of scientific forecasts regarding climate change and tipping points to predict future patterns, the timescale effects of these phenomena in urban environments are uncertain (Mehta and Srivastava, 2020). Also, for many technological innovations now existing as prototypes and pilot projects, for instance in the field of transport and traffic, it remains unclear how (and/or when) their widespread implementation under real-life circumstances could become reality (Manderscheid, 2018; Thiel, 2020).

While there is, hence, a general agreement about the urgent need to act to mitigate the effects of climate change and other environmental threats, the actual what and how of that action still seem uncertain. Contrary to what is usually assumed (e.g. Ibert, 2007; Grabher and Thiel, 2015), urgency in the current situation does not enable action by reducing complexity. Thus, uncertainty and urgency still coexist. For the purposes of this chapter, we want to highlight

four sources of this enduring uncertainty that particularly impact professional agency related to built environment disciplines in the present moment.

Uncertainty concerns, first, the spatial boundaries – or boundedness – of strategies and interventions aiming to transform the built environment. For instance, mainstream planning (Moroni, 2017) but also progressive concepts of urban citizenship and the like all build on the normative idea that the local community affected by specific projects can be identified and should be involved in decision-making (Rolnik, 2014; Blokland et al., 2015). The same holds for the (environmental, social, etc.) impacts of buildings on the local environments in which they materialize. Climate change (as many environmental hazards) puts this assumption in question: Phenomena currently associated with climate change don't respect spatial, administrative, or sectoral boundaries, nor local anchorings, as Harriet Bulkeley points out in her discussion of the 'climate connected city' (Bulkeley, 2021); the complexity of ecological interdependencies and rebound effects undermines attempts to identify causes and effects within a defined territory (Beck, 1992). Also, growing social inequality, as well as the complexity of identifying specific social practices and lifestyles to hold responsible for climate change, questions the idea of local communities or groups of users as target groups for built environment disciplines.

Second, uncertainty around built environment action increasingly results from difficulties in aligning distinct temporal horizons (Laurian and Inch, 2018; Haarstad et al., 2023). The conflict between short- and long-term aims in planning is not new, and negotiating such differences has long been identified as a key task of planning. Also, envisioning, modelling, and forecasting how buildings and infrastructures will behave over time is part of architectural and engineering practice. However, in the current situation, temporal horizons of different stakeholders in planning and construction processes are not only conflicting: They are shifting and subject to uncertainty themselves because established criteria and modes of calculating risks, costs, and benefits based on life cycles in the built environment are up for revision (Chappells and Shove, 2005; Gram-Hanssen and Georg, 2018). Most importantly, the fundamental tension between the urgent need for transformation and the inherent inertia of the existing built environment translates into intricate decision-making problems. For example, the question of how to measure future costs invoked by built structures and their maintenance is a key issue for built environment professionals (Petit-Boix et al., 2017). Life-cycle assessment now involves sophisticated simulations and projections far into the future. These depend on contingent factors in the material properties of buildings and infrastructures,

but they also depend on decisions on how to value and incorporate previously externalized ecological and social costs (e.g. Backes and Traverso, 2024). This increasingly involves ethical considerations on which populations – those of the present versus those of the future – to prioritize (see Grubbauer, Volont, and Manganelli in this volume).

Third, uncertainty results from shifts in the established organizational, relational, and institutional arrangements. This particularly relates to the entry of a variety of new actors: These may be new private sector organizations from the technology (Söderström, 2014; McNeill, 2015) or the global consultancy sector (Faulconbridge and Grubbauer, 2015) that foster a digitalization (e.g. Rabari and Storper, 2015) or even ‘platforming’ (e.g. Barns, 2020) of large parts of urban infrastructures. Thereby, the classic array of built environment professions and organizations is being reshuffled both sectorally and geographically. This means that the relevant firms not only operate globally, but increasingly also enter built environment domains that were previously separated. One key consequence is that contractual relations have become an important element of governance in urban development; large-scale projects are subject to complex contracting and procurement, with path dependencies being established as to the future use and operation of digital technologies. Another consequence is that there are also changes within the public sector: State bureaucracies have segmented into sectoral fractions, and governance increasingly occurs through networked and multi-scalar arrangements (McCann and Ward, 2011). This poses challenges for professionals within state administration, as the size and complexity of many transformative projects and interventions in the built environment increasingly require the cooperation of different state levels as well as integrated planning across all built environment domains. Finally, the voices of civil society actors are both more and more demanding and increasingly polyphonic regarding their expressed interests, given the mounting diversity of contemporary societies (Fincher and Iveson, 2017).

This leads to the fourth aspect: Uncertainty increasingly derives from normative conflicts about the values underlying decision-making in policy and planning. As discussed above, built environment disciplines operate on key dispositions which inform education and practice but which also tend to be in conflict with other value systems. At present, these normative frameworks are challenged from two sides: Internally, professionals actively seek to respond to evident urgencies by considering new ethical questions about the societal and ecological benefits of their interventions (Awan et al., 2011; Fitz and Krasny,

2019; Gram-Hanssen, 2024). Research and practice are challenged as it has become more difficult to weigh conflicting ecological, social, economic, and cultural factors against each other. New concepts such as ‘environmental justice’ (Martínez-Alier, 2023) and ‘mobility justice’ (Sheller, 2018) have been mobilized to aim for a more inclusive built environment. Externally, given the shifting actor constellations described above, professionals face an extended array of value systems. One crucial consequence is that normative expectations to actively involve citizens and all kinds of other players in decision-making at all stages have gained in importance (Frantzeskaki and Kabisch, 2016; Castán Broto et al., 2022; Hofstad et al., 2022). Yet, the accountability and inclusivity of these new forms of bottom-up, co-productive, and experimental types of governance is subject to ongoing debate (e.g. Uittenbroek et al., 2022); this poses challenges for and needs to be reflected on by professionals in their roles as experts and administrators responsible for designing such processes.

Responses to uncertainty

To deal with uncertainty, built environment professionals have traditionally adopted three fundamental ways of tackling the future that are designed to secure professional agency. These types differ with regard to how the future (and the knowledge about it) are conceived: as a projection, a project, or a process.

The first approach – a projection – believes in having been or being able to create knowledge about how the future *will be*, seeking to anticipate the future and work towards realizing this projection. Such approaches are documented for a wide range of top-down, rational, and technocratic planning and engineering practices (Breheny and Hooper, 1985; Perry, 1995; Miller and Lessard, 2001). The second approach – a project – intends to create knowledge about how the future *ought to be*. Uncertainty is thus faced by actively shaping the future by setting an aim (or developing an idea) and acting towards it (Wiechmann and Hutter, 2008; Luck, 2018). The third type of strategy – a process – is more modest in regard to professionals’ future-making capacities. Architects, engineers, and planners admit to *not being able to create reliable knowledge about the future* and therefore have to constantly adapt according to opportunities that boundary conditions offer (Lindblom, 1959). Each professional is, thus, an individual in a primarily political game of collective decision-making (Marsden et al., 2014). At present, these three classic modes of urban future-making in built environment disciplines are challenged. Projecting forecasted futures suffers from disruptive moments and the urgent need to act. Design-

ing projects for better futures and working towards them runs the risk of creating new but possibly misleading and irreversible trajectories. Incrementally ‘muddling through’ a process, finally, does not come to terms with the urgency of current crises and looming threats. Built environment professionals need to respond to these changing boundary conditions in order to extend or even maintain their options for agency; currently, three variants of how they might do so can be drawn from the literature.

The first and most prominent is, as mentioned earlier, the adoption of more experimental, adaptive, and flexible attitudes in dealing with uncertainty (e.g. Kaker et al., 2020). A variety of new adaptive approaches for conceiving of urban change is proliferating, attested by a burgeoning literature on ‘experimental urbanism’ (e.g. Evans et al., 2016) and ‘urban living laboratories’ (e.g. Bulkeley et al., 2019). Such new formats establish provisional contexts in which diverse urban stakeholders co-creatively develop, pilot, and test new methodologies and solutions for urban problems. Here, urban space translates into a seedbed or ‘testbed’ (Halpern et al., 2013; Karvonen, 2018) of transition. In some cases, experimentation in cities focuses on user integration in the reorganization of urban infrastructure systems (e.g. van Geenhuizen, 2018); in others, testbeds concern the deployment of new digital or AI-based technologies (e.g. Dowling and McGuirk, 2022). Some commentators even argue that we are entering an era of continuous urban experimentation (Karvonen, 2018; Bulkeley, 2023). The prospects of the ‘experimental city’ are still under scrutiny: While architects, engineers, and planners can certainly rely on long-standing experience with experimental approaches as part of studio work and laboratory testing, the scaling up and out of experiments to urban spaces at large is a new step also for these disciplines. One key question is how – beyond specific groups of targeted users as part of testing and prototyping – inhabitants as a whole are affected by experimentation and what this means for their everyday needs and routines.

As a second strand, and related to these experimental approaches, professionals are considered to proactively embrace more complex actor constellations by acquiring new social roles and thereby reshaping their work environments. When leading experiments conducted interactively with the public and under real-life conditions (Jahn and Keil, 2016; Beecroft, 2023), new types of skills are in need which allow a translation of professional expertise to the public but can also navigate specific capability requirements related to digital technologies. In some cases, municipal professionals emerge as central players (Evans et al., 2021) in, or more specifically as ‘enablers’ (Mukhtar-Land-

gren et al., 2019) of, such co-developed experiments. Still, such new roles entail difficult mediations between conflicting perspectives and are likely to fail in securing inclusivity, particularly regarding civil society actors (Wagner and Grunwald, 2019; Mello Rose et al., 2022; Kohler and Manderscheid, 2024). Crucially, new communicative skills are required in dealing with diverse publics and citizens who are emotionalized about changes that affect their life-world (see Grubbauer, Volont, and Manganelli in this volume). In some cases, professionals also move beyond their activities within firms and organizations and act as part of civil society initiatives in order to address sustainability or justice deficits of established procedures (Awan et al., 2011). Finally, urban future-makers seek to leverage trans-scalar networks and arrangements both to influence processes of multilevel policy-making and to use them as sources of policy learning (Davidson et al., 2019).

A third strand specifically addresses the ways professional agency tackles the future and calls for a more proactive approach in that regard. Ali Aslan Gümüşay and Juliane Reinecke (2024), in a recent intervention, and reiterating core arguments in planning theory (Connell, 2009; Campbell, 2012), focus on the academic roots of professional expertise; the authors insist that academics and professionals need to undertake a conceptual 'double leap' (ibid.: 5) when it comes to future-related reasoning and decision-making. Instead of simply extrapolating from the past – as classic forecasting does – professionals should include imagination as a serious alternative for framing the future; instead of remaining strictly value-neutral, future-making should also include value-led approaches of grasping the time ahead. For built environment professions, such a 'double leap' can strengthen their 'double' professional identity as 'doing'-oriented professions with academic socialization (Grubbauer and Shaw, 2018) because both imagination and judgement are an inherent part of their everyday practice. Gümüşay and Reinecke's (2024) intervention, then, also resembles earlier pleas for a proactive engagement with the uncertainty and complexity that the future(s) offer (Callon et al., 2009; Nowotny, 2016). A double leap towards risky speculation can therefore bring the academic and the practical sides of the built environment professions closer together, both in terms of problems and their potential solutions, but also in terms of shaping the socio-material environments in which future-making takes place. One important – albeit ambivalent – consequence of these recent attempts to explicitly address future-making practices as object of theorizing as well as empirical research is that practitioners themselves become targets of research and experimentation (e.g. Durante et al., 2024).

Conclusion

This chapter has been, first and foremost, a conceptual contribution to understanding the current conditions of professional agency in urban future-making. We have sought to examine how this agency can be conceptualized (and made possible) in the light of the present challenges of a simultaneous increase in urgency and uncertainty. For this purpose, we mobilized different literatures related to agency from sociology and economics and applied their insights to the specifics of built environment professionals. We then outlined the changing boundary conditions of urban future-making today and summarized recent accounts of possible professional responses to these conditions.

When it comes to the general framing of professional agency, we found that the literature offers two foundational approaches to agency: The first (mainly) draws on first-generation practice theories and addresses in particular the potential for deliberate and effective action against the backdrop of structural boundary conditions that are both limiting and enabling. For the professions we have looked into, it is most clearly Bourdieu's concept of (professional) habitus that mirrors this approach. The dispositions, values, and identities (and the list goes on) that this habitus contains provide built environment professionals with a degree of authority but also limit their scope of action. Currently, this habitus is confronted with an increasing uncertainty – as the temporal and spatial framework of action becomes blurred, new players enter the field, and professional values tend to lose their absolute validity. The second approach to agency draws on second-generation practice theories as well as actor–network theory and related literatures, framing agency as 'distributed', i.e. occurring within or through socio-material contexts. Proactively embracing these contexts is, hence, a key element of professional agency. For built environment professionals, this requirement is particularly relevant with regard to the actual materiality of the urban fabric.

In our view, juxtaposing both foundational approaches offers an interesting twist: Bringing in the socio-material context as a key to professional agency seems to call into question the actual foundations of the professional habitus – its knowledge base, expertise, practices, and values. Tackling the structural socio-material environment of professional activities would therefore be a new requirement for the professional repertoire of architects, engineers, and planners who can no longer simply rely on their habitualized professional authority. This requirement would therefore also have to be an element of university curricula and change the rules of access to professional

associations. At the same time, however, purely relying on structural work of network manipulation and the like runs the risk of losing sight of professional values and reducing professional agency, in a way, to tactical activities of building and stabilizing 'action nets' (Czarniawska, 2004). This is where the value base of the professional habitus comes into play again. When we finally try to give an answer to the question that we raised at the outset of this chapter, we hold that a conjunction of these two basic approaches to agency provides the conceptual guidance for understanding both the *agency* of urban future-makers and the ways of how that agency can be translated into *action* which accepts and embraces uncertainty.

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Contested Governance and Policy-Making

4. Mayors' net-zero pledges at COP26

Building momentum and gaining influence in climate politics

Emilie D'Amico

Introduction

At the World Leaders Summit marking the opening of the COP26 conference in Glasgow on 2 November 2021, the mayor of Los Angeles and chair of C40, a worldwide network of megacities cooperating to address climate change, took the stage and addressed an audience of heads of state and government with the following words:

At a time of immense worry, I come here with a message of intense hope. [...] Tonight my friends, I am proud to announce the biggest pledge at COP outside national commitments: that Cities Race to Zero has produced a global coalition of over 1,000 cities and local governments representing 722 million people, more than a quarter of world GDP, committed to reaching net-zero emissions by 2050 and cutting their fair share, our fair share, of global emissions in half by 2030. The UN says that our collective action has the potential to reduce global emissions by at least 1.4 gigatons of CO₂ emissions by 2030, annually.

The mayor's statement was a much-awaited highlight of the summit for the urban community attending COP26. His speech blended the traditional language of state diplomacy with a compelling rhetoric of urgency, aimed at positioning mayors as key leaders in international climate politics, assuming a shared responsibility with national governments to address climate change. His ambitious announcement reflects mayors' long-standing attempts to secure international recognition for their capacity to organize and coordinate across borders, to translate the latest scientific insights into political ambition, and

to mobilize support for climate action. Even more, his performance illustrates how, driven by their increasing visibility on global stages after the adoption of the Paris Agreement in 2015, thousands of mayors have committed to accelerating urban decarbonization and achieving 'net-zero emissions' by mid-century to maintain hope in climate cooperation.

Figure 1: Keynote speech of the Mayor of Los Angeles and C40 Chair Eric Garcetti, World Leaders Summit Interludes, COP26 plenary session, 2 November 2021.



Source: United Nations Framework Convention on Climate Change (UNFCCC) YouTube channel.

The concept of 'net-zero emissions' has assumed a central role in recent climate policy discussions. This evolution can be attributed to several interconnected factors, encompassing a shifting landscape of international cooperation, deepening scientific consensus, and a growing sense of urgency among decision-makers. The adoption of the Paris Agreement in 2015 marked a pivotal moment, with nations collectively agreeing to limit global warming 'well below' 2°C compared to pre-industrial levels, and to pursue efforts to hold it to 1.5°C, by the end of the century (Bodansky, 2016). This ambition was given further impetus following the publication of the Intergovernmental Panel on Climate Change (IPCC) Special Report on Global Warming of 1.5°C in 2018, which strengthened scientific consensus on the implications of possible emission trajectories for end-of-century temperatures (Schnuit, 2023). The report under-

scored the catastrophic consequences of exceeding a 1.5°C increase in global warming and emphasized the critical need for net-zero emissions around 2050 to achieve this target (IPCC, 2018). Reaching net-zero requires rapidly cutting global greenhouse gas emissions and developing carbon removals to compensate for all residual emissions by 2050 (Fankhauser et al., 2022). In a similar vein, the Summary for Urban Policymakers of the IPCC's Sixth Assessment Report (2022) pinpointed cities as offering the opportunity for systemic responses across the five key systems requiring deep decarbonization by mid-century to achieve the 1.5°C goal, encompassing transitions in urban infrastructures, industry, energy, society, and land and food systems (Babiker et al., 2022: 10).

Decarbonizing cities is one of the most pressing, yet most intricate, challenges to addressing climate change. Globalization and deregulation since the 1970s have entangled cities in complex flows of fossil fuel dependence, stemming from high import levels of electricity, fuels, water, food, and materials, causing chains of extraction, deforestation, and emissions beyond their geographical boundaries and spanning the globe (Sassen, 2005; Sassen and Dotan, 2011; Ramaswami et al., 2021). Currently, the production and consumption of goods and services in urban areas contribute to roughly 70% (~28 GtCO₂-eq) of global CO₂ and CH₄ emissions worldwide, a figure projected to rise with accelerating urbanization throughout the 21st century, often described as the 'urban century' (Ürge-Vorsatz and Seto, 2018; van der Heijden et al., 2019). By 2050, the total urban footprint could vary from 34 to 65 GtCO₂-eq annually, due to population growth and increased demand for urban infrastructures and services (Rosenzweig et al., 2018; van der Heijden, 2019). Effectively addressing this challenge is a complex task, since cities' decarbonization demands high levels of coordination across governance levels and between actors (Fuhr et al., 2018; IPCC, 2022: 863). In fact, urban emissions result from complex interactions of ecological contexts, urban forms, economic activities, and residents' lifestyles (Creutzig et al., 2015; Kennedy et al., 2015; Currie and Musango, 2016). Furthermore, while urban policies directly influence energy consumption in buildings, transportation, and waste management, they are shaped by decisions taken at supranational, regional, national, and various subnational levels (Lamb et al., 2018; Seto et al., 2021; Hsu et al., 2022). Ultimately, deep urban decarbonization requires profound sectoral transformations, which will vary considerably depending on the specific context of each city (Currie and Musango, 2016; Babiker et al., 2022).

Given these challenging, fragmented, and uncertain pathways to urban deep decarbonization, how did over 1,000 cities around the globe come to adopt ambitious net-zero emissions targets in record time following the publication of the IPCC Special Report on Global Warming of 1.5°C? This chapter delves into the dynamics underpinning this achievement to shed light on the evolution of urban climate governance following the adoption of the Paris Agreement. It contends that the 26th Conference of the Parties to the UN Framework Convention on Climate Change (COP26), held in Glasgow in November 2021, played an essential role in mobilizing cities and facilitating consensus on the net-zero urban policy goal at such speed and scale. Applying a dramaturgical lens on environmental politics (Hajer, 2009) and climate summits (Aykut et al., 2022b), this chapter analyses COP26 as a carefully orchestrated performance that propelled mayors to the forefront of climate governance to reignite hope in the multilateral process. The analysis reveals that, amidst growing disillusionment and escalating political tensions in international politics, the collective net-zero pledges of over 1,000 cities served as powerful rhetorical devices to strengthen political momentum for enhanced national climate ambitions while supporting mayors' advocacy for multilevel institutions and local empowerment. This dramaturgical perspective offers several contributions to the literature on urban climate governance. First, it expands our understanding of COPs beyond their function as state-centric negotiation forums, highlighting their role as platforms for constructing and disseminating narratives of urban futures. Second, it underscores the agency of multiple actors, including the COP Presidency, the Secretariat of the United Nations Framework Convention on Climate Change (UNFCCC Secretariat), and transnational city networks' leaders and sponsors, in shaping urban narratives through practices of *scripting*, *staging*, *performing*, and *reframing*. Third, it allows critical reflections on the transformative potential of net-zero framings and, more broadly, on opportunities and tensions stemming from cities' increasing participation in climate summits.

The following section outlines the theoretical framework of this study, grounded in dramaturgical analysis and ethnographic observations, to unpack how COPs function as performative spaces to construct shared beliefs and expectations on climate action. Subsequently, the empirical analysis begins with an examination of the *role scripts* and *stages* provided by UNFCCC leaders for COP26, before delving into the overarching narratives of mayors' *performances*, focusing on the rhetorical strategies employed to position cities as role models in climate action. The final two sections critically discuss the

transformative potential of net-zero pledges. Specifically, while mayors used their commitments to *reframe* multilevel governance as the path forward for strengthening collective responses, they inscribed urban climate action within the prevailing neoliberal paradigm of greener capitalism, thus reinforcing market-driven approaches to urban decarbonization and concealing debates on systemic issues such as high urban consumption, rising inequalities, and the need for economic transformations.

Unpacking mayors' performances at COPs: A dramaturgical perspective

The Paris Agreement, adopted at COP21 in 2015, marked a significant shift in the architecture of global climate governance. The treaty replaced the approach established by the Kyoto Protocol, characterized by binding national targets and top-down compliance mechanisms, with a novel 'catalytic and facilitative' model that rests on two dynamics (Hale, 2016). First, it requires states to submit national action plans, the Nationally Determined Contributions (NDCs), for their regular assessments in multilateral settings at the COP. This mechanism of *pledges and reviews* aims to build trust and encourage the gradual enhancement of countries' ambitions to converge towards the collective temperature goal (Bodansky, 2016; Keohane and Oppenheimer, 2016; Held and Roger, 2018). Secondly, the Agreement enshrined the crucial role of voluntary contributions from non-state actors, especially local governments, in supporting ambitious climate action (Chan et al., 2016; Hale, 2016; Castán Broto, 2017). The recognition of cities' contributions to collective responses followed decades of city advocacy at COPs, coordinated through the transnational networks C40, the EU Covenant of Mayors, and ICLEI – Local Governments for Sustainability (initially established as the International Council for Local Environmental Initiatives) (Acuto, 2013; Bulkeley et al., 2014). Following this landmark recognition, annual climate summits have witnessed a surge in cities' participation. Under the Marrakech Partnership for Global Climate Action agenda, COPs regularly convene meetings and events dedicated to urban challenges, especially on the annual Human Settlements Day (Chan et al., 2016). In order to ramp up their influence in these settings, transnational city networks have coalesced into a joint initiative, the Global Covenant of Mayors, representing over 10,000 local governments worldwide at climate summits (Gordon, 2018; van der Heijden, 2018).

Scholarly inquiries into global climate governance have progressively evolved from examining multilateral negotiations to exploring the practical unfolding of treaty provisions and specific dynamics for bolstering climate ambition in a *soft* regime. In this context, the concept of *orchestration* has emerged to better understand how to coordinate diverse cities' responses and facilitate polycentric climate action (Abbott, 2017). This approach has primarily emphasized the role of the UNFCCC Secretariat in providing financial, material, and discursive resources, and 'brokering' knowledge to support city-level initiatives (Hale, 2016; Saerbeck et al., 2020). It has also highlighted the intermediary role of transnational networks in diffusing transparency rules and standards to steer cities' climate action in line with climate policy goals (Gordon and Johnson, 2017). While these studies offer valuable insights, they overlook the coordinating function of climate summits for city-level action. This article addresses that gap by adopting a dramaturgical perspective on mayors' performances at COP26. This approach is grounded in the view that public performances are inherent to politics and policy-making in a media-tized age, a key tool of government to act upon actors' beliefs, and on their perceptions of possible futures, and ultimately influence their preferences and action in the present (Hajer, 2009; Oomen et al., 2022). Unpacking this performative dimension of policy-making entails examining not only discursive practices around *what* is being said, but also *how*, *where* and *to whom* these statements are being made, thus capturing the use of visuals, symbols, gestures, and affects to address specific audiences (Hajer, 2009). Already, this dramaturgical perspective has highlighted the key role of climate summits in catalysing momentum for climate action and encouraging multiple actors to engage in low-carbon transitions (Aykut et al., 2022a; 2022b).

Climate summits are privileged sites for observing climate governance in action. Functioning as 'distinct technologies of government', these mega-events gather multiple actors, whose convergence in a delimited time and space facilitates the production of novel discourses and symbols of climate ambition to shape the perceptions and expectations of global audiences (Death, 2011). These performances have become a cornerstone of the 'catalytic and facilitative' climate regime, a dynamic closely orchestrated by UNFCCC leaders. Notably, the COP Presidencies and the UNFCCC Secretariat have *scripted* the overarching narrative and visual symbols of COPs, expanded COP *settings* to encompass a large panel of interactive and highly publicized side events, and deliberately *staged* multiple actors to convey the message of inclusive climate governance (Aykut et al., 2022a).

As these elements suggest, climate conferences are far from being monolithic stages. Instead, they constitute complex spaces encompassing a multitude of events, where diverse actors and interests converge to address specific audiences (Aykut et al., 2022b). In particular, the growing participation of mayors and urban policy-makers points to the significant role of COPs as platforms for constructing and disseminating urban imaginaries and norms at the transnational level. Scholarship on urban policy mobility provides a valuable lens for understanding this phenomenon. Accordingly, international urban events have a central role in mobilizing peers, shaping urban narratives and garnering buy-in for specific urban policies (Pow, 2014). Their performative power consists in providing a stage for pioneering city leaders to showcase their actions and gain public recognition for their achievements, thus effectively bringing desirable urban models to life (Pow, 2014). They also catalyse the production of influential reports and 'best practice' guides, which contribute to the formation of hegemonic urban knowledge and paradigms, ultimately framing the possibility space for policy solutions (Parnreiter, 2011).

This chapter delves deeper into the performative dimension of climate summits to explore their role in shaping paradigms for urban futures. By unpacking how these events function as platforms for disseminating specific visions, we gain valuable insights into the evolving dynamics of polycentric urban climate governance, especially in terms of understanding how cities shape and are shaped by global environmental agendas, but also by emerging tensions arising from top-down framings of urban climate futures. The analysis draws on ethnographic observations of the COP26 summit, organized in Glasgow, Scotland, in November 2021. Following a two-year delay in climate negotiations due to the Covid-19 pandemic, this two-week conference was a central convergence point for over 40,000 participants, including heads of state, climate leaders, practitioners, researchers, lobbyists, and activists. Notably, nearly 400 mayors, decision-makers, and practitioners from national and local administrations, as well as from NGOs and transnational networks, participated in the summit under the banner of the Local Governments and Municipal Authorities Constituency (LGMA), the official stakeholder group for local authorities under the UN Framework Convention on Climate Change (Acuto et al., 2023). Data was collected on 29 urban-related events, focusing on their format, visual messaging, atmosphere, and lineup of organizers and speakers, while unstructured observation notes and photographs enriched data collection on actors' performances. Following the key components of the dramaturgical approach as delineated above, the analysis consisted of

observing the specific *script* (i.e. the official agenda and expected roles), *settings* (i.e. the physical space and visual symbols), *staging practices* (i.e. the actors brought on scene) and *performances* (i.e. the rhetorical practices and discourses) surrounding mayors' interventions.

The script: A wave of net-zero pledges for the 'Action COP' in Glasgow

The late 2010s witnessed a heightened sense of urgency around climate action, fuelled by mounting evidence of a widening emissions gap to achieve end-of-century temperature goals. The 2018 IPCC Special Report on Global Warming of 1.5°C served as a tipping point, prompting the UNFCCC leadership to frame COP26 as a critical juncture. The summit took place within a tumultuous geopolitical landscape characterized by the growing polarization of global politics and the announced US withdrawal from the Paris Agreement. It was also convened in the wake of widespread social unrest that had laid bare the political constraints of stronger climate policies. In fact, while the Fridays for Future movement was gaining ground in several countries, demanding stronger action on climate change, it was juxtaposed with public protests over growing inflation and rising inequalities. In particular, public riots in Chile had forced the last-minute relocation of COP25 from Santiago to Madrid in 2019, while the Yellow Vest movement in France raised awareness of the low social acceptance of climate policies perceived as unfair (Aykut et al., 2020). These challenges were further compounded by the Covid-19 pandemic, which had put climate negotiations on hold in 2020 and cast an additional shadow of uncertainty on states' ambitions, particularly within the G20 countries. As countries were preparing their revised NDCs, the extent to which economic recovery plans would prioritize green investments or lock in additional fossil fuel investments became a primary concern and constituted a first stress test for the *pledges and reviews* regime.

In this context, UNFCCC leaders crafted an ambitious narrative in the lead-up to COP26, emphasizing net-zero pledges as the 'last hope' for bridging the emissions gap. This narrative constituted a *role script* for COP participants, disseminated during multiple global events organized throughout the year-long interruption of the UNFCCC process in 2020. Notably, the June Momentum for

Climate Change event¹ witnessed the UN Secretary-General and UK COP Presidency launch the Race to Zero Campaign, and the Race to Zero Dialogues held in November 2020² served as a platform for assessing progress and catalysing additional announcements. These events provided a stage for UNFCCC leaders to announce the adoption of climate neutrality targets for 2050 by the European Union, the United Kingdom, Japan, the Republic of Korea, and 110 additional countries, including China, which had communicated to aim at carbon neutrality by 2060. They also disseminated urgent calls on national governments to leverage the growing momentum from businesses, financial institutions, and local governments to raise their ambitions in updated NDCs due at COP26.

The Race to Zero campaign also targeted the mobilization of non-state actors. The outgoing and incoming COP Presidencies closely coordinated this objective through appointing two Climate Champions mandated to facilitate the engagement of the business community and civil society with the COP. In response to their call for net-zero pledges, city networks composing the Global Covenant of Mayors attended the Race to Zero Dialogue with the ambitious announcement to recruit 1,000 cities before the Glasgow summit.³ In the following months, through sustained consultations with the UK COP Presidency and internal mobilization efforts through the Cities Race to Zero campaign, this target became the new cornerstone of their advocacy road map. Eventually, the campaign successfully mobilized long-recognized pioneering mayors alongside newcomers from diverse regions, securing significant visibility for mayors at COP26.

The In, the Off, and the Fringe: Stages of mayors' performances

COP26 marked a significant departure from the traditional state-centric model of global climate governance, with a large degree of participation from mayors and other urban leaders. This section analyses their participation in

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- 1 June Momentum for Climate Change observation, Race to Zero Launch, online event, 5 June 2020.
 - 2 Race to Zero Dialogues observation, UN Secretary-General Opening Speech, online event, 9 November 2020.
 - 3 C40, 'Campaign announced to mobilize 1,000 cities for a green and just recovery to address global climate emergency', C40 press release, 9 November 2020.

multiple events across the COP venue, highlighting the strategic use of their collective net-zero pledges in different spaces to target specific audiences and amplify their message.

A first format consisted of mayors' official statements during plenary sessions, the heart of COP negotiations, where states' delegates negotiate specific agenda items and adopt the final COP decision (the 'In'). Here, mayors regularly stressed their leadership and collective mobilization within transnational city networks to formulate claims to the COP. For instance, at the COP26 opening ceremony on 31 October 2021, the mayor of Tegucigalpa emphasized his leading role in the mobilization of hundreds of Honduran and other Latin American local governments before conveying their shared expectation for an ambitious outcome at the COP.⁴

Beyond formal negotiations, a rich program of official side events ('the Off') offered a central platform to elevate urban issues and showcase mayors as front-runners in climate action. Especially the Multilevel Action Pavilion was a space dedicated to discussions on urban topics (Figure 2). Its daily themes mirrored the COP program to signal a strong alignment between city-level and international political agendas. Its spatial design, featuring an open stage, symbolized cities' openness to dialogue and accountability in global climate governance, while background images of wind farms and water infrastructures displayed their forward-looking vision for climate-resilient futures. These side events staged mayors sharing their individual journeys from awareness to commitment and leadership, showcasing successful initiatives and sharing the lessons learned. These success stories often emphasized the assistance provided by city networks in overcoming local challenges, with the aim of inspiring and motivating other city leaders to follow suit.

4 COP26 observation, keynote speech of the Mayor of Tegucigalpa Nasry 'Tito' Asfura, LGMA Opening Statement at the COP Opening Ceremony, plenary session, 31 October 2021.

Figure 2: Multilevel Action Pavilion in Glasgow, COP26.

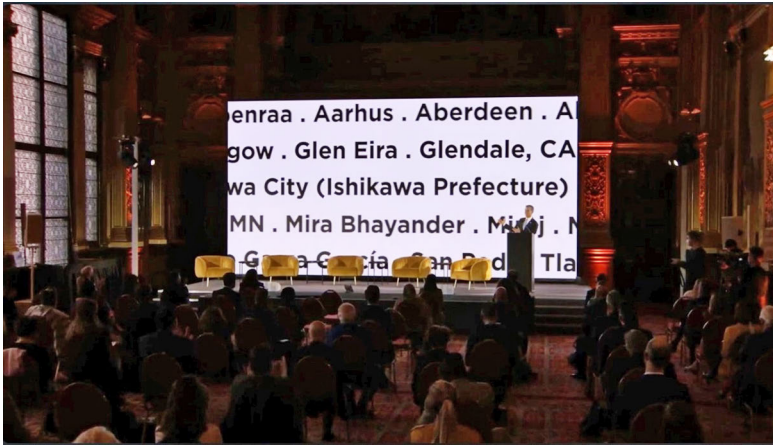


Source: Author.

Mayors have also used the spotlight of climate summits to organize parallel urban events outside of the COP venue ('the Fringe'). In particular, the C40 network regularly holds its annual summit on the opening days of COPs, as a vibrant demonstration of mayors' bottom-up mobilization and critical scrutiny on climate negotiations. At the C40 summit held in the Glasgow City Chambers on 2 November 2021,⁵ the Mayor of Los Angeles and C40 Chair Eric Garcetti celebrated the collective power of 1,000 cities committed to net-zero emissions before an audience of peer mayors, praising cities' collaboration in networks as a promising alternative to multilateral gridlock. Meanwhile, behind him, a scrolling list of cities announcing net-zero pledges reinforced the narrative of an unstoppable wave of local climate action (Figure 3).

5 COP26 observation, World Local Leaders Summit: Our Last, Big Chance: Why Our Future Depends on Action Taken Today in the World's Cities, side event, Glasgow City Chambers, 2 November 2021.

Figure 3: Opening speech of the Mayor of Los Angeles and C40 Chair Eric Garcetti, C40 World Local Leaders Summit, COP26 side event, 2 November 2021.



Source: C40 YouTube channel.

While side events and parallel city summits have been the primary avenues for mayors' advocacy at COPs, the Paris Agreement ushered in a new era for non-state participation at COPs by introducing Global Climate Action events. Coordinated by the COP Presidency and the UNFCCC Secretariat, this format comprises High-Level Presidency Events, UNFCCC official side events, and public happenings in the Climate Action Hub. There, talk shows, movie projections, award ceremonies, and special announcements create a vibrant and enthusiastic narrative on the dynamism of climate action, in sharp contrast with the sober and sometimes tense atmosphere of plenary sessions. In the past years, their central location within the COP venue on the path to negotiation rooms, coupled with extensive media coverage, have contributed to sending the powerful signal of a 'groundswell of climate action' driven by pioneering individuals, companies, and cities (Aykut et al., 2020). Mayors have enjoyed great visibility at these events. At the COP26 Climate Leaders Special Event dedicated to reward ambitious local decision-makers,⁶ representatives from Paris, Samsø, and Guadalajara presented their long-

6 COP26 observation, Climate Leaders Special Event, UN Global Climate Action Awards at COP26, Global Action Hub, 9 November 2021.

term visions and sectoral targets for the deep decarbonization of their respective cities to a cheerful audience gathered to acclaim their leadership (Figure 4). Furthermore, the Cities and Human Settlements Day offers the most concentrated focus on urban climate action at COPs. This day features High-Level Presidency Events, where mayors, ministers, UN officials, and network representatives convene to discuss national experiences related to the revision of NDCs and to showcase pioneering examples of successful national–subnational collaborations in this process.⁷

Figure 4: Climate Leaders Special Event, UN Global Climate Action Awards at COP26, Global Action Hub, 9 November 2021.



Source: Author.

7 For instance, COP26 observation, Ministers and Mayors on Buildings as a Critical Climate Solution, High-Level Presidency Event, 11 November 2021.

Performing a tale of heroic mayors transforming cities at risk into factories of low-carbon futures

Across these stages, mayors have emerged as symbolic figures of political momentum for ambitious climate action. Invariably, they have circulated compelling narratives on the narrowing window for staying under the 1.5°C target and on the urgency of transformations. To this end, their performances have often juxtaposed images of urban decay with those of thriving, sustainable cities whose materialization would depend on the negotiations' outcomes. Further amplifying this narrative, an emotionally charged rhetoric of emergency, hope, and heroism has fostered a discursive momentum for avoiding threats and embracing opportunities. While UNFCCC leaders have directly scripted these storylines for multiple COP participants, mayors have embodied a unique role model figure. In fact, their position as democratically elected leaders directly accountable for citizens' well-being, with practical experience on climate policies and a commitment to achieving climate neutrality, grants significant legitimacy to their claims to the COP.

Forging this figure has entailed mayors positioning themselves as heroic leaders, determined to save their urban population from catastrophic climate impacts by leading the transformation of their cities into core engines of low-carbon industry (van der Heijden, 2019; Johnson, 2018). This narrative was evident in the 2021 keynote address of Mayor Eric Garcetti, who directly challenged heads of state and government with this vision:

Cities are leading the way to save our planet, to invest in our people and to leave no one behind. [...] We are testaments to three facts. One, that we are on the front lines. It is our residents that are fleeing fires, our residents who are fleeing floods, grappling with drought and heat. Two, we know how to fix it. Cities aren't just laboratories of progress, we are the factories of the future, transforming how we heat and cool our buildings, move around our cities and generate our electricity. And third, we are getting it done. Two thirds of C40 cities have set and met targets that meet or exceed the Paris commitments on time or early.⁸

8 COP26 observation, intervention of the Mayor of Los Angeles and C40 Chair Eric Garcetti, World Leaders Summit Interludes, plenary session, 2 November 2021.

Similarly, multiple performances at COP26 articulated visions of dystopian futures marked by a general collapse of modern urban civilization. Mayors conveyed the urgency of acting to avoid this future by highlighting mounting evidence of existential threats to cities posed by rising sea levels, extreme weather events, and heat. This dark picture resonated deeply following the devastating climate events of the 2019 summer, during which megafires, severe droughts, and devastating floods in multiple regions led hundreds of local leaders to declare a situation of climate emergency in their communities.⁹ Furthermore, more recent experiences of deserted cityscapes caused by lockdown measures during the Covid-19 pandemic served as a stark reminder of the vulnerability of urban centres to global crises.

However, mayors also outlined alternative futures of cities' low-carbon transformations. Their performances often highlighted the abundance of local policy tools readily available to propel technological and social innovations in cities, encompassing urban planning, public investments, fiscal incentives, and research partnerships, emphasizing their willingness to spearhead technology shifts and the digitalization of urban services. All together, these performances conveyed a bright vision of post-carbon prosperity shaped by urban transformations into compact, connected, and clean cities.¹⁰ This optimistic outlook was bolstered by the presentation of the 'Summary for Urban Policymakers of the IPCC 6th Assessment Report' at the Science Pavilion on 11 November 2021.¹¹ There, IPCC scientists and local leaders emphasized the strong potential for regenerating urban areas through integrated urban planning to simultaneously address energy consumption, adaptation needs, and Sustainable Development Goals (SDGs) such as poverty eradication, good health and well-being, peace, justice, and strong institutions. Eventually, city-level action was portrayed as the solution to build 'factories of low-carbon

9 For instance, COP25 observation, intervention of the Mayor of Recife and Chair of ICLEI South America Geraldo Filho, NDCs and the Climate Emergency of Cities – Collaborative Climate Action to Ratchet Up Ambition & Capture Urban Opportunities, side event, 9 December 2019.

10 For instance, COP26 observation, intervention of the Mayor of Pittsburg and Chair of ICLEI North America Bill Peduto, Initiative Launch the Summary for Urban Policymakers (SUP) of the IPCC 6th Assessment Report, side event, Science Pavilion, 11 November 2021.

11 COP26 observation, Initiative Launch the Summary for Urban Policymakers (SUP) of the IPCC 6th Assessment Report, side event, Science Pavilion, 11 November 2021.

futures', capable of implementing national policies at scale and fostering greater national ambitions.

Ultimately, these performances emphasized the image of mayors as heroic leaders, committed to protecting their populations and joining forces to fight for desirable futures. At COP26, the C40 chair highlighted their collaboration within the network to address the Covid-19 pandemic as a concrete example, contrasting with the perceived national reluctance to share information:

At the local level it's frictionless, it's seamless, it's who we are, it's in our nature. [...] I don't overstate this to say that I believe that the work of the mayors here through C40 saved millions of lives. [...] But we never govern alone. Mayors are only as strong as the coalitions we build. [...] If you want to think of yourselves as a movie, this would be *The Avengers*. And we called all the different groups, all the different superheroes together to address this threat, and to launch the Cities Race to Zero.¹²

In Glasgow, the success story of heroic mayors capable of fostering change despite gridlock in a multilateral regime outlined a reason for hope in climate cooperation. Carefully scripted and staged by UNFCCC leaders, this narrative served as powerful rhetorical tool to pressure states into strengthening their own pledges, while offering contingency signals of change coming from the COP, in case of stagnating negotiations. Yet, beyond embodying societal pressure, this role model figure also served mayors' advocacy.

Reframing multilevel action as the last hope for enhanced ambitions

COP26 constituted a decisive moment for the *pledges and reviews* regime, as national governments were required to submit revised climate action plans, whose ambitions would determine the collective capacity to contain global temperature rise below the 1.5°C goal. In this context, mayors strategically reframed the overarching *script* of climate ambition to make a claim for greater local empowerment. Across multiple events, their interventions consistently

12 COP26 observation, intervention of the Mayor of Los Angeles and C40 Chair Eric Garcetti, World Local Leaders Summit: Our Last, Big Chance: Why Our Future Depends on Action Taken Today in the World's Cities, side event, Glasgow City Chambers, 2 November 2021.

emphasized multilevel action as a crucial mechanism to bolster national ambitions and as the last 'beacon of hope' to save the Paris Agreement.¹³

This agenda employed a variety of tactics to address distinct audiences. In particular, during state plenary sessions, official statements explicitly requested text insertions in the final COP decision to elevate multilevel action as the new standard of leadership, in light of the capacity of final agreements to signal consensual expectations on climate action:

The current text of the Preamble creates a silent and invisible constituency and misses a key piece of cooperation and coordination: one that is critical for delivering net zero and for ratcheting up ambition every year: the massive constituency in every country of local and regional governments and municipal authorities. Multilevel coordination across local, regional, national and international government is now the new norm – and, as such, needs to be recognized explicitly in the Preamble to the Glasgow Agreement, providing consistency with Preamble paragraph 15 of the Paris Agreement. The Paris Agreement recognized multilevel collaboration; Glasgow should now ensure that multilevel action is delivered.¹⁴

In addition, side events provided platforms to showcase successful examples of multilevel collaboration for the formulation of revised national plans. Thus, ministers and public officials from Japan,¹⁵ Finland, Chile, and Scotland¹⁶ were invited onstage to share their experiences in consulting with local governments and 'capturing urban opportunities' through institutional and policy reforms. These interventions portrayed decentralization as a key solution to bridge national policy gaps and 'deliver' on net-zero emission targets.

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- 13 For instance, COP26 observation, intervention of the Head of Advocacy Yunus Arian at ICLEI World Secretariat, 'Constituency Focal Points Dialogue with UK Prime Minister Boris Johnson and UN Secretary-General António Guterres', official consultation, 11 November 2021.
 - 14 COP26 observation, intervention of the Spokesperson of the Climate Change Task Group at the UK Local Government Association Pippa Heylings, 'LGMA Statement to UK COP26 Presidency in Plenary on Informal Stock-Take', plenary session, 8 November 2021.
 - 15 COP26 observation, Localizing NDCs: How to Fund and Implement Action at Scale?, side event, EU Pavilion, 9 November 2021.
 - 16 COP26 observation, Ministers and Mayors on Buildings as a Critical Climate Solution, High-Level Presidency Event, 11 November 2021.

Finally, mayors also leveraged their collective net-zero pledges during official consultations with UN leaders and the COP Presidency to advocate for a seat at the table.¹⁷ Their claims included improving cities' access to international climate finance, especially under Article 6.8 on non-market mechanisms, but also participating in UNFCCC decision-making bodies such as the IPCC, the Standing Committee on Finance, and the Santiago Network on Loss and Damage to access best practices, technical expertise, and cutting-edge technologies to achieve their climate goals. These claims also encompassed the launch of Ministerial Meetings on Urbanization and Climate Change as a new process at COPs to coordinate national efforts for multilevel action in cities.

Signalling cities' attractiveness for green markets

Mayors attending COP26 further leveraged their net-zero pledges as powerful communication tools to bolster their cities' public images as attractive environments for clean technology investments. COP26 itself functioned as a platform for mayors to present themselves as trustworthy co-investors to potential partners. Especially the Business Pavilion, rebranded the Climate Pledge Theatre, offered them a stage to pitch their climate plans to clean technology start-ups and corporations. Rather than advocating for enabling policies, they could emphasize how their long-term vision, innovative mindset, and data-driven governance positioned their cities as competitive markets for the emerging low-carbon and digital economy, as evidenced by the address given by the mayor of Phoenix, a member city of C40:

At this COP we have been talking about methane emissions and emissions from land use. In Phoenix, we really want to work on landfill emissions and promote the circular economy, how can we take some things we have been putting in the landfill and put them back into the economy. We have an incubator for these businesses in Phoenix and a bunch of data that we can share on what is now going into our landfill that could be part of future businesses.

17 COP26 observation, Dialogue with the UN Secretary-General and UN-Habitat Executive Director, official consultations, 11 November 2021.

So if there is any company or start-up in this field that considers the US as outpost, please consider us as partners.¹⁸

This focus on market forces and business innovation as drivers of urban decarbonization is a prevailing narrative at Climate Action Events (Aykut et al., 2022b). Philanthropists such as Michael Bloomberg, the main sponsor of the C40 network, actively promote this vision. Accordingly, philanthropies substitute for the lack of national ambitions by supporting the standardization of cities' carbon data for market valuation, allowing the financing of cost-effective projects in cities (Papin and Beauregard, 2023). Similarly, the cities' net-zero movement at COP26 bolstered the EU's leadership in climate negotiations by strengthening the credibility of the EU's European Green Deal. While that deal outlines a new political project for a green, prosperous, fair, and independent continent, the European Union faces significant headwinds. The war in Ukraine, the rise of Eurosceptic parties, and the widening of social inequalities all threaten to erode public support for ambitious climate policies (Gengnagel and Zimmermann, 2022). In this context, President of the European Commission Ursula von der Leyen's launch of the EU Mission for 100 Climate-Neutral and Smart Cities at COP26 aimed to signal a shift to a bottom-up approach, empowering cities to accelerate the implementation of the EU's climate neutrality goals by shaping innovative low-carbon markets for a sustainable and competitive Europe.¹⁹

Ultimately, cities' net-zero pledges at COP26 sent a signal of rapidly emerging markets for clean and digital technologies. While these commitments forged a renewed discourse on the desirability and economic viability of climate action, they also appeared as a mere 'urban fix', whereby cities' image as clean, digitalized, and green areas become new branding tools for attracting businesses and capital accumulation in a new era of global market competition (While et al., 2004; Long, 2016). This framing risks reinforcing, rather than challenging, the dominant paradigm of 'greener' capitalism. Already, many voices have expressed fierce criticism and distrust of net-zero pledges, accusing them to be greenwashing announcements to pursue intensive growth strategies and comfortable consumerist lifestyles over substantive

18 COP 26 observation, intervention of the Mayor of Phoenix Kate Gallego, Data and Insights That Drive City Climate Action, Climate Pledge Theatre Event, 3 November 2021.

19 COP26 observation, intervention of the President of the European Commission Ursula von der Leyen, World Leaders' Summit Day 2, plenary session, 2 November 2021.

decarbonization and fossil fuel divestment.²⁰ Importantly, this market-driven narrative also conceals key barriers for urban transformations, which include limited local capacities, strong inequalities within and between cities, and North–South disparities in addressing climate change. Even more, its technocratic framing further depoliticizes climate action, concealing important debates on implementation challenges. In fact, city authorities face the daunting task of articulating climate agendas with other policy goals, such as affordable housing, socio-economic development, traffic congestion, and poverty reduction, amidst local oppositions and resistance to change. Ultimately, current net-zero framings downplay the imperative of stronger state regulation and fundamental economic restructuring to address the challenges of reducing urban consumption while achieving just transitions.

Conclusion: A new planetary paradigm or marketing brand?

You see, we can inspire national climate action and ambition to show what is possible. If you don't think you can have fully electric bus fleets, go to Shenzhen and see it; or clean up your central district into ultra-low emission zones, go to London and experience it. And if you don't think that a city is on its way to 100% renewable power, I invite you to Los Angeles, where we will be 97% carbon-free by the end of this decade.²¹

This address by Eric Garcetti to a heads of government meeting in Glasgow for COP26 underscores the key role that mayors now play in setting expectations and generating political momentum at COPs. Following the establishment of the *pledges and reviews* system of climate governance in the Paris Agreement, and amid a gradual transition towards policy implementation, annual COPs have increasingly turned into platforms for signalling leadership and articulating narratives of desirable versus unwanted climate futures in order to influence the perceptions and beliefs of multiple audiences. Through an ethnography of the Glasgow summit, this chapter highlighted the central role of mayors' diplomacy in this performative turn. At COP26, the imperative need to signal societal readiness for change, within and beyond the COP venue, prompted

20 COP26 observation, intervention of Vanessa Nakate, Ugandan climate activist, Racing to a Better World, High-Level Presidency Event, 11 November 2021.

21 COP26 observation, intervention of the Mayor of Los Angeles and C40 Chair Eric Garcetti, World Leaders Summit Interludes, plenary session, 2 November 2021.

1,000 city leaders to pledge ambitious net-zero emissions targets for 2050. Announced as new policy goals for the world's megacities of the C40 network, as well as for secondary urban centres from the Global North and South, they constituted a compelling symbol of political momentum for stronger climate ambitions.

Mayors' legitimacy as elected local leaders, their own leadership in climate policies, and their direct accountability for responding to climate hazards have empowered them to embody the role model figure at climate summits. Enacting this role has significantly influenced their diplomacy. Their performances at COP26 displayed an emotionally charged rhetoric of urgency to act, as well as optimism in the endless opportunities of a low-carbon economy, while cultivating an image of being heroic champions, genuinely driven to turn their at-risk cities into core engines of post-carbon prosperity. They also articulated compelling narratives and images of low-carbon urban futures, aimed at translating the collective aspiration of limiting global temperature rise to 1.5°C into concrete, near-term, and scalable interventions while conveying the sense of a low-carbon transformation already unfolding and improving the lives of billions in urban areas.

Such 'diplomacy of hope' (Lacatus and Blanc, 2023) has significantly contributed to the positive signal of change that emanated from the Glasgow summit, thus legitimizing the COP as an important coordination platform in a time of growing uncertainty and disillusionment with states' climate action. Yet, it pursued several strategic communication purposes at COP26. While UNFCCC leaders have carefully scripted mayors' role and provided multiple stages for their performances to create societal pressure on negotiating states, mayors leveraged their net-zero pledges to advocate for greater decentralization and multilevel coordination.²² However, the rhetorical power and broad consensus around cities' net-zero pledges also stems from their inscription within dominant paradigms of uncontained urban growth and neoliberal market competition.

Ultimately, these findings expand current literature on polycentric climate governance. Notably, cities' increasing participation in climate summits has not only become a core aspect of the soft coordination regime established in the Paris Agreement, which pressures states into raising their ambitions. Through offering platforms to enhance the visibility and political capital of

22 UNFCCC, Glasgow Climate Pact, 2021, Decision 1/CMA.3, UN Doc FCCC/PA/CMA/2021/10/Add.1, §10 Preamble.

leading mayors, these conferences have also fostered the local appropriation of net-zero narratives circulating in global climate governance and their ongoing translation into urban policy targets. Transnational city networks have played a central role in facilitating this discursive and symbolic exchange by tightening institutional ties with the UNFCCC, forging large coalitions and broadening their membership, as well as launching mobilization campaigns among and beyond their members. However, these findings also raise a number of uncertainties and concerns.

Whereas, in less than two years following the release of the IPCC Special Report on Global Warming of 1.5°C, the performative turn of climate governance has propelled net-zero pledges ‘from extreme to mainstream’,²³ their ability to catalyse deep decarbonization remains uncertain. Will they remain rhetorical devices for cities to shine and gain influence in climate politics or evolve into climate norms that drive upfront emission reductions across urban sectors? Will they primarily serve as marketing tools to attract clean energy investments, or spur structural change in state–local relations and catalyse bottom-up pathways for reducing consumption and ensuring just urban transitions? To date, their technocratic and market-driven framing reflects the broader challenges of multilateralism, where consensus building often leads to prioritizing incrementalism and comforting paradigms over radical visions (Acuto and Rayner, 2016).

Hence, the overemphasis on green competitiveness also bears the risks of diluting local accountability to citizens’ needs and demands, exacerbating social inequalities in addressing climate change, and widening North–South inequalities in accessing resources. Eventually, as the gap widens between cities’ proclaimed leadership and sobering realities on the ground, the domestic implications of net-zero pledges need further scrutiny if global climate governance is to adequately address implementation challenges. Thus, future research could explore the local reception of net-zero targets, analysing their potential to transform urban governance and policies, as well as the bottom-up emergence and transnational dissemination of counter-narratives and alternative pathways.

23 COP26 observation, intervention of the Chilean Presidency Climate Champion Gonzalo Muñoz, Racing to a Better World, Global Climate Action High-Level Event, 11 November 2021.

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5. Mapping conflicts of prioritization

National parliamentary discourses on urban greening and biodiversity implementation in Germany and Italy

Alessandro Arlati

Introduction

Climate change and its effects on people's lives are among the biggest challenges of the present times. A recent report jointly authored by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) and the Intergovernmental Panel on Climate Change (IPCC) highlights the connection between climate change and biodiversity loss (Pörtner et al., 2021). While urban development has been identified as one of the leading causes of biodiversity loss (McDonald et al., 2018), cities themselves offer opportunities for developing solutions to address urban greening and biodiversity through ad hoc policies that recognize the prominent role of nature in combating climate change (Grimm et al., 2008). However, addressing climate change implies that diverse issues should be considered simultaneously, that uncertainties drive actions undertaken, and that conflicting interests are involved when changes are envisioned (Meadowcroft, 2011: 72). These challenges are exacerbated as the notion of nature 'is culturally invented and reinvented', thus contested and open to interpretation (Hajer and Versteeg, 2005: 178). Hence, the debate on urban greening and biodiversity, as they are related to climate change, is highly controversial, as political actors have different opinions on the problems, solutions, and actions to take.

In this chapter, I propose analysing political debates to explain climate governance policy-making processes within the context of global targets, national commitments, and local actions. Specifically, I investigate the conditions and reasons for conflict concerning urban greening and biodiversity policies in the German and Italian national parliaments as the appointed

authorities that translate supralocal recommendations into national decisions (Scharpf, 2009). I ask: What are the conditions of and reasons for contestation in the debate on urban greening and biodiversity at the national level? I deploy a discourse network analysis (DNA) to delineate the evolution of actors' discourses on the implementation of urban greening and biodiversity policies (Leifeld and Haunss, 2012). Stemming from discourse analysis and network analysis, DNA makes it possible to build networks of actors, called discourse coalitions, which are based on their agreement and disagreement patterns on a particular issue. The greater the polarization between these coalitions, the more detectable the conflicts become. After reflecting on the importance of discourses in environmental politics, I elaborate on the opportunities to study political debates in national parliaments in the European Union (EU). I also briefly present recent insights on EU urban greening and biodiversity policies. The third section of this chapter depicts the cases of Germany and Italy as two paradigmatic examples in the EU. The results reveal a general agreement among political actors on the relevance of implementing urban greening and biodiversity policies. However, conflicts become evident when other issues are deemed more urgent than urban greening and biodiversity interventions. In the fourth section, inspired by work on discourses of climate delay, which comprise various strategies that actors deploy to 'justify inaction or inadequate support' (Lamb et al., 2020: 1), I illustrate five 'latent conflicts' behind an apparently unanimously agreed upon policy solution. These conflicts result from a prioritization activity involving the deployment of climate delay discourses.

Localizing discourses in environmental politics

If, in Western countries, climate change is somewhat accepted by political parties of both the right and left (Ghini and Steiner, 2020: 216), disagreements on the most appropriate ways and tools to cope with climate change remain observable (Hulme, 2009). On one side, national governments are urgently asked to act (see Haarstad et al., 2023); on the other, dealing with climate change obligates national governments to weigh different priorities, debating on 'what action should be taken, how fast, who bears responsibility and where costs and benefits should be allocated' (Lamb et al., 2020: 1). Analysing the political debates on climate change can help to interpret policy-makers' choices of prioritization and their communication strategies (Schmidt and Radaelli, 2004).

Maarten Hajer has amply discussed the importance of discourses in environmental politics. Introducing the argumentative turn in discourse analysis, he sees actors producing and reproducing storylines based on shared ideas and beliefs through discourses (Hajer, 1995). Storylines serve to orientate actors' arguments in favour of or against a specific issue, forming discourse coalitions (Hajer, 1993). The more an issue is invested with ideologies and beliefs, as in the case of nature (Hajer and Versteeg, 2005), the stronger the relationships among the actors in the coalition who will attempt to impose their storylines over those of other coalitions. Hajer's argumentative discourse analysis shows that discourses do not occur in a void but are dependent on their context in a continuous dynamism whereby different coalitions engage permanently in discourse activities. The advocacy coalition framework (ACF), theorized by Paul Sabatier, describes an advocacy coalition as a network of actors that agree on a set of core policy beliefs. According to ACF, the dynamics between different coalitions tend towards the establishment of one definite storyline in the pursuit of a stable equilibrium (Zafonte and Sabatier, 2004). In doing so, different coalitions try to dominate the storylines of others, giving rise to conflictual situations. However, ACF is often criticized because it offers a relatively static picture of coalition dynamics, failing to explain the reasons for policy change (Schmid et al., 2020: 1114–15).

Conversely, the discourse network analysis (DNA) methodology provides a dynamic and longitudinal study of political discourses together with qualitative and quantitative social network analysis (Leifeld and Haunss, 2012). The unit of analysis of this method is the statement expressed by an actor concerning an issue. DNA can be used to find correlations between statements and the actors that utter them to provide a picture of the evolution of discourses on a specific issue based on agreement and disagreement patterns (Leifeld, 2017). Through DNA, it is possible to create three main types of networks (Leifeld, 2017). The *affiliation* network describes the relationship between actors and concepts at a given time. The *congruence* network shows how actors co-support or co-reject a concept: the thicker the tie, the higher the number of times two actors share the same opinion on that concept. Similarly, the *conflict* network shows the negative relation between actors and concepts, highlighting the most controversial arguments. Thus, analysing actors' relations through DNA can help identify potential conflicts among actors over time.

Whereas the implementation of urban policies occurs at the local level, policy-making at the national level can, to a certain extent, influence local-level discourses and practices (Lidmo et al., 2020). This influence largely depends on

the ability of national-level policy-making to provide a clear legal framework, which can be voluntary or binding (*ibid.*). This legal framework is debated in national parliaments, the official communication channels of national governments' decisions to the broader public (Bhattacharya, 2020: 231). In the EU, national governments have an additional reference layer when making decisions on domestic policies. By translating global climate targets into guidelines for the EU Member States (MS), the EU constitutes a 'government of governments' that provides an in-between political arena wherein each MS takes political responsibility for common issues (Scharpf, 2009: 181). The EU–MS relational system considers actors, bodies, and institutions, building a highly interconnected structure of distributed responsibility among different levels (Betsill and Bulkeley, 2006).

Nevertheless, the structure of such a model is relatively unstable, which affects debates at the national level whereby even the most mainstream political parties can feature internal disagreements and insecurity on what action to take (Hooghe and Marks, 2018). Thus, the complexity of EU–MS relations can create occasions for conflicts at the national level beyond domestic problems. One cause of conflict can be the introduction of novel arguments resulting from a policy decision at the EU level. Because novel arguments cannot always be immediately ascribable to a specific political orientation, actors lack a political direction by which to express a clear policy preference on these arguments (Kammerer and Ingold, 2023). Consequently, it is possible to find politicians belonging to opposing political parties sharing similar beliefs or even agreeing on a novel issue (Bhattacharya, 2020). Conversely, disagreements can also be generated from the bottom. Especially in times of crisis, recent research has highlighted that national parliament members do consider public opinion when arguing their position (Degner and Leuffen, 2020). All these considerations make parliamentary debates a vibrant arena for analysing and depicting discursive conflicts among actors and tracing their evolution in political decisions concerning EU affairs.

The cases of Germany and Italy in the context of EU policies on urban greening and biodiversity

In 2019, the EU drafted the European Green Deal (EGD) to embrace globally agreed-upon emission reduction targets and to set the guidelines for a strategy that simultaneously promotes just and inclusive economic growth 'to protect,

conserve and enhance the EU's natural capital' (EC, 2019: 2). The key areas of interventions refer to agriculture, biodiversity, energy, mobility, and the built environment. Successively, the EU Biodiversity Strategy for 2030 (BDS 2030) aims to operationalize the EGD key area of biodiversity by setting nature at the centre of climate policies (EC, 2020). With the persuasive title of 'Bringing nature back into our lives', the strategy proposes to systematically integrate 'healthy ecosystems, green infrastructure and nature-based solutions' into urban planning (*ibid.*: 13). These three notions permeate the urban greening and biodiversity interventions in the EU context. Healthy ecosystems generally refer to an ideal, desirable future (Costanza and Mageau, 1999); conversely, green infrastructure (GI) and nature-based solutions (NbS) are more action-oriented solutions, whereby GI refers to a utilitarian framework mainly for human well-being, and NbS focus on nature and the involvement of people (Haase, 2021: 308). GI and NbS belong to a broader discourse that deploys nature and natural elements to simultaneously achieve emission reduction targets, quality of life, and biodiversity protection in cities (*ibid.*: 315). However, activists have denounced the risks of misusing such brand-new and controversial notions (Seddon et al., 2021; Melanidis and Hagerman, 2022). For example, many private corporations have constructed a narrative of sustainability around NbS while keeping their business-as-usual activities (FOEI, 2021). These misuses have raised a profound debate around the equal and just distribution of benefits supposed to be created through the implementation of solutions that foresee nature as a driving element for urban development (e.g. Cousins, 2021).

Research has highlighted a wide variety of reactions to EU decisions from different national contexts and the political parties composing the national parliaments, underlining the communicative power of these bodies (Auel and Raunio, 2014). Germany and Italy can be considered the two countries that best exemplify the northern and southern politico-economic models coexisting in the Eurozone, thus giving insights into the growing divergence among the EU Member States (Piattoni and Notermans, 2021). These two countries, both members of the G7, have a strong image in the global arena. While Germany is a federation of states, Italy is defined as a devolved state with a relatively strong central government where only some responsibilities are transferred to the local level. Nevertheless, this centralized tendency does not apply to environmental policy and planning: in fact, both countries' governance structures underwent a process of decentralization of competencies from higher levels towards local ones in the early 2000s (ESPON, 2018). Being parliamentary republics, their national legislations are decided within a bicameral system

composed of a lower (parliament) and an upper (senate) house (Parline, n.d.). Because the Bundestag and Camera dei Deputati have similar structures, comparing the two parliaments is possible (see Table 1).

Table 1: Germany and Italy data comparison.

	Germany	Italy
Socio-economic data		
Population, 2023 [million] (Eurostat, 2024)	84.4	58.9
People living in cities, 2022 [%] (World Bank Open Data, 2018)	77.6	71.6
Country territory occupied by settlement, 2021 [%] (Eurostat, 2022)	37.2	39.1
Public debt, 2023 [% of GDP] (Eurostat, 2023)	64.6	142.4
Urban greening-related data		
Public green space per inhabitant [m ² /inh.] (Maes et al., 2019: 55)	30	15
Contribution to the Green Climate Fund [billion USD] (GCF, 2023)	1.7	0.3
EU-related data		
European Regional Development Fund, allocated [billion EUR] (EU, 2021)	10.9	26.6
Citizens trusting the EU [%] (EU, 2023)	68	69
Subscribed capital at the CEB funds [%] (CEB, 2023)	16%	16%
Government-related data		
Constitutional levels	Federation	Devolved
Parliament system	Bicameral	Bicameral
Parliament members [n] (Parline, n.d.)	736	400

Source: Author.

Compared to other EU Member States, the Bundestag presents and debates a higher share of EU legislation on its floor, which translates into a higher politicization of EU affairs than in other countries (Auel and Raunio, 2014). Re-

search on Camera dei Deputati debates has highlighted that environmental issues have always had a marginal role in Italian politics, but in recent years, attention given to climate change has increased consistently, especially in connection with natural disasters (Ghinoi and Steiner, 2020). Concerning urban greening and biodiversity, Germany and Italy are among the top five European contributors to the Green Climate Fund, showing a specific commitment towards greening policies¹ (GCF, 2023). Regarding their differences, Germany presents a generally high ratio of square metres of public green space per inhabitant, while this ratio in Italy is rather low (Maes et al., 2019). Because Germany and Italy present differences only in a few aspects, this research follows a ‘most similar systems design approach’ (Bozonelos et al., 2022).

Applying DNA to Italian and German national parliament debates

Using a multi-case-study analysis, this paper deploys discourse network analysis (DNA) to investigate the different responses to the EGD and BDS 2030 in national parliamentary debates. Although the usual primary data for DNA are newspaper articles (Leifeld, 2013), recent applications of the methodology have shown its potential for parliamentary debates by using verbatim reports of the parliamentary sessions (Bhattacharya, 2020; Ghinoi and Steiner, 2020). I analyse the debates on urban greening and biodiversity policies in the parliaments of two EU Member States: the Bundestag in Germany and the Camera dei Deputati in Italy.

The first documents related to urban greening and biodiversity in the German context are the green paper *Grün in der Stadt* and the white paper *Stadtgrün* drafted in May 2015 and April 2017, respectively. Both documents elaborate on the importance of urban greening and biodiversity becoming an integral part of German city planning with a social, ecological, and economic function (BMUB, 2015: 93) and provide guidelines for introducing more greening in cities to counteract the climate crisis (BMUB, 2017). The coalition contract between the CDU/CSU and SPD parties then led to the drafting of the *Masterplan Stadtnatur* in 2019, whereby nature in cities is considered relevant for supporting biodiversity and educating young people about health, social cohesion, and adaptation to climate change (BMU, 2019: 1–2). The masterplan

1 Germany is in first place, while Italy is in fifth.

adjusts the concept of greening in cities (*Stadtgrün*), which focuses on the future life of citizens, towards nature in cities (*StadtNatur*), which instead targets the broader ecosystem of plants, animals, and insects as well (ibid.: 3). In 2019 and its update in 2021, the Federal Climate Change Act (KSG) was drafted to legally adopt the EGD at the national level. It represents the broadest and most mandatory targets for future developments in Germany, primarily by setting targets for carbon dioxide (CO₂) and greenhouse gas (GHG) emissions reduction.² Since the German Environment Agency (UBA) considers urban greening and biodiversity interventions as a way to capture or reduce CO₂ and GHG emissions (Reise et al., 2022), solutions that rely on natural elements such as GI and NbS have acquired relevance in the climate change debate in Germany. Lastly, the National Strategy for Biological Diversity 2030 is the most recent document concerning urban greening and biodiversity, delineating an action plan for 2024–2026 supporting these interventions to become part of city planning (BMUV, 2023: 68–69).

The first document related to urban greening and biodiversity in the Italian context is Law Number 10/2013,³ which states regulations for preserving urban green areas of historical and cultural significance and indications for developing new areas. The law supports local initiatives that propose urban green developments in any form⁴ and declares the formation of the Committee for the Development of Public Greening.⁵ One of its main goals is drafting a national plan to establish criteria and guidelines for realizing permanent green and tree-lined areas.⁶ The principles within this law were translated into the National Strategy for Urban Greening, drafted in 2018. This strategy elaborates on the need to produce a plan addressing urban greening for protecting and fostering biodiversity through a systemic approach (CSV, 2018: 48). Solutions relying on nature, such as GI and NbS, are mentioned for their ability to address complex ecosystems (ibid.: 49) and tackle air pollution in cities (ibid.:

2 §3, Bundes-Klimaschutzgesetz, 2019. Bundesrepublik Deutschland.

3 LEGGE 14 gennaio 2013, n. 10. Norme per lo sviluppo degli spazi verdi urbani, 2013. Gazzetta ufficiale della Repubblica Italiana 1.

4 §6c and §6d, LEGGE 14 gennaio 2013, n. 10. Norme per lo sviluppo degli spazi verdi urbani, 2013. Gazzetta ufficiale della Repubblica Italiana 1.

5 §3, LEGGE 14 gennaio 2013, n. 10. Norme per lo sviluppo degli spazi verdi urbani, 2013. Gazzetta ufficiale della Repubblica Italiana 1.

6 §3c, LEGGE 14 gennaio 2013, n. 10. Norme per lo sviluppo degli spazi verdi urbani, 2013. Gazzetta ufficiale della Repubblica Italiana 1.

131). The documents presented show urban greening and biodiversity interventions as tools for CO₂ and GHG emissions reduction. Additionally, after the EGD, the notion of ecological transition was potently used in Italy, leading to the renaming of the Ministry of the Environment to the Ministry of the Ecological Transition in 2021. Lastly, the Italian Biodiversity Strategy 2030 highlights the role of biodiversity in fostering health, society, and the economy, pushing for more direct and continuative actions to increase knowledge, conservation, and valorization of ecosystems (MASE, 2023: 2–3). It is noteworthy that fostering biodiversity in Italy is still conceptualized as a proxy to bring benefits for human society rather than for nature itself.

The paragraphs above serve to identify the most suitable data according to DNA, namely (1) the period within which the verbatim reports should be searched and (2) which keywords should be used. Therefore, the time frame between 1 January 2013 and 1 June 2023 was selected to search the verbatim reports. This period is long enough to grasp a debate's main concepts and arguments and observe the evolution of discourse coalitions (Nagel and Satoh, 2019: 1685). Additionally, the data were subdivided into two distinct snapshots corresponding to the periods before (T1) and after (T2) the December 2019 publication of the EGD. This subdivision serves to identify whether similarities or differences in the discourse coalitions exist over time based on the external input from the EU (Leifeld and Haunss, 2012: 391). The keywords selected for the German case refer to urban greening, CO₂ and GHG reduction, climate and biodiversity protection, and urban development;⁷ for Italy, the chosen keywords were less specific due to the impossibility of conducting a proper Boolean search in the Camera dei Deputati database.⁸ In total, 49 and 48 documents were found, respectively. This sample size is comparable with other research using DNA to analyse parliamentary debates (e.g. Bhattacharya, 2020:

7 The German documents were found in the Dokumentations- und Informationssystem für Parlamentsmaterialien (DIP) of the Bundestag. The following string was used: (A) *(Klimawandel) und (Klimaschutz) und (CO₂-Abscheidung und -Speicherung oder Treibhausgas) und (Biodiversität) und (Stadtentwicklung)*; (B) *(Masterplan Stadtnatur – Maßnahmenprogramm der Bundesregierung für eine lebendige Stadt oder Stadtgrün)*; (C) *(Naturbasierte Lösung)*.

8 Only Assembly-related documents were selected. Four searches were conducted at Banche dati/Dibattiti in testo integrale of the Camera dei Deputati website (A) *clima, emissioni, verde OR biodiversità*; (B) *verde urbano (exact phrase)*; (C) *soluzioni basate sulla natura*; (D) *sviluppo urbano sostenibile*.

232). An ad hoc selection concentrated the analysis on 12 documents per country (see Nagel and Bravo-Laguna, 2022). The criteria for this selection considered (1) the main governing periods, i.e. when the government is not concentrated on election campaigns or coalition formation negotiations, and (2) the monthly concentration of verbatim reports identified through the keywords.

The coding of the documents was adapted to the specificity of the parliamentary debates. Actors were categorized according to their position (government, majority, opposition) and political affiliation (from far right to far left). Each statement is categorized as a concept reflecting how actors express themselves on the issue at stake and the meaning those actors attribute to it. In parliament debates, all speakers have the same amount of (limited) time to express themselves on an issue. Each political party must divide its time among its members, whereby governing parties exploit their agenda control to profit from the time allocation (Giannetti and Pedrazzani, 2016). Due to this imbalance, the opposition parties tend to focus on counteracting the majority's proposals and present straightforward suggestions for improvement. Conversely, the speeches of the majority include comparatively vague arguments and mainly present the positive aspects of a proposal. Consequently, most of the statements of disagreement were found in the opposition speeches. In this case, a disagreement value was attributed to the majority's arguments compared to the opposition parties' or vice versa. Using the Java software Discourse Network Analyser version 3.0.10, 1,413 statements grouped into 197 concepts were coded for the documents analysed.⁹ These were organized among eight sectors, following the EGD key areas (agriculture, biodiversity, energy, mobility, and the built environment) with the addition of EU and global relationships; technical, legal, and social measures; and urban greening. The use of the same sectors and concepts for the coding of both cases makes the comparison possible.

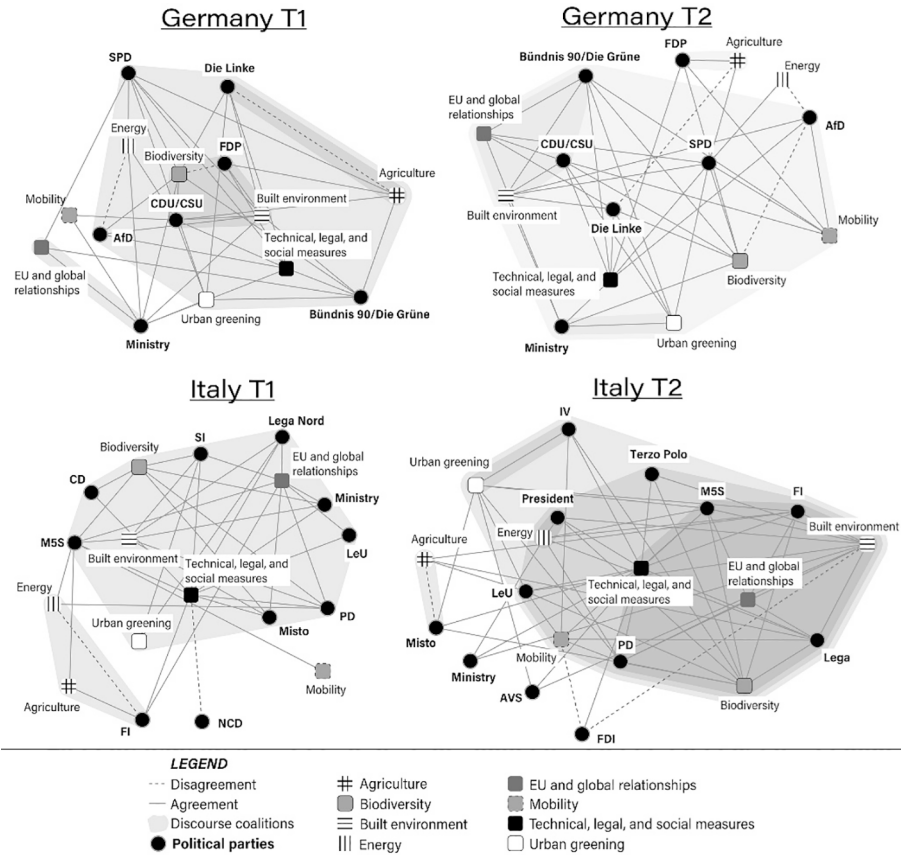
Discourse coalitions in German and Italian national parliaments

The data collected and coded as described in the preceding subsection are analysed by combining congruence and conflict networks to show both shared and conflicting arguments using the subtraction function (Leifeld and Haunss,

9 I thank Rebecca Dedeck for help in coding the German case.

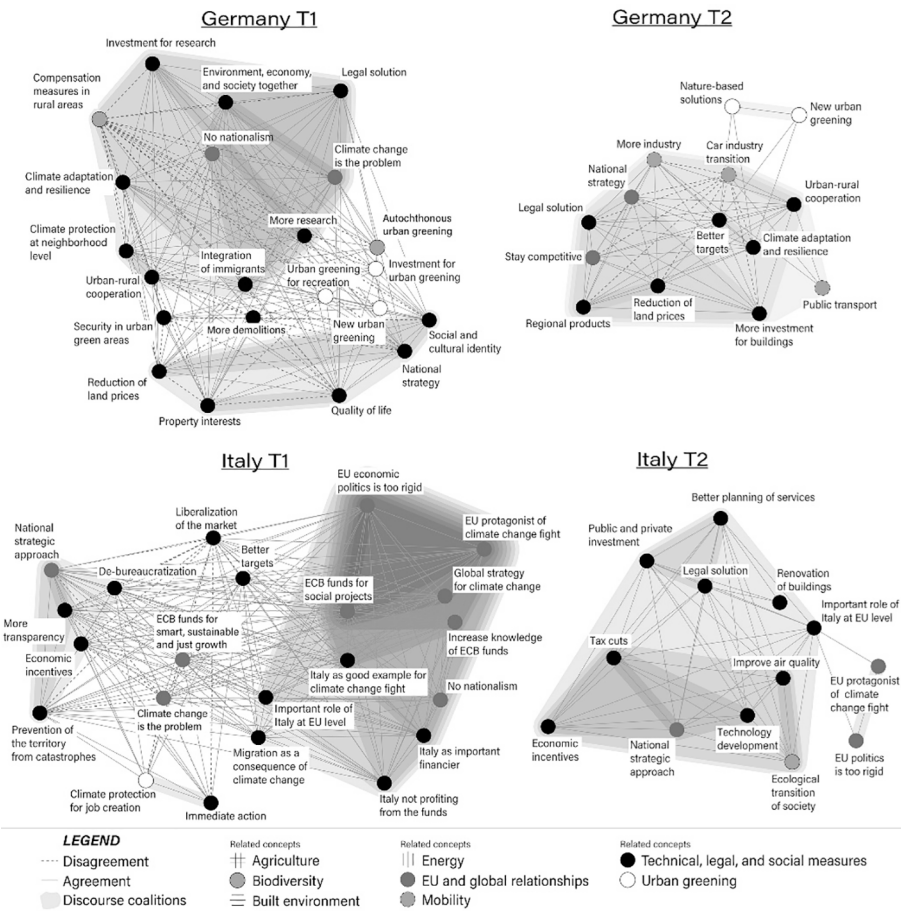
2012). The results were clustered through the Girvan-Newman method and visualized using the software program Visone (version 2.26) and are depicted in Figure 1 and Figure 2.

Figure 1: Subtracted discourse coalitions for Germany (above) and Italy (below) in two snapshots: before 2019 (T1) and after 2019 (T2) at the macro level of the eight sectors.



Source: Author.

Figure 2: Subtracted discourse coalitions for Germany (above) and Italy (below) in two snapshots: before 2019 (T1) and after 2019 (T2) at the micro level of the 197 concepts.



Source: Author.

Figure 1 shows discourse coalitions for the snapshots T1 and T2 at the macro level of the eight sectors. Networks were extracted from the Discourse Network Analyser software as two-mode based on concepts and political parties. Only the concepts with a betweenness above 0.2% are visualized. Figure 2 depicts the same discourse coalitions but at the micro level of the 197 concepts. Here, networks were extracted from the Discourse Network Analyser software as one-

mode based on concepts and sectors. Only the concepts with a betweenness above 0.5% are visualized.

Concerning the German case, discourse coalitions are relatively visible in T1 between concepts referring to the built environment and technical, legal, and social measures sectors (Figure 2). At the level of sectors, the two main coalitions see the government (ministry) isolated, standing mainly for the EU and global relationships (Figure 1). It can be observed that urban greening and biodiversity-related concepts are not ascribable to any specific coalition; still, these are in disagreement with other concepts, such as property interest support and compensation in rural areas (Figure 2). In the urban greening and biodiversity debate, the two centre-right parties, the FDP and CDU/CSU, disagree (Figure 1). Interestingly, these two parties are the parliamentary groups that most intensively address urban greening and biodiversity.

In T2, the concepts related to biodiversity form a clear coalition in contrast with others, especially mobility and agriculture (Figure 2). The more participative opposition of the AfD increases conflictual relations compared to T1 (Figure 1). Instead, agreement on concepts related to urban greening is generally shared by all parties, with more intense support from the government (Figure 1). In this debate, the AfD, although recognizing the importance of urban greening and biodiversity per se, vigorously pursues other fossil-fuel-friendly priorities. By accusing the majority of being too ideological in their environmental politics, this party rather pushes for the built environment and mobility-related concepts (Figure 2).

For T1 in Italy, three discourse coalitions can be observed: concepts related to (1) existing governance modes for the territory, (2) relationships between Italy, the EU, and other institutions, and (3) the need for immediate action and economically adequate climate protection (Figure 2). The second of these coalitions includes the highest number of concepts, revealing a direct invested interest in working on the image of Italy at the EU level (Figure 2). The isolated FI, the centre-right party, argues for agriculture and against energy sectors while not making any relevant contribution to urban greening and biodiversity (Figure 1). In general, concepts related to urban greening and biodiversity are not addressed, while conflicts are visible between market liberalization, transparency, and de-bureaucratization measures (Figure 2).

In T2, the visible discourse coalitions are reduced to two; one is centred on the role of the EU in guiding local actions, and the other on the activities themselves (Figure 2). However, conflicts are generally absent here. Like the German AfD, FDI is the main conflictual party, whereas the technical, legal, and social

measures sector is the most debated (Figure 1). In line with the arguments of Ghinoi and Steiner (2020), no evident discussion about urban greening or biodiversity sectors has been observed in both T1 and T2. If mentioned, concepts related to these sectors are embraced in a human-centred discourse (e.g. urban greening for human health).

The five 'latent conflicts' of prioritization

The results above show the German and Italian political parties' general agreement on the importance of supporting interventions related to urban greening and biodiversity. Following this logic, there is no apparent obstacle to their implementation. Nevertheless, conflicts are visible at the interface between urban greening and biodiversity concepts and others. In these cases, conflicts arise when limited resources force political parties to set priorities, whereby other more pressing issues surpass urban greening and biodiversity interventions. This prioritization explains how these actors more or less consciously deploy a set of discursive strategies to delay or divert the decision. I use the four discursive strategies of climate delay proposed by Lamb et al. (2020) as a heuristic tool to interpret the results from the DNA driven by the prioritization logic. Due to the specificity of the political arena of the national parliaments, a fifth set of strategies was added (see Table 2). Understanding the act of prioritization as the primary source of conflict among political actors, I conceptualize the absence of conflict in urban greening and biodiversity policies by presenting five 'latent conflicts' and the related discursive delay strategies. These conflicts are a meta-categorization of the discourse coalitions identified through the DNA methodology that express the intentions of parliament members to prioritize one concept over others. These five 'latent conflicts' are explained in the following paragraphs.

Table 2: Discursive strategies based on Lamb et al. (2020) and the related elements of conflict.

Strategy category	Discursive strategy	Elements of conflict
Redirect responsibility	Individualism	Change should be at the individual level
	Whataboutism	Other countries should adjust
	Free-rider excuse	Change cannot be pursued because of loss of competitiveness
Push non-transformative change	Technological optimism	Faith in technology for change
	Fossil fuel solutionism	Change is not needed as existing fossil fuel solutions work perfectly
	All talk, little action	Promises of change, but no action follows
	No stick, only carrot	Incentivize change through economic measures and silence the downsides
Emphasize the downside	Appeal to social justice	Change would create costs for the society
	Appeal to well-being	Change would diminish citizens' quality of life
	Policy perfectionism	Change can't be too ambitious, and caution is needed
Surrender	Change is impossible	Surrender or adapt because change is too complex
	Doomism	No matter what can be done, it is too late for change
Play the debate (parliamentary-debate-specific strategy)	Battles over meaning	Confusion or difference in meanings attributed to the same notion
	Protagonism	Criticize or second an argument by saying that its party already fought for it before
	Same day, another concept	Criticize the action of the government in general or introduce a new concept

Source: Author.

The first identified conflict, ‘Immediate action or step-by-step?’, is rooted in the broader mismatch between politics and policy in the perception of a problem (Heinelt, 2007) and, in particular, in the different spatial and temporal logic of a local politics of urgency versus the slow pace of global environmental-related challenges linked to climate change (Haarstad et al., 2023). While moderate parties follow a rather positivistic approach by arguing for the need to foster innovations and technology (*Technological optimism*) to combat climate change through the support of economic measures, such as incentives or tax exemptions (*No stick, only carrot*), left parties, to the contrary, tend to counteract this type of argument by calling for immediate action. These parties argue that humankind is dependent on nature and advocate for more natural solutions, pointing out the connection between climate change and biodiversity loss. However, the complexity of dealing with climate change is often argued by right-wing parties to justify the impossibility of change (*Change is impossible*) and the promotion of already existing technologies based on fossil fuels (*Fossil fuel solutionism*) or, at most, the support of a step-by-step approach (*Policy perfectionism*). This argument also pinpoints the high costs of urban greening and biodiversity interventions, which would burden society and the market (*Appeal to social justice*). Also, the frightening and pessimistic perspective of left-wing parties, as argued by right-wing parties, is often accused of creating panic and being counterproductive, reinforcing immobility arguments (*Doomism*).

The ‘Is your future better than mine?’ latent conflict reflects tensions between different ideas of urban futures. Even if everyone agrees on the importance of urban greening and biodiversity, dedicated areas for natural solutions within the city boundaries often clash with other ideas of the urban, such as the smart city, with a focus on technology and economy, or the compact city, with an emphasis on densification and mobility (Lidmo et al., 2020). Strategies deployed refer to a high faith in technology (*Technological optimism*), which all parties share, or to strategies that tend to obscure the downsides by highlighting the benefits for all (*All talk, little action*). Because some urban future ideas include market-based solutions that tend to commodify assets and resources, conflicts are located in both contexts’ limitations and opportunities offered by the neoliberal paradigm of the current market (Ravazzi, 2021). In this sense, new alternative urban futures are embedded to a certain extent in strong path dependencies beyond right or left orientations.

The latent conflict ‘You said Z, but what about X and Y?’ regards a general mismatch between majority statements and those of the opposing parties. Interestingly, it was observed that right-wing parties usually bring up the topic

of urban greening and biodiversity in the debate as an excellent solution to improve the quality of life in cities (Germany) or to help prevent natural catastrophes (Italy). Left-wing parties do not oppose this kind of statement; they instead criticize the late response of the right-wing parties in supporting urban greening and biodiversity actions (*Protagonism*), and then either welcome their decision or propose additions. In Germany, during T2, the right-wing opposition disagrees with the arguments on urban greening and biodiversity of the majority by commenting on the inadequacy of the government's general conduct rather than criticizing the proposals per se. Similarly, the opposition may introduce new arguments with the aim of destabilizing the decision or pushing back responsibilities (*Same day, another concept*). These arguments usually refer to rather vague ideas and general notions, such as the ecological transition of society in the case of Italy, which are often difficult to counteract.

The latent conflict 'For humans or for nature?' pertains to the use of specific concepts, criticizing the different meanings each party gives to the same notion (*Battles over meaning*). In some cases, the parties accuse each other of wrongly using the notion of nature. A clear difference between urban greening and biodiversity interventions for the benefit of people or nature can be observed. It is noticeable that the advent of the EGD and the BDS 2030 has introduced a specific sensitivity among actors on this issue. During the Covid-19 pandemic, the debate around urban greening and biodiversity became relatively active in terms of mental and physical health. However, discourses on citizens' safety and on economic support to industry dominate the discourse on urban greening and biodiversity (*Appeal to well-being*). These events – the drafting of the EGD and BDS, as well as the onset of Covid-19 – prove the importance of external influences on domestic discourses, which may lead to a reshuffling of the actors' relations and the consequent formation of new coalitions. Misconceptions of wording are also found with other notions. For instance, democracy is often questioned in the Italian case, as the majority is accused of skipping some decisional steps in order to implement partial climate change-related plans (*Same day, another concept*).

The last identified conflict, 'Whose fault is it?', concerns the relationship with the EU or with other Member States, which causes intense polarization among parties in both cases. Here it is possible to recognize approaches of collaboration and harmony, as well as command, control, and open conflict, and even manipulation where acting against other countries is prioritized over addressing domestic problems. In many cases, these discourses on the relationship with the EU undermine the translation of the debate into effective reg-

ulations or policies. Italian parties' tones are usually rather autoreferential in referring to the relationship with the EU: the main objective is to regain the EU institutions' trust in the country and reaffirm the power and right of Italy to become a protagonist in the EU scene. The pressure of dealing with the EU is lower in Germany, translating into milder tones, referring mainly to searching for the solution to the problem outside the country (*Whataboutism*). Conflictual discourses regarding EU institutions are usually deployed by liberals and democrats, leading to the generation of nationalist beliefs (Marks and Wilson, 2000). This push against the 'outside' when acting for change is supported by concepts of protecting one's own cultural identity and by arguments of preserving the domestic economy's competitiveness (*Free-rider excuse*).

Conclusion

This chapter has proposed analysing national parliamentary debates in order to unravel conflicts among political parties that may explain the reasons for inaction in implementing urban greening and biodiversity interventions. A discourse network analysis (DNA) was deployed to identify reasons for conflicts by detecting different discourse coalitions over 10 years, from 2013 to 2023. DNA proved to be beneficial in highlighting more formally than other policy discourse analysis approaches (1) the arguments and concepts of conflict around urban greening and biodiversity policies and (2) actors' coalitions that either hinder or support the implementation of such policies (Leifeld and Haunss, 2012). Comparing two EU Member States of global relevance, Germany and Italy, provided a lens for grasping the complexity of urban greening and biodiversity policy-making. Interestingly, the analysis has revealed that little conflict exists per se on this topic at the national level. Conversely, actors prioritize solutions differently, whereby urban greening and biodiversity interventions are evaluated as being of relatively low priority compared to interventions within other policy fields. While DNA offers a quantitative evaluation of the debate and highlights network dynamics between actors and concepts, the strategies proposed by Lamb et al. (2020) provide an additional qualitative lens to interpret the results. Thus, five 'latent conflicts' were identified as the product of an implicit and explicit prioritization of policy agendas that follow politicians' constructed storylines to hinder effective implementation and justify inaction.

Among the five types of latent conflicts, the ‘Whose fault is it?’ conflict is the most intense. This is quantitatively visible in the number of concepts related to the EU institutions, as depicted in Figure 2. Qualitatively, the subdivision into the two snapshots, T1 and T2, shows that this conflict persists, although with different arguments and intensities, demonstrating diverse reactions of the two countries to EU-level guidelines (Auel and Raunio, 2014). Together with external events (e.g. Covid-19), the introduction of the EGD has proven to be decisive in discourse coalition rearrangements, resulting, in turn, in new polarizations on urban greening and biodiversity policy-making. Specifically, conflicts with the EU increased in Germany in T2, symbolizing a heightened sensitivity towards such topics. In Italy, the intensity of this conflict remained stable. Still, the topic shifted from trust and collaboration towards tension and distancing, whereas urban greening and biodiversity stayed in the background and mainly remained connected to discourses related to human benefits. In both cases, nationalists and Eurosceptics have increased their dissent against the EGD, in favour of domestic actions rather than multilevel collaboration. This is relevant for urban greening and biodiversity in particular, and for climate change in general, as such wicked problems are not affected by administrative boundaries and instead require a strong collaboration that transcends human-created boundaries.

The two conflicts ‘For humans or for nature?’ and ‘You said Z, but what about X and Y?’ are also highly controversial. The former fundamentally questions the argumentations of the proposer, while the latter refers to tactics to introduce new concepts with the aim of increasing complexity in the debate and blocking decisions. Interestingly, conservative parties have taken the initiative of introducing concepts related to urban greening and biodiversity. In contrast, progressive parties tend to speak of other concepts, such as housing and social justice, when counteracting the propositions from the majority. This is the case for Germany in T1, when the CDU/CSU highlighted the necessity of implementing more urban greening and biodiversity interventions, and the Green Party replayed the importance of strengthening the provision of social housing. A similar dynamic occurs in the Italian case, but in T2. This dynamic is linked to the majority’s power to steer the agenda, while the opposition parties, with less time at their disposal, limit their speech to counteract the majority’s argumentations. This counteracting usually takes the form of redirecting to other subjects of accusation instead of arguing on the same subject. In this case, no differences in political affiliation are observable.

Lastly, the latent conflicts ‘Immediate action or step-by-step?’ and ‘Is your future better than mine?’ are the least intense. A reason could be that opinions on the best approach and best urban future to pursue are firmly rooted in parties’ beliefs and values, which are difficult to change. Conversely, the concepts generated from these beliefs are questioned rather than the beliefs themselves. This reflects the results that show a general agreement on the importance of urban greening and biodiversity. At the same time, no real suggestion on how to proceed is proposed; decisions are instead kept for an indefinite next meeting. Finally, it is noteworthy that these five latent conflicts are also linked to the specific format of the parliament debates. Since the imbalance in time allocation favours the majority, it was observed that the opposition must convey its ideas in a more precise and straightforward fashion. In contrast, the majority parties tend to remain vague.

Political discourses are a network phenomenon (Leifeld, 2017: 302). National debates on urban greening and biodiversity should not be treated as separate from other policy fields. While political actors tend to focus on the issue at hand, the complexity of urban greening and biodiversity is consistently intertwined with questions of land use, responsibility, materiality, and ideology. As shown in the German and Italian cases, the vagueness of the arguments on which actors agree even risks worsening any attempt to implement urban greening and biodiversity policies due to particular contextual situations and the complexity of the concepts used. By assuming the existence of multiple realities and considering the institutional dimension of discourse as its ability to shape society (Hajer, 1995), discourse analysis and DNA create space for properly interpreting the ambiguity of environmental politics, whereby discourse analysis is not simply a descriptive tool but can represent power dynamics among actors embracing conflict as a motor of (or brake to) change (Hajer and Versteeg, 2005; Leifeld, 2017). Further research could investigate the relations between parliamentary debates and practical implementations locally by identifying key actors and conflict types related to socioecological changes. Also, the analysis might benefit from defining more snapshots – for instance, during shifts in legislatures – to provide a more fine-grained picture that may show different types of agreement and disagreement (e.g. conceptual, opportunistic) and highlight additional conflicts related to the use of concepts in political debates during the election period.

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6. Inclusive urban energy futures?

Unveiling justice conflicts in the European vision for Positive Energy Districts

Per Carlborg and Sophie-Marie Ertelt

Introduction: Positive Energy Districts as a European policy concept for urban decarbonization

Acknowledging the significant role of urban areas in climate change, with urban activities responsible for approximately 70% of the world's consumption-based energy-related carbon dioxide (CO₂) emissions (Luqman et al., 2023), it becomes clear that cities are at the forefront of the global emissions dilemma. Their significant contribution to CO₂ emissions signifies that cities are central to the success of international emission reduction efforts. Therefore, they demand dedicated strategies and actions to mitigate the impacts of climate change (Solecki et al., 2018). Emissions primarily stem from households and arise from three domains (Druckman and Jackson, 2016): the transport, housing, and energy sectors; accordingly, a successful low-carbon transformation of urban areas requires a comprehensive phase-out of fossil fuels across all three sectors, the promotion of sustainable mobility modes, retrofitting of buildings for improved energy efficiency, and the adoption of renewable energy sources (Bazaz et al., 2018).

In the European context, the Positive Energy Districts (PEDs) framework has been developed by the European Commission to address this cross-sectoral urban energy transformation challenge holistically (SET Plan Working Group, 2018). PEDs are defined as 'energy-efficient and energy-flexible urban areas or groups of connected buildings that produce net-zero greenhouse gas emissions and actively manage an annual local surplus production of renewable energy' (JPI Urban Europe and SET Plan Action 3.2, 2020). PEDs aim to reduce transport-related emissions by facilitating electrification, promoting

the retrofitting of buildings for energy efficiency, and supporting the transition to a decentralized energy system by emphasizing local renewable energy production and consumption (Derkenbaeva et al., 2022; Sareen et al., 2022). The framework is a crucial element of the European Union's strategy for sustainable urbanization, with an ambitious target to establish 100 such districts across the different member states of the EU by 2025 as part of the European Strategic Energy Technology Plan (SET Plan) (SET Plan Working Group, 2018; Bossi et al., 2020). So far, 20 European countries have joined this initiative, which is carried out through the Joint Programming Initiative (JPI) Urban Europe, which acts as a multi-stakeholder platform for developing implementation frameworks for PEDs and offers funding for relevant projects (JPI Urban Europe, n.d.). As of early 2024, over 80 related projects have received funding; however, the majority of PEDs are currently in planning (e.g. through neighbourhood energy assessment studies) or early implementation (e.g. through local living labs and small-scale experimentation) phases rather than fully operational (Gollner, 2020; PED EU NET, 2024).

However, alongside the environmental imperative to reduce emissions and the technical challenge of rapidly scaling up low-carbon solutions such as PEDs, there is a need to ensure that urban energy transformations unfold justly and equitably (Broto and Westman, 2019). Cities today have frequently become spaces where structural injustices manifest and profoundly shape the everyday lives of many citizens (Routledge, 2010; Angelovski and Connolly, 2021). Structural injustices refer to the deep-rooted and systematic disparities in access to resources, opportunities, and decision-making processes that disproportionately disadvantage certain groups, often based on socioeconomic status, ethnicity, or gender, leading to persistent inequality and exclusion (Browne and McKeown, 2024). Such structural injustices extend to the unequal exposure to environmental hazards, which disproportionately affects minority and low-income communities as a result of historical and ongoing social and economic disparities (Pellow, 2023). For instance, neighbourhoods predominantly inhabited by racial minorities often have less access to green spaces and are more likely to be located near polluting industries or waste disposal sites, leading to higher exposures to pollutants such as dust and air pollution (Kotsila et al., 2023; Motairek et al., 2023).

An illustrative consequence of these entrenched injustices in the context of the energy transition is double energy vulnerability, wherein individuals face the simultaneous challenges of energy poverty (inability to afford adequate energy services) and transport poverty (lack of access to efficient and

affordable transportation), which significantly hampers their quality of life and ability to engage in civic life (Robinson and Mattioli, 2020; Simcock et al., 2021). Previous research has indicated that ongoing low-carbon transformations frequently fail to address pre-existing structural drivers of injustice or the resulting vulnerabilities and may even lead to new injustices (Sovacool et al., 2019; Anguelovski and Connolly, 2021). Adding to that, current geopolitical and economic crises exacerbate existing vulnerabilities and make it difficult for disadvantaged groups to cope with additional burdens, such as increased energy costs, rendering the pursuit of environmental sustainability a distant concern compared to immediate survival needs (Streimikiene and Kyriakopoulos, 2023). Therefore, approaches towards sustainable urbanization must not only address the pressing concerns of rapid decarbonization but also consciously integrate justice and equity principles to rectify and avoid the perpetuation of structural injustices (Ahvenniemi et al., 2017; Sovacool et al., 2019; Anguelovski and Connolly, 2021).

While the PEDs concept emphasizes holistic development that integrates social concerns with ongoing citizen involvement (Casamassima et al., 2022; Koutra et al., 2023) in alignment with the overall ambition of the EU to have a 'just transition' (European Commission, 2020), a definitive strategy ensuring that such districts contribute to rectifying – or at the very least, not exacerbating – existing structural injustices has yet to be clearly defined (Hearn et al., 2021; Nguyen and Batel, 2021). As a first step towards filling this gap, this chapter presents a comprehensive analysis of the justice implications in the emerging vision of how PEDs can be developed and implemented in Europe, specifically focusing on aspects of restorative justice (Heffron and McCauley, 2017; Ibrahim, 2024). Analysing conflicts in urban future-making from a restorative justice perspective allows us to prioritize the recognition and reconciliation of present-day and historical injustices in the context of the energy transition, such as inadequate access of inhabitants of certain urban areas to clean, affordable energy. The restorative justice lens thus enables us to acknowledge the vulnerabilities, such as energy poverty, that stem from such injustice and to propose practices that built environment professionals can leverage to ensure the active participation and representation of all citizens, especially those who have experienced marginalization, in co-creating their urban futures.

Our results highlight how PEDs, despite the holistic development ethos exhibited in their policy framework, risk overlooking the intricate realities of structural injustices. They reveal the conflicts urban future-makers may face when planning and implementing PEDs, such as the tension between realizing

truly sustainable urban transformations and simply enacting technocentric decarbonization efforts that may inadvertently reproduce and reinforce unjust incumbent structures. To assist urban future-makers in addressing these conflicts, we put forth strategies for leveraging PEDs for environmental sustainability and the restoration of justice within urban areas.

Theoretical background: Applying restorative justice principles to the analysis of PEDs

The concept of restorative justice, originally rooted in the fields of criminology and social justice, has since been applied to address a wide range of societal issues, including energy justice concerns (Hazrati and Heffron, 2021). Historically, restorative justice emerged as an alternative to traditional punitive justice systems and focused on repairing harm and fostering reconciliation between the offender and the victim (Zehr, 2015). In recent years, the concept has become a vital principle of the energy justice framework; restorative justice aims to rectify both existing and potential future injustices caused by energy-related activities, and to address structural injustices within energy systems (Heffron and McCauley, 2017; Hazrati and Heffron, 2021; Heffron, 2023). Restorative justice is thus regarded as the operational principle within the energy justice framework, allowing for implementing energy justice in practice (Heffron and McCauley, 2017; Wallsgrove, 2022). With its focus on restoring equity and community well-being, restorative justice can be conceptualized along three dimensions. First, it considers who is affected and how they are affected, which aligns with recognition justice. Second, it advocates for inclusive, participatory decision-making, reflecting procedural justice. Third, it emphasizes equitable benefit distribution and remediation of adverse effects, corresponding to distributive justice (Wallsgrove, 2022; Ibrahim, 2024).

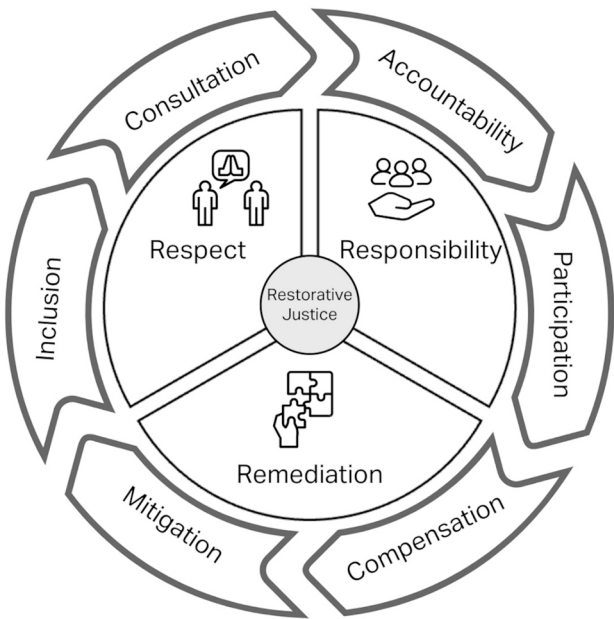
In order to operationalize restorative justice to analyse the emerging lines of conflict in PEDs, we build on previous work that proposes that this justice tenet can be broken down into three core concepts: *respect*, *responsibility*, and *remediation* (Wallsgrove, 2022; Ibrahim, 2024). In the rest of this section, we outline each of these core concepts and their associated practices as well as integrate them into an analytical framework (see Figure 1). First, *respect* acknowledges the unique impacts of energy decisions on different groups and, thus, underscores the recognition of diverse community needs and perspectives that must be consulted and calls for inclusiveness in the development processes. It

therefore relates to practices of consultation and inclusion, ensuring all community segments are heard and considered (Ibrahim, 2023). To actualize this practice, a city council might, for example, hold town hall meetings to gather input from various community members on the placement of new solar energy installations in a particular neighbourhood.

Responsibility entails practices related to ethical decision-making processes, during which democratic accountability necessitates the consideration of a wide range of issues and actions to mitigate or prevent injustices, and the participation of a broad range of stakeholders is emphasized (Ibrahim, 2023). In the energy transition context, for example, a city might create a public oversight committee composed of residents, business leaders, and research experts. This committee could oversee the deployment of a housing retrofitting programme, ensuring transparency and enabling direct community feedback and participation in decision-making processes.

Lastly, *remediation* involves corrective actions to repair existing injustices or mitigate future ones (Wallsgrave, 2022). This consequently includes practices to mitigate negative outcomes and compensate for past harms; for instance, a city might implement a subsidized energy retrofitting programme for economically disadvantaged neighbourhoods to reduce higher energy costs associated with transitioning from fossil fuels while also compensating those disproportionately affected by prior energy policies. The entire restorative justice framework that will guide our analysis and interpretation of the results can be seen in Figure 1.

Figure 1: Restorative justice framework.



Source: Authors. Substantially adapted from Ibrahim (2024) and Wallsgrove (2022).

This restorative justice framework offers a critical lens for analysing the justice implications of planning and implementing Positive Energy Districts (PEDs). Its application as an analytical framework enables examining how PEDs could impact various community groups, particularly those historically marginalized, ensuring their active involvement and representation in planning and decision-making. The framework also allows for a thorough analysis of how the PED concept may address immediate injustices that emerge from its implementation and how it plans to overcome entrenched systemic barriers. Additionally, it enables a comprehensive evaluation of both the distribution of benefits, such as enhanced energy efficiency and environmental sustainability, and the allocation of burdens, including the impacts of infrastructural changes. This ensures that vulnerable groups do not disproportionately bear the costs of progress. In essence, through its emphasis on respect, responsibility, and remediation, restorative justice provides a

comprehensive analytical lens, ensuring that the PED framework is not just technologically innovative and environmentally sustainable but also socially just and inclusive – effectively addressing existing power dynamics and deep-rooted disparities present in today’s built environment.

Methodology: Critical thematic analysis of emerging visions of PEDs

For this study, we conducted a document-based critical thematic analysis (Lawless and Chen, 2018) to identify the emerging vision of how Positive Energy Districts (PEDs) can be planned and implemented in Europe.¹ The choice of critical thematic analysis was motivated by the fact that beyond identifying the emerging vision of PEDs, it also allows for the critical evaluation of how that vision may reproduce or challenge existing social-material structures and power dynamics that influence structural injustices. However, at this point, it is also important to acknowledge the potential limitations of our approach, including its reliance on available documents on PEDs, which, given their nascent stage of development, may lack comprehensiveness or accuracy. Additionally, a critical thematic analysis heavily depends on researchers’ interpretations, thus entails subjectivity in theme identification and potential analytical bias, which may lead to overlooking alternative interpretations (Braun and Clarke, 2021).

To build a text corpus for the analysis, documents were identified through targeted searches in databases for EU policy, such as Eurostat, and scientific publications (articles, conference papers, reviews, book chapters) related to PED projects through Scopus and Web of Science using ‘positive energy district’ as a search term in titles, abstracts, and keywords. The search was conducted in January 2024 and limited to work published after the PED concept was established as part of the Implementation Working Group on Positive Energy Districts and Neighbourhoods for Sustainable Urban Development in 2018 (European Commission, 2018). Additionally, we included project reports,

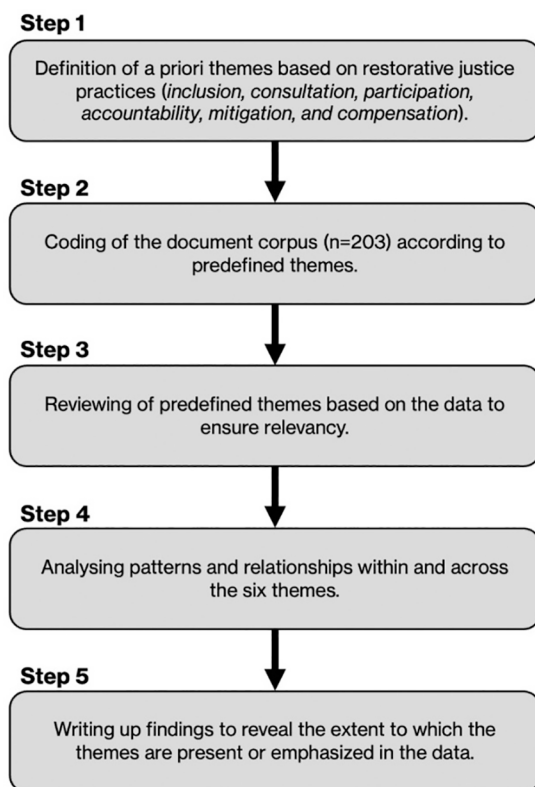
1 Document-based critical thematic analysis is a qualitative research method that involves identifying, analysing, and reporting patterns (so-called themes) within a sample of documents. It aims to critically examine the content to uncover underlying ideas, assumptions, and conceptualizations (Lawless and Chen, 2018). Compared to other forms of qualitative research, it is a non-linear and reflexive method that prioritizes depth over breadth, engaging with documents’ context, meaning, and implications (Braun and Clarke, 2021).

evaluations, and white papers from real-life PEDs in our review. This information was obtained through the PED-EU-NET database (PED-EU-NET, 2024) and the JPI Urban Europe project catalogue 'Europe Towards Positive Energy Districts – A Compilation of Projects Towards Sustainable Urbanisation and the Energy Transition' (Gollner, 2020). After removing duplicates and conducting an initial screening based on analysing the documents' titles, abstracts, and project summaries, a total of 203 documents were selected. This sample of research articles on PEDs, policy documents related to the development of the PED framework, and reports and evaluations of real-world implementations of PEDs provided a comprehensive understanding of how the planning and implementation of PEDs are envisioned in Europe.

In the next step, we performed a deductive thematic analysis (Boyatzis, 1998; Fereday and Muir-Cochrane, 2006), utilizing our analytical framework based on the restorative justice framework, with a deliberate focus on critically evaluating how instances within the data might reflect the PED vision's capacity to either challenge or perpetuate structural injustices. The restorative justice framework and its related practices as outlined in the previous section of this chapter (see Figure 1) therefore informed the initial coding schema, which was composed of six *a priori* themes: inclusion, consultation, participation, accountability, mitigation, and compensation. Each document was methodically screened for instances and discussions corresponding to these themes, and coding was assisted through the MAXQDA software. Figure 2 outlines the methodological steps undertaken throughout the thematic analysis.

By employing this deductive stance, we actively searched for evidence within the data that would either confirm or challenge the presence of these restorative practices within the emerging vision for PEDs. This approach not only provided a systematic method for data analysis but also anchored our investigation in the established theoretical constructs, ensuring that our findings were rigorous and that our analysis was tailored to reveal how the PED concept may address or neglect key restorative justice concerns.

Figure 2: Methodological process for the deductive thematic analysis of the document corpus.



Source: Authors.

Results: Justice implications in PEDs

This results section is structured around the six main practices of the restorative justice framework: inclusion, consultation, participation, accountability, mitigation, and compensation.

Starting with the practice of inclusion, our thematic analysis revealed that the emerging vision for planning and implementing Positive Energy Districts in Europe, while ambitious in achieving environmental sustainability through

technological solutions, exhibits significant limitations when it comes to the inclusion of diverse social groups (Hearn et al., 2021; Nguyen and Batel, 2021; Sareen et al., 2022; Sassenou et al., 2024). The primary focus of real-world PED projects has been on newly-built districts, often sidelining existing urban areas, with only a handful of exceptions of retrofitting initiatives amongst funded projects (Bossi et al., 2020; Gollner et al., 2020). This approach has inadvertently limited the breadth of citizen inclusion, especially among socio-economically vulnerable residents. Social housing is frequently only part of PED planning or implementation projects in countries with national regulations that require a certain percentage of social housing in new developments (e.g. Spain and Germany) (Hearn, 2022).

Adding to that concern, while the involvement of multiple private partners in PED projects is considered a critical success factor by JPI Urban Europe (JPI Urban Europe and SET Plan Action 3.2, 2020; Slotte, 2021), the engagement of these private partners is often motivated by profitability (Zhang et al., 2021; Koutra et al., 2023). In the emerging visions for PEDs, this market-driven approach carries the risk of defaulting to development in economically profitable areas, such as high-end commercial zones or upscale residential neighbourhoods (Hearn, 2022), where the return on investment is most assured. Our analysis did not reveal strategies for how these economic drivers can be complemented with measures for social inclusion. This potentially leads to PED implementations that reinforce existing structural injustices, such as the concentration of high-quality housing and economic opportunities in affluent neighbourhoods, rather than mitigate them. There is an inherent risk that this approach of planning and implementing PEDs creates exclusive cases with progressive technology to meet climate challenges yet increases the number of 'left behind places' (MacKinnon et al., 2022) with both high social deprivation and an underdeveloped capacity to meet climate change.

Furthermore, when coding for consultation practices, we found a lack of initiatives aimed at developing an understanding and integrating knowledge of the lived experiences of residents, particularly those who are vulnerable or marginalized in the PED planning and implementation process (Sareen et al., 2022). No guidelines or principles were identified that would allow consulting citizens on the variety of energy needs and practices prevalent among different residents to be adequately considered when planning PEDs. In the PED-ID project report, only a short sentence points towards the need to collect data on 'citizen preferences' in the planning phase (Slotte, 2021), with Mihailova et al. (2022) putting forward a discrete choice experiment method to better un-

derstand citizen preferences for PEDs. Moreover, the current planning framework, shaped by a combination of municipal and private entities (Slotte, 2021; Larsson Kolessar, 2022), consequently risks overlooking the diverse and complex realities of urban living. While energy poverty alleviation and access to affordable housing can be regarded as core pillars of the emerging vision for PEDs (European Commission, 2018; JPI Urban Europe and SET Plan Action 3.2, 2020; Gouveia et al., 2021; Hearn, 2022), a wider spectrum of social and economic inequalities are yet to be addressed comprehensively in the PED planning and implementation process. This oversight can result in PEDs failing to reflect the actual needs and preferences of the communities they are intended to serve.

Related to participation practices, our thematic analysis further highlighted that while, in theory, as outlined in policy documents, PEDs are intended to be developed in a participatory, citizen-centric fashion (JPI Urban Europe and SET Plan Action 3.2, 2020), it appears that in practice, engagement with citizens or forms of co-creation are not that common (Hearn, 2022; van Wees et al., 2022). This can partly be attributed to the fact that in the implementation of newly built PEDs, no residents exist with whom co-creation can be facilitated (Bossi et al., 2020; Zhang et al., 2021). However, not even theoretical, delineated strategies of how to involve a broad spectrum of citizens were found during the analysis (see Larsson Kolessar, 2022 for lack of citizen considerations). Consequently, the emerging vision for PEDs does not adequately consider the barriers to participation that certain community segments might face, which may prevent them from contributing to PED planning and implementation. Such barriers inhibiting a more inclusive citizen engagement process might range from socio-economic constraints to language barriers, digital divides, or lack of trust in authorities. The failure to recognize and actively work towards dismantling these barriers means that the potential for a genuinely collaborative and co-created PED, one that reflects the diverse needs and insights of its residents, remains largely unrealized (Nguyen and Batel, 2021; Mihailova et al., 2022).

In addition, regarding accountability practices in decision-making, our findings suggest a lack of processes that track and evaluate the contributions and outcomes of PEDs concerning social aspects. Focus within the emerging vision for PEDs is primarily placed on measuring energy performance, efficiency, and greenhouse gas emissions (Angelakoglou et al., 2020; Civiero et al., 2021; Fichera et al., 2021; Williams et al., 2022). Hence, there is a need for transparent guidelines that hold decision-makers accountable for the inclu-

sivity and equity of PED projects. However, such guidelines are currently not part of the emerging vision. Accountability measures should ensure that the commitments made during the planning phases are actualized and that communities have recourse if PEDs fail to deliver on their promises of inclusivity and sustainability. However, measures or sets of principles such as setting up independent bodies to oversee the development of PEDs and ensuring that the impacts of PEDs are monitored and reported back to the community in a transparent and accessible manner were not found in the analysed documents. Moreover, the financing measures currently in place to support the few retrofitting PED projects often do not account for the economic diversity of urban populations (Gouveia et al., 2021). Our analysis came across limited forms of inclusive financing options (e.g. loans payable through financial savings on utility costs), which would allow for broader community investment in PEDs (Hearn, 2022). Without such mechanisms, there is a risk that PED planning and implementation becomes the purview of a select few, often those already economically advantaged, rather than a collective endeavour that benefits the entire community.

Compounding these issues is the lack of mitigation and compensation practices that we were able to identify in the emerging vision for PEDs. While affordability is put forward as a key principle by JPI Urban Europe (JPI Urban Europe and SET Plan Action 3.2, 2020), existing PED design and implementation frameworks do not sufficiently offer measures of how to apply this principle to mitigate adverse effects on existing communities, specifically with regard to concerns such as affordability of retrofitting, energy, and housing (Hearn, 2022). The financial implications of upgrading buildings to comply with PED standards are a significant barrier, with no clear solutions for managing these costs (Desvallées, 2022; van Wees et al., 2022). Similarly, the ongoing affordability of energy within PEDs is a contentious issue. While the aim is to reduce long-term energy costs through efficiency and renewables (Gollner et al., 2020; Fichera et al., 2021), how the immediate financial impact of investing in renewable energy technologies and battery storage should be managed so as not to create challenges for residents remains unaddressed. How to ensure the affordability of housing in PED projects is also inadequately considered, particularly with regard to concerns about the potential for increased housing costs and the risk of gentrification (Sareen et al., 2022). Without explicit measures to control property prices, there is a danger that PED initiatives may contribute to the displacement of current

residents rather than include those residents in the benefits of the urban energy transformation (Checker, 2011).

In addition, our thematic analysis did not uncover any concrete plans or policies aimed at compensating those who may be adversely affected by the shift towards PEDs. This oversight suggests a lack of comprehensive planning to support residents who may face financial burdens due to the transition, whether through increased housing costs, energy bills, or the necessity of retrofitting (Hearn et al., 2021). Lastly, the analysis has identified a lack of strategies or models for developing PEDs in a manner that can rectify existing structural injustices. The emerging vision for PEDs does not entail propositions on how to leverage the concept to compensate for and alleviate historical and systemic disparities within the urban environment. Instead, there is a risk, as outlined in this results section, that without intentional and strategic planning, PEDs may reinforce or even deepen such injustices.

Discussion: Emerging lines of conflict in the PED vision

The results of our critical thematic analysis, guided by the restorative justice framework and its related practices, reveal multiple lines of conflict embedded in the vision for Positive Energy Districts prevailing in Europe, posing challenges for built environment professionals aspiring to harness this concept for urban energy transformations. In the sections below, we will elaborate on three specific conflicts that arise in urban planning for PEDs and discuss potential strategies for addressing these conflicts in urban future-making: first, *technocentric decarbonization versus citizen inclusion and consultation*, then, *economic viability versus enhancing participation and mitigating vulnerabilities*, and lastly, *new building developments versus energy-positive retrofitting*.

Technocentric decarbonization versus citizen inclusion and consultation

Built environment professionals are caught between the need for rapid decarbonization to meet climate goals through advanced technologies and the imperative to ensure these urban transformations are also carried out in an inclusive manner that consults a broad range of citizens. The PED framework, entailing a variety of technological innovations, is at the forefront of this transformation and, thus, offers these professionals a portfolio of smart and efficient energy solutions. However, the real-life planning and implementa-

tion of PEDs, as revealed by the results of our thematic analysis, demonstrate significant limitations when it comes to including diverse social groups, as well as a lack of comprehensive consultation processes. If built environment professionals continue to follow this trajectory, certain sections of society could be inadvertently marginalized, particularly those who are socio-economically disadvantaged and thus cannot experience the immediate benefits (e.g. reduced energy costs) these technologies provide (Ahvenniemi et al., 2017; Sovacool et al., 2019). Additionally, our thematic analysis specifically points to a lack of initiatives to understand and integrate the varied energy needs and practices of different residents, which could be considered critical when planning inclusive PEDs. Applying the restorative justice practices within this context therefore requires professionals to develop a balanced approach to urban decarbonization efforts that not only focuses on the quantitative numbers of emission reductions but also emphasizes qualitative aspects of social inclusion.

Therefore, overcoming this line of conflict must entail understanding the lived experiences of all urban citizens, particularly those who may be historically marginalized. Integrating more explicit practices of citizen inclusion and consultation is thus not just a matter of addressing social justice but also a proactive way for built environment professionals to address PED project efficacy and long-term sustainability. Increased consultations, particularly with marginalized groups, could ensure that PED projects are grounded in the lived experiences of different communities and can thereby avoid reinforcing existing inequalities and structural injustices. Integrating diverse perspectives can help create a more resilient, adaptable, and inclusive urban energy transformation. Additionally, it will be critical to supplement the existing performance evaluation measures to assess energy efficiency and CO₂ emissions of PEDs (e.g. Angelakoglou et al., 2020; Jepsen et al., 2022; Pignatta and Balazadeh, 2022) with metrics that track the inclusivity outcomes of PEDs over time. Such measures, for example, could assess the extent to which PEDs contribute to enhancing community well-being, social cohesion, and community resilience. By considering the points above, built environment professionals can ensure that the required urban energy transformations, facilitated through PEDs, lead to significant emission reductions that benefit a broad layer of society.

Economic viability versus enhancing participation and mitigating vulnerabilities

A second line of conflict emerges for built environment professionals in ensuring the economic viability of PED projects as well as meaningful citizen participation. Our results highlight how the pursuit of making low-carbon modes of transportation, clean energy, and housing affordable and accessible to all urban residents may be at odds with the prevailing profit-driven development model of PEDs. Hearn (2022: 9) sums up this dilemma that professionals face as follows: 'If PEDs are to be a continuation of the existing *modus operandi* of profit-led capitalism, these may provide exclusive green living spaces for the wealthy but may not contribute to a sustainable and fair society.' From a restorative justice perspective, it is therefore paramount to establish planning and implementation frameworks that allow for the participation of a variety of different citizens, particularly given that our analysis has highlighted that most real-world PED projects are newly developed areas or business parks, thus lack participatory practices and co-creation with citizens altogether (Sassenou et al., 2024). A starting point for built environment professionals to overcome this participation gap while being mindful of the economic complexities of turning existing neighbourhoods into PEDs might be to strategically implement incremental development and piloting. This could involve selecting specific areas within a neighbourhood to introduce PED-related improvements, such as retrofitting buildings with energy-efficient technology or installing community-owned renewable energy sources. By starting small in existing neighbourhoods, these projects can demonstrate the economic viability of PEDs (e.g. reduced energy costs and creation of local jobs) as well as allow for the involvement of and co-creation with residents. Such citizen involvement in these pilots would provide valuable feedback and help tailor solutions that meet the community's needs. Built environment professionals could utilize the incremental successes from these pilots to secure broader buy-in from private investors or funding agencies and justify further governmental investments, thereby gradually transforming existing neighbourhoods into economically viable PEDs.

Moreover, especially as energy affordability is becoming a pressing issue for citizens across Europe, there is a growing need for mitigation practices that can enable equitable access to the benefits of PEDs, such as affordable clean energy. Otherwise, there is a risk that 'unaffordable energy costs and other necessities would push vulnerable populations into energy poverty and even ex-

treme poverty' (Guan et al., 2023: 305). However, our thematic analysis highlighted a lack of concrete strategies in the PED vision regarding how to mitigate energy poverty through PEDs or even measures to mitigate the upfront costs that PED solution implementation inherently carries. For built environment professionals, this reveals a need to develop financing models that enable low-income households to adopt energy-efficient technologies (Hadfield and Coenen, 2022). Cross-subsidization strategies could further complement such models (Leitheiser and Follmann, 2020), wherein a portion of the economic profit from newly developed PEDs is used to finance the deployment of similar districts in disadvantaged urban areas. These cross-subsidies would relate to increasing participatory practices by ensuring that the PEDs established in business parks and within new housing developments contribute to the funding of retrofitting projects in neighbourhoods most in need, thereby fostering a sense of communal investment in citizens' collective well-being rather than exacerbating urban injustices. Lastly, in the context of mitigation, considerations of long-term affordability are crucial. To avoid decarbonization efforts that lead to displacement, strategies must be developed to maintain inclusivity, going beyond simply providing initial access to the benefits of PEDs. This may require safeguarding against the risk of gentrification through rent stabilization measures (Checker, 2011).

New building developments versus energy-positive retrofitting

The last line of conflict becomes evident by taking a closer look at how PEDs are currently being developed: as already outlined above, across Europe, city-level policy-makers prioritize PED implementations in the form of newly built districts (Hearn, 2022). This emphasis on new building developments is understandable to a certain extent as it allows professionals to address prevailing housing shortages experienced by many European nations while ensuring new developments align with the EU's climate goals. However, upgrading the existing building stock to meet PED standards must be recognized as a similarly important initiative not only to ensure citizen participation but also to enable PEDs to mitigate existing or emerging vulnerabilities. Europe's existing building stock is a considerable source of CO₂ emissions, with 75% of buildings classified as not energy efficient, particularly those built before 2001. Accordingly, there is a need to renovate and improve the energy efficiency of around 35 million European buildings (European Commission, 2020). The urgency is underscored by various numbers across EU nations: In Sweden, for example,

this means that 1,875,000 apartments will need to be renovated in total (Palm and Reindl, 2016), while in Germany approximately 240,000 residential buildings would need to undergo renovation each year until 2050 (Federal Ministry of Economic Affairs and Climate Action, 2024) to reach the climate neutrality targets of the EU. However, studies find that demolishing existing buildings is still too frequently a preferred method (BRE, 2016).

Therefore, this specific line of conflict is not about overcoming a divide but rather finding a balance between new building developments and energy-positive retrofitting while firmly embedding practices of restorative justice related to compensation and accountability within both. For new developments of PEDs, accountability might imply the development of a specific quota at the EU level for the mandatory inclusion of low-cost and social housing (Hearn et al., 2021) to avoid exacerbating the increasing income segregation that frequently shapes new urban development (Van Ham et al., 2021). For energy-positive retrofitting, restorative justice might entail built environment professionals developing a compensation framework that offsets residents' retrofitting expenses and incentivizes energy-efficient behaviours. Such a framework could provide targeted financial assistance, such as retrofitting grants and energy-efficiency vouchers, which directly assist low-income renters often beset with precarious living conditions, including excessive cold and dampness, as well as the resultant negative health implications (Curl and Kearns, 2017). Addressing accountability proactively may require built environment professionals to craft positive energy retrofitting programmes that allocate resources directly to renters, enabling them to improve their living conditions without the looming threat of post-retrofitting rent increases (Desvallées, 2022). Shifting the focus away from subsidies that predominantly benefit landlords, additional compensation mechanisms could also be structured as tax benefits or rebates linked to the actual energy savings achieved post-retrofitting. Furthermore, by actively involving tenants in the retrofitting projects' planning and decision-making processes, built environment professionals can safeguard the occupants' interests, fostering a collaborative environment that promotes a collective commitment to energy efficiency and broader urban climate goals.

Conclusion

This chapter offered a critical thematic analysis of the emerging vision for Positive Energy Districts in Europe through the lens of restorative justice, identify-

ing a variety of shortcomings and embedded conflicts within the current planning and implementation framework. While acknowledging that PEDs are still in the early stages of development, thus limiting the breadth of our analysis, we believe our results become particularly valuable as they underscore the need for embedding restorative justice principles in this nascent phase. This ensures that, rather than simply be an afterthought or omitted entirely, these practices can become integral to the PED development model.

As a final remark, we would like to acknowledge that despite the concrete strategies proposed in this chapter on how the integration of restorative justice principles into the PED framework may enable the mitigation of prevailing injustices, it is crucial to recognize the inherent limitations of these efforts in the sense that some injustices might be beyond repair (Spelman, 2002). This understanding then requires an approach to planning and implementing PEDs that can distinguish between what can be rectified and what remains irreparable in the context of urban energy transformations. For reparable structural injustices, built environment professionals can actively pursue restorative measures, such as equitable resource access and inclusive community engagement, as outlined above. However, for injustices that are deeply entrenched in historical and socio-material structures, complete rectification may not be possible. In such instances, the focus should shift from attempting to repair the unreparable to acknowledging that certain historical injustices cannot be undone, understanding these injustices, and learning from them so that they can guide more equitable and just practices in the future. It also calls for creating spaces for dialogue and healing, recognizing the trauma and loss experienced by affected communities.

The challenge for built environment professionals, therefore, lies in balancing the aspiration to restore prevailing injustices with a pragmatic acceptance of the limits of what can be achieved, especially within the scope of implementing PEDs. Acknowledging the limits of restoration, nevertheless, should not imply resignation to structural injustice but rather help build an awareness of the complexity of addressing long-standing urban disparities. While recognizing the historical depth and complexity of injustices and structural injustices that urban inhabitants face, we assert that PEDs, though unlikely to resolve these issues entirely, present a considerable opportunity to address these challenges. Built environment professionals should, therefore, aspire to utilize the PED concept to foster an urban environment that is environmentally sustainable and socially just. The inherent lines of conflict identified in this chapter offer tangible opportunities for urban future-makers to reflect on concerns re-

garding social justice and citizen well-being at a stage where they can still significantly influence the trajectory of PED planning and implementation.

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7. Towards the machine-readable city?

Autonomous driving and HD mapping as latent conflicts in urban future-making

Fabian Namberger

Introduction

In August 2023, Waymo – a subsidiary of Google's parent company, Alphabet – introduced a fleet of fully self-driving cars in the city of San Francisco.¹ As with well-known ride-hailing services such as Uber, Waymo's shuttles can be booked via a smartphone app. Passengers are picked up, however, not by a human driver but by a fully automated car-robot: its driver's seat eerily empty, its steering wheel moving by itself (Waymo, 2024). While Waymo's autonomous vehicles (AVs) have stirred much global media attention since their introduction (Mickle et. al., 2023), as of yet, there is considerably less awareness about one of the most crucial operations that centrally underlies virtually any effort towards large-scale AV implementation: so-called HD mapping (Mattern, 2017; Alvarez León, 2019a). Many times more accurate and variously more detailed than previous GPS-based mapping procedures such as Google Street View, HD maps provide fully three-dimensional digital replicas of entire cityscapes and, as such, serve as an indispensable digital compass for self-driving cars in the ever-changing and chaotic environment of the urban streetscape.

Critical scholars in and beyond urban geography have not remained oblivious to the growing presence of AVs in urban areas (Stilgoe, 2018; Jones et al., 2021). Next to explorations of AV use cases beyond the self-driving car – such as drones (Jackman, 2023), delivery robots (Macrorie et al., 2021), or modular

1 I want to thank the anonymous reviewer as well as the editors for their insightful and constructive comments on an earlier draft of this chapter. A warm thank you also Joachim Thiel for inspiring and helpful discussions and Rebecca Dedek for great support with the empirical material.

freight vehicles (Hopkins, 2023) – it has been practises of AV testing and trialling that have attracted a great deal of critical scholarly attention lately (Talebian and Mishra, 2018; Marres, 2020). While these literatures have shed much-needed light on the advancing urban rollout of AVs, including its associated implementation problems such as hyperbolic promises by corporate developers and a lack of acceptance by users (Stilgoe and O'Donovan, 2023), there exists a methodological tendency in many of these studies to treat AVs as 'closed' technical end products or *things*. Vice versa, the underlying technical, social, and political *processes* that make possible the 'discrete unit' of the AV capsule in the first place remain far more unexplored. Likewise, the procedure of HD mapping has only gradually come under more explicit scholarly scrutiny (for a pioneering early exploration, see Mattern, 2017). This is despite the fact that, as noted by Luis Alvarez León, the use of 'artificial intelligence-enabled HD and 3D maps is reconfiguring the mobile spatial media environment within (and around) cars, while simultaneously laying the foundations for an entirely new way for cars to navigate – and ultimately produce – space' (2019b: 364; similarly, Alvarez León, 2019a). HD maps, in short, have the potential to substantially augment the urban built environment by enhancing it with new machine-readable layers of geographic data produced not for the human sensory apparatus but for the affordances of the self-driving car's multi-perspectival 'machine eye' (Dodge and Kitchin, 2005; Kitchin, 2014; Rabari and Storper, 2015).²

Situated at the interface of the city as an existing physical structure of second nature and as a rapidly expanding digital reality of third nature (Wark, 1994), large-scale HD mapping marks a primary site of urban future-making. Built environment professionals in and beyond state institutions – urban planners, public officials, political decision-makers, policy 'experts', regulators, advocacy groups, media commentators, NGOs, activists, and more – find themselves confronted with a novel urban practice and technology that brings with it profound urban conflicts. At the level of professional space-making, as I argue in this chapter, HD mapping procedures are accompanied *by* and deeply embedded *in* three broader conflict constellations of today's entrepreneurially-

2 On the idea of the 'machine eye', see Harun Farocki's extensive filmic work (Paglen, 2014).

oriented 'tech urbanism': (1) conflicts of urban governance, (2) conflicts of urban regulation, and (3) conflicts of urban imagination.³

In pursuing these conflict constellations, two important qualifications are needed. First, inspired by the idea of urban intelligences beyond the big-tech corporation and its stiflingly narrow vision of urban 'smartness' (Mattern, 2021), I proceed from the hypothesis that HD mapping does not so much instantaneously 'disrupt' the urban fabric in a tabula-rasa-like instant of Promethean re-creation (critically, Namberger, 2024). Rather, what is at stake and in need of careful disentanglement is a full bundle of inherently conflictual processes, procedures, and operations along which HD mapping has started to be woven into the existing urban fabric. Second, I understand AV development in general and HD mapping in particular as forming part of what Aaron Shapiro (2021) has called 'the urban stack': hierarchically layered assemblages of analogue and digital urban infrastructures, hardware, and software, allowing for the sensing, processing, and mass application of large-scale urban data in the context of corporate value extraction. Given the largely black-boxed quality of the urban stack (Shapiro, 2021: 28), it may not be too surprising that – as I discuss below – HD mapping's conflicts of governance, regulation, and imagination figure not so much as 'open', clearly visible confrontations between opposing groups or stakeholders, but rather as *latent* conflicts of urban future-making: conflicts that, anchored deeply within the digital code and opaque operations of the urban stack, have not yet fully surfaced at the level of broader societal awareness. In this sense, the generation of HD maps shares much with the closely related and equally non-transparent procedures of training data generation in the context of autonomous driving (Schmidt, 2022).

Starting from these two assumptions, in what follows I take a closer look at some of the ways in which HD mapping has started to intervene in certain urban areas and particular political arenas of existing urban space. By doing so, I will pursue two general aims. First, in the next section, I discuss current AV testing and implementation as, in essence, large-scale exercises in trying to mitigate and make manageable the sheer unpredictability of the urban

3 On the topic of tech urbanism, see Mattern (2021), and Cugurullo et al. (2023). On conflicts of governance in relation to current tech urbanism, see Wiig (2015). On conflicts of regulation vis-à-vis current tech urbanism, see Stark et al. (2021). On conflicts of imagination in relation to current tech urbanism, see Sadowski and Bendor (2019).

streetscape. Second, HD mapping can be understood, as discussed in the subsequent section, as one of the most technologically advanced instruments of urban risk mitigation in the context of comparatively open scenarios of AV implementation. Third, using the Testfeld Autonomes Fahren Baden-Württemberg (TAF BW), a project of HD mapping and AV implementation in south-west Germany as an empirical vignette, I illuminate the broader yet largely latent conflicts of governance, regulation, and imagination that have accompanied the realization of this local venture in particular and of autonomous driving and HD mapping in general. Building on these insights, a conclusion summarizes my findings and makes some methodological suggestions for further research on autonomous driving, HD mapping, and similar developments of high-end tech urbanism.

Mitigating uncertainty: Autonomous driving between closed and open urban scenarios

As scholars of various stripes and times have pointed out in relation to recurring waves of socio-economic crises and their urban reverberations, uncertainty, volatility, and unpredictability have long been vital ingredients of urban life under capitalism (Mumford, 1938; Simmel, 1969). In a similar vein, Zeiderman et al. have recently noted that, in (partly simplistic) juxtaposition to rural environments, the city has often been found to be ‘a fundamentally unknowable and unpredictable environment’ (2015: 282). In reaction, uncertainty has often been made the ‘target of urban intervention’, which has included recurring and oftentimes futile ‘attempts to mitigate and manage it’ (ibid.).

In this section, I suggest it is the sheer messiness and fundamental unknowability of what Henri Lefebvre (2003) once called the ‘urban phenomenon’ that today’s practices of AV testing and selective real-world implementation have in many ways run up against. Consider, for instance, the following characterization of the encounter between AVs and the urban environment provided by Dawn E. Holmes: an AV’s sensors, as Holmes writes,

have to be programmed to detect shapes and distinguish between, for example, a child running into the road and a newspaper blowing across it; or to detect, say, an emergency traffic layout following an accident. However, these cars do not yet have the ability to react appropriately to all the problems posed by an ever-changing environment. (2017: 11)

What the AV challenge is about, in many respects, is the technological and regulatory management of urban uncertainty: the AI-powered mitigation of the sheer infinite variability of the urban streetscape with its myriad of erratically moving shapes and forms, subjects and objects.

Among current practices of AV testing, trialling, and implementation, different approaches towards mitigating urban uncertainty can be identified (Cugurullo et al., 2021; Stilgoe and O'Donovan, 2023). Testbed trials, for instance, minimize uncertainty by inserting AV testing into largely closed-off, fully controllable special facilities such as repurposed racetracks and other custom-built sites (Dowling et al., 2023: 28–30). Examples include the DEKRA open-air test facilities at Lausitzring in Germany (Seyfert, 2023), purpose-built AV test facilities by established car manufacturers, such as Volvo's AstaZero Proving Ground Centre located near Gothenburg (Volvo Cars, 2014), or joint ventures between governments, universities, and the tech and automotive industries, as in the University of Michigan's 'Mcity' (Dowling et al., 2023: 29). Addressing the unpredictability of the city by largely fencing it off, testbeds, as Dowling et al. write, 'are deliberately isolated from the messy materialities, socialities and institutional landscape of the city. They instead simulate urban conditions, creating, where possible, a controlled environment or "in vitro" experiment' (2023: 28). Partly reminiscent of what Keller Easterling (2005: 99) has called the 'automated enclaves' of container ports and logistics warehouses, AV testbeds arguably mark an extreme case within current modalities of AV testing. Usually taking place in highly controlled and widely human-devoid purpose-built facilities, the tests exclude urban uncertainty almost by definition. This may create close-to-perfect testing conditions, yet it does not resolve the remaining challenge of hard-to-predict urban environments.

Partly more open than AV testbeds, so-called precinct trials display further interesting dynamics of avoiding urban uncertainty (Stilgoe and O'Donovan, 2023). Precinct trials often take place within closely delimited geographical areas, many of which are inaccessible to broader automotive traffic and urban street life. What one typically finds here, in short, are trials with 'electric autonomous shuttle buses on short, low-speed fixed routes, usually contained within a business park, university campus or innovation precinct' (Dowling et al., 2023: 30). One paradigmatic example is Berlin's Charité hospital precinct where, since 2018, two autonomous mini busses have roamed the campus facilities at a speed of 20 kilometres per hour over a total area of 270,000 square metres (Charité, 2017; TNW, 2022). While ambulances, private cars, pedestrians, and cyclists are allowed into the campus, dynamics of spatial seclusion

are again at work, as the precinct's park-like character hardly compares to the much more complex, often outright chaotic, nature of the Berlin streets surrounding the hospital.

Beyond closed-off testbeds and securitized precinct trials, pilot programmes with digitally augmented freeway lanes provide another insightful perspective on the reduction of urban uncertainty. In the US state of Michigan, Cavnue – a subsidiary, once more, of Google's parent company, Alphabet – has partnered with the Michigan Department of Transportation to repurpose one of Interstate 94's freeway lanes as a dedicated test lane for connected and automated vehicles. At the heart of the programme, which started in August 2020, is the digital augmentation of parts of Michigan's existing freeway infrastructure, enabling both vehicle-to-vehicle (V2V) as well as vehicle-to-infrastructure (V2I) communication (Cavnue, 2020). Similar to established infrastructural policies such as dedicated HOV lanes,⁴ Cavnue's Michigan pilot in many ways points towards the continued splintering and pay-per-use unbundling of existing transport infrastructure under neoliberal urban governance (Graham, 2000). Most interestingly, the programme foreshadows a feasible approach towards AV implementation in the context of interurban freeway systems, which – by way of their very design and *built-in* isolation from broader urban life – provide a far more AV-friendly environment than, by possibly greatest contrast, inner-city streets.

From these highway trials it is a comparatively small step to the arguably most complex use case of current AV implementation: the insertion of AVs – as in the example of Waymo in San Francisco – into widely more open urban scenarios. In the case of such full urban implementations, as I discuss in the next section, AVs must leave behind the preordained paths of precinct trials or the linear simplicity of digitally augmented freeway lanes; instead, what they face is the sheer unpredictability and contingency of the dense, inner-city streetscape. In this most challenging urban environment, AVs must rely on a new instrument of spatial control and prediction: the HD map.

4 HOV stands for high-occupancy vehicle. Mostly in North American contexts, HOV lanes have been used by transport agencies as a congestion reduction strategy by reserving certain highway lanes for vehicles with at least one driver and one passenger inside.

HD mapping and the quest for 'real-time' built environments

As noted above, one of the most central processes underlying today's efforts at large-scale urban AV implementation is the procedure of so-called HD mapping (Mattern, 2017; Alvarez León, 2019a). Various more elaborate than Google Street View (Anguelov et al., 2010), HD maps provide AVs with a hugely detailed three-dimensional model of a city's built environment, including centimetre-precise data on building contours, street curvature, road signs, and more (Wang et al., 2017). Once outside the more confined and manageable spaces of testbeds, precincts, and highway lanes, the basic way AVs orient themselves is by constantly cross-referencing real-time sensory inputs with pre-created HD maps (Waymo, 2021: 8). These maps, as Alvarez León notes, 'are created through sophisticated, and often proprietary, combinations of sensing and mapping technologies, which feature continuous, multimodal, and extensive data collection and processing' (2019a: 10). Compiled from a myriad of data inputs and multi-perspectival scans of a city's built environment, HD maps serve as the ultimate socio-technological instrument for Waymo and other corporate and non-corporate AV developers to mitigate, reduce, and manage – as precisely as technologically possible – urban uncertainty. Thus, in what follows, I will explore the process of HD mapping in more detail, foregrounding how it interweaves varied practices of urban data collection, annotation, and processing in order to augment the urban built environment with a new digital, fully machine-readable layer of geo-referenced data allowing AVs to 'read' the urban built environment in unprecedented granularity (Dodge and Kitchin, 2005; Rabari and Storper, 2015).

HD maps are generated from a vast array of input data (Mattern, 2017). First of all, tech companies such as Waymo, GM's Cruise, or HERE Technologies⁵ send their AV prototypes out into the streets for scanning and recording entire cityscapes (Wang et al., 2017; Waymo, 2021: 18). Equipped with video cameras, radar, inertial measurement units, ultrasonic sensors, GPS, and LIDAR lasers, these vehicles are able to capture the city at an unprecedented level of detail. While constant triangulation between all of these sensory inputs is key to AV navigation, LIDAR – short for 'light detection and ranging' – has a special role to play with regard to the creation of three-dimensional HD maps.

5 HERE Technologies is a location data provider specialising in HD mapping for autonomous navigation. It is majority-owned by a conglomerate of the German car makers Audi, BMW, and Mercedes-Benz (Alvarez León, 2019a: 371).

As in the words of Waymo, LIDAR ‘works day and night by beaming out millions of laser pulses per second – in 360° degrees – and measuring how long it takes to reflect off a surface and return to the vehicle’ (2021: 14). On the basis of these measurements, it is possible to reconstruct a fully three-dimensional model of both the mediate and immediate surroundings of an AV, including street lanes, buildings, traffic lights, and more. LIDAR scans, in short, provide the very basis for any HD map.

These street-level LIDAR scans are further enhanced with a multiplicity of geo-referenced data stemming from satellite and drone images, public and private mapping databases, crowdsourcing projects, and more (Mattern, 2017). The image below (Figure 1), for instance, is taken from a scientific publication, fittingly entitled ‘TorontoCity: Seeing the World with a Million Eyes’, of Uber’s (now abandoned) AV development programme conducted by computer scientists at the University of Toronto (Wang et al., 2017).⁶ More than anything else, it provides an exemplary insight into both the variety and the richness of data used for the compilation of AV-ready large-scale HD maps. As such, the ambition of Uber’s project was to capture and remodel the entirety of the Toronto city region’s built environment in three-dimensional virtual space – numerically speaking: ‘712.5 km² of land, 8439 km of road and around 400,000 buildings’ (Wang et al., 2017: 3009). To this purpose, Uber’s research team, in their own words,

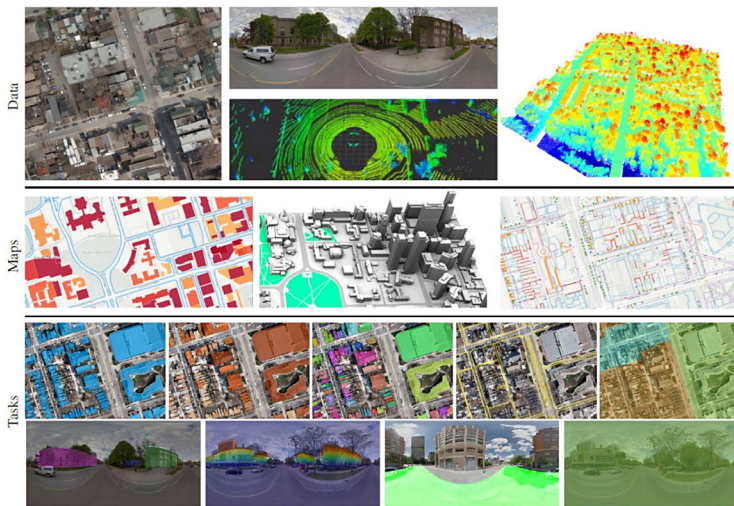
gathered a wide range of views of the city: from the overhead perspective, we have aerial images captured during four different years as well as LIDAR from airborne. From the ground, we have HD panoramas as well as imagery and LIDAR data captured from a moving vehicle driving around in the city. We are also augmenting the dataset with imagery captured from drones. (Wang et al., 2017: 3009)

These and other combined data sources allowed Uber to extract streetscape information as detailed as, for instance, the positions, species, and trunk radiuses of trees (Wang et al., 2017: 3013). Conceived as a new benchmark

6 This cooperation between the US company and researchers at University of Toronto came into existence when Uber poached AV machine vision expert Raquel Urtasun, a professor for machine vision at the University of Toronto’s computer science department (Silcoff, 2017). In the following years, Urtasun and her team’s research directly fed into the AV development programme of Uber’s research and development arm, the Uber Advanced Technologies Group (Uber ATG).

for a global research community engaged in AV-driven machine vision, the TorontoCity data project illustrates both the imperatives and the ambitions that come with large-scale HD mapping.

Figure 1: Graphic depiction of various data sources used by Uber ATG to create the TorontoCity benchmark: a fully three-dimensional remapping of the entire Greater Toronto Area.



Source: Wang et al. (2017: 3010). Image reproduced here with the kind permission of Shenlong Wang.

As with the testbed, precinct, and freeway trials above, HD mapping is inextricably linked to the task of reducing urban uncertainty. In case of the HD map, there is both a spatial and a temporal dimension to this task. Spatially, HD maps aim at the re-creation of the urban built environment at a maximum of geographic detail. However, there is also a decisive element of territorial limitation at work. It is largely due to the extreme level of detail needed, and the ensuing high costs, that HD mapping has been projected onto the urban ground in a highly selective and uneven fashion. The industry term for this phenomenon is that of the ‘operational design domain’ (ODD). An ODD defines not only the strictly geo-fenced outer limits of an AV’s area of operation but also the

weather conditions and times of day during which an AV may safely be used. As Waymo explains, its AV system is 'designed so each vehicle does not operate outside of its approved operational design domain. For example, passengers cannot select a destination outside of our approved geography, and our software will not create a route that travels outside of a geo-fenced area, which has been mapped in detail' (2021: 16). Spatially, the challenge of HD mapping is, in sum, one of maximizing geographic detail *within* an ODD while gradually expanding any existing ODD.

In temporal terms, on the other hand, HD maps require the unending task of updating and repeatedly realigning existing map data with a virtually infinite number of changes in the real world. Such changes can be caused, for instance, by temporary building sites, emergency barriers, traffic jams, accidents, lane changes, and more. Again, there is an interesting industry term signifying the central aim of temporal synchronicity between the *real* and the *virtual* worlds: 'time to reflect reality'. Time to reflect reality, as Shannon Matern notes, marks 'the metric of lag time between the world as *it is* and the world as it is known to machines' (2017: n.p.). Reducing this parameter to an absolute minimum is, in short, one of the central challenges of HD mapping and, at the same time, points towards one of its ultimate ambitions-cum-ideologies: the 'real-time' city (Kitchin, 2014).

Latent conflicts of urban future-making: Autonomous driving and HD mapping between governance, regulation, and imagination

Building on the above insights, in what follows I take a closer look at some of the primary conflicts and contestations at the heart of HD mapping's advancing urban implementation. As I argue with a particular view to the level of professional space-making, urban AV implementation in general and HD mapping in particular incite and are embedded within three broader yet largely *latent* conflicts of urban future-making: (1) latent conflicts of governance, (2) latent conflicts of regulation, and (3) latent conflicts of imagination. By discussing these three fields of conflict in the context of the Testfeld Autonomes Fahren Baden-Württemberg below, the following sections will widen the scope of my above explorations from HD mapping 'as such' to autonomous driving in a more general sense. This has to do with the fact that, in empirical reality, the phenomena of HD mapping and autonomous driving exist in almost inextricable mutuality.

Brought into existence through €5 million of seed funding from Baden-Württemberg's state government, the TAF BW started its operations in 2018 (TAF BW, 2024c). Operated as a state-sponsored on-road AV trial between the mid-sized towns of Karlsruhe, Heilbronn, and Bruchsaal in south-west Germany, the TAF BW makes extensive use of HD maps and marks one of the most advanced AV implementation sites in Germany. The central idea of the project is to provide public and private AV developers with a real-life environment for the testing of autonomous and connected vehicles fully embedded within the region's ordinary traffic. To this purpose, more than 250 kilometres of the street and road infrastructure within the urban triangle of Karlsruhe, Heilbronn, and Bruchsaal – from inner-city crossroads, to highways, to rural roads – were integrated into the TAF BW's designated test area. Following state-of-the-art procedures, these sections, including important details such as traffic lights, street signs, types of street boundaries, reflector posts, and more, were then HD-mapped (TAF BW, 2021: 4). Contrary to the corporate-led HD-mapping operations of Waymo and other US companies, TAF BW is, first and foremost, a state-driven initiative. Yet, the technology underlying its HD maps is comparable to the former. As a staff member of Karlsruhe's transit agency, the Karlsruher Verkehrsverbund (KVV) elaborates, 'You can imagine it as follows: We first drove through with a sort of Google Maps vehicle [...] and mapped everything in high definition' (interview, 29 February 2024).⁷ Marking one of TAF BW's central safety requirements, HD mapping has been at the core of the project from the very start.

The following exploratory analysis of TAF BW and its latent conflicts is based on an ethnographic research approach (Crang and Cook, 2007). First, qualitative content analyses of website material and official documents linked to TAF BW provided the basis of my explorations. These were complemented, second, by two expert interviews with local employees involved in the project: a senior staff member of the KVV, on the one hand, and an employee at Karlsruhe's Research Center for Information Technology (Forschungszentrum Informatik, FZI) on the other. Third, I conducted participatory observations and ad hoc conversations at Messe Hannover 2024, where the FZI exhibited its 'CoCar' AV prototype. Finally, a two-day field stay in Karlsruhe in May 2024 that included exploratory walks and field-site photography of TAF BW's actual road infrastructure rounded out my ethnographic explorations.

7 Interviews were conducted in German; interviews and non-English quotations have been translated by the author.

Latent conflicts of governance

Contrary to the more privately driven HD mapping exercises of companies such as Waymo or Cruise in the US, the TAF BW is run by a complex network of local and regional governments, public agencies, and research institutes (TAF BW, 2024b). While integrated by a common interest to develop TAF BW as one of Germany's leading projects of AV implementation, its diverse set of actors also brings with it a number of diverging goals, strategies, and priorities. These can be understood as latent conflicts of governance that, while not always fully visible, are inherent to TAF BW's complex governance structure: First, acting as the core funder of TAF BW, the state government of Baden-Württemberg pursues what can be called an extrospective policy strategy that harnesses TAF BW as a flagship project to showcase the region's global competitiveness in the field of automotive manufacturing and tech innovation (Wiig, 2015). One of the government's recent strategy papers nicely illustrates this agenda:

The automotive industry in Baden-Württemberg is at a crucial turning point. As one of the industry's most important locations worldwide, Baden-Württemberg is particularly affected by the profound changes driven by electrification, digitalization, and automation. [...] It is crucial for Baden-Württemberg to understand these changes and adapt to them in order to remain competitive in the future. (SDA BW, 2023: 17)

In contrast, Karlsruhe's local transit agency, the KVV, can be said to pursue a more 'introspective' agenda, harnessing TAF BW as a technical-cum-institutional vehicle for the digital modernization of its local transport offers. For instance, the transit agency has started to operate autonomous minibus shuttles in select areas of the test field that serve as last-mile feeders in the small neighbourhood of Weiherfeld-Dammerstock (KVV, 2024). While the KVV's ambitions of infrastructural modernization are not necessarily incompatible with the development plans of Baden-Württemberg's regional government, the diverging scalar and strategic orientations of the two actors – extrospective globalism versus introspective localism – are indicative of latent tensions at the level of TAF BW's overarching governance structure. Further complicating the picture, there are five local research institutes involved in TAF BW: the FZI Research Center for Information Technology, the Karlsruhe Institute of Technology (KIT), University of Applied Sciences Karlsruhe (HKA), Heilbronn University of Applied Sciences (Hochschule Heilbronn), and the Fraunhofer Institute

of Optronics, System Technologies and Image Exploitation (IOSB) in Karlsruhe. Many of these institutes have used TAF BW in coordination with their own partly independent research projects. For instance, while CoCar, the FZI's AV prototype, is closely linked to TAF BW, it is licensed to be used in the entirety of Germany, and not only within TAF BW's much more restricted area. The scalar orientations of semi-independent research projects within TAF BW can differ substantially, adding to latent tensions within its governance structure.

Furthermore, the local governments of Karlsruhe, Bruchsaal, and Heilbronn find themselves in a mediating position between the – far from always fully congruent – goals of Baden-Württemberg's government, the KVV, and the involved research institutes on the one hand and the political communication of these diverse strategies and aims to local citizens on the other. As reported by a KVV staff member, in Karlsruhe, citizen reaction to the test field was not always fully positive: 'You have to imagine, when we started to build up the test field, the municipal administrator of one part of town immediately came to us and said: "Well, are the children in our nursery still safe? Can I send them to the nursery alone? Can I let them cross the street alone?"' (interview, 29 February 2024). In reaction to these and other concerns, a citizen forum was held several months prior to TAF BW's official start in late 2017. Again, a full spectrum of sentiments – from strict opposition to full endorsement – was present: 'Everything was there – from total opponents, rejection, almost getting violent, to those who say, "Well, great, wonderful, when will it start?"' (interview, KVV staff member, 29 February 2024). It is at the level of local municipalities that conflict and active citizen opposition have become most manifest in the context of TAF BW and where existing concerns are being addressed via public consultations.

In sum, given the diverse set of actors steering TAF BW, it is fair to say that latent conflicts of governance have been inscribed in the project's DNA from the start. Although to some degree integrated by a long history of automotive manufacturing and excellence in tech-sector research in the region, the diversity of actors involved in TAF BW's governance structure brings with it not only diverging strategic interests and scalar orientations but also persisting conflict potential with regard to the shaping of the region's mid- to long-term future.

Latent conflicts of regulation

Latent conflicts of regulation are similarly prevalent within the TAF BW project. Next to safety aspects and technical requirements governed by Germany's 2017 Act on Autonomous Driving and the Vienna Convention on Road Traffic, data regulation is one of the most contentious, yet largely invisible, issues at the heart of TAF BW. In line with recent efforts to regulate data security on supranational scales (Stark et al., 2021), TAF BW follows the EU's 2018 General Data Protection Regulation (GDPR) as one of its central guidelines (TAF BW, 2018). While usually regarded as providing stricter data security and anti-surveillance regulations than analogous frameworks in the US (Guay and Birch, 2022), the GDPR does allow the mass collection, storage, and later analysis of data by large-scale corporate and state actors as long as this data is anonymized.

As a closer look at the aforementioned CoCar project of the FZI indicates, however, even formal compliance with existing data regulations does not foreclose deeper and partly hidden levels of regulatory conflict. Equipped with 12 LIDAR systems, 9 full-HD cameras, 3 radar sensors, and more (FZI, 2018), the current generation of the FZI's CoCar is able to collect detailed data of its spatial environment that may be channelled both into HD maps and AI training data. Beyond the CoCar's mere technical capabilities, however, it is the data rights provisions underlying the project that tell an insightful story of defused regulatory conflict. Consider, for instance, the following situation: The CoCar prototype passes by and captures on its video system a nearby pedestrian coincidentally walking past the car. Provided this person is aware of the situation and the fact that they might have been video-scanned, they might catch a closer look at the vehicle and be able to photograph a sticker attached to the car's rear fender (Figure 2).

Figure 2: Latest generation of the FZI's CoCar prototype, exhibited at Messe Hannover 2024. The sticker above the rear fender provides a QR code that links to the FZI's privacy policy webpage.



Source: Author.

This sticker provides crucial information regarding the person's data rights: Above a caption reading 'data protection for autonomous driving', the sticker shows the symbol of a surveillance camera, the logo of the FZI, and a QR code that leads to the FZI's privacy policy webpage. On this webpage, one finds a brief text that explains the AV project's use of data, including the following passage:

The legal basis for processing the video files of the environment of the test vehicles is our legitimate interest, pursuant to Art. 6 (1) lit. f GDPR [General Data Protection Regulation]. The legitimate interest of the FZI for processing these video recordings derives from the interest of operating the test vehicles and for researching connected, semi-automated, and autonomous driving functionalities. (FZI, 2024a: n.p.)

Next, if one follows through to the GDPR, article 6 (1), one finds a number of conditions under which the processing of personal data is allowed under this framework. As stated under clause (f), the passage referred to by the FZI's privacy policy, the processing of personal data is allowed if

processing is necessary for the purposes of the legitimate interests pursued by the controller or by a third party, *except where such interests are overridden by the interests or fundamental rights and freedoms of the data subject which require protection of personal data, in particular where the data subject is a child.* (GDPR, 2024: n.p.; emphasis added)

Interestingly, and invisible from the FZI's abridged reference to it, clause (f) of article 6 (1) in the GDPR juxtaposes the interests of a data collector (in this case: the FZI) with the fundamental rights of 'data subjects' (our imaginary pedestrian). While formally in line with the GDPR, a closer look at the latter betrays significant differences between the (already hard-to-track) data rights information provided by the FZI on the one hand and the actual formulations and provisions of the legal text on the other. To return to the starting point of our street scene from above: The fact that our imaginary pedestrian possesses fundamental privacy rights that may in fact override the data-collection interests of the FZI's CoCar project is hardly visible from an everyday standpoint. Rather, this fundamental yet largely hidden regulatory conflict is buried, deliberately or not, beneath several layers of hard-to-track data rights information and oblique legal jargon.

Latent conflicts of imagination

Third, the case of TAF BW is indicative of latent conflicts of imagination at the heart of autonomous driving in general and HD mapping in particular. As scholars in the field of science and technology studies have long pointed out, technological innovations tend to come with different socio-technical imaginaries that foreground various, often competing, dimensions and potentials of a new technology (Jasanoff and Kim, 2015). Particularly in cases in which the societal impacts of emerging innovations are still in early formation, one usually finds severe 'competition over imaginaries as different stakeholders promote different visions in policy and political discourse' (Guay and Birch, 2022: 3). As with many other concurrent projects of HD mapping and AV implementation, one of the prevalent visual imaginaries of TAF BW is that of 'machine vi-

sion': the urban landscape perceived through the multisensory eyes of the self-driving car.

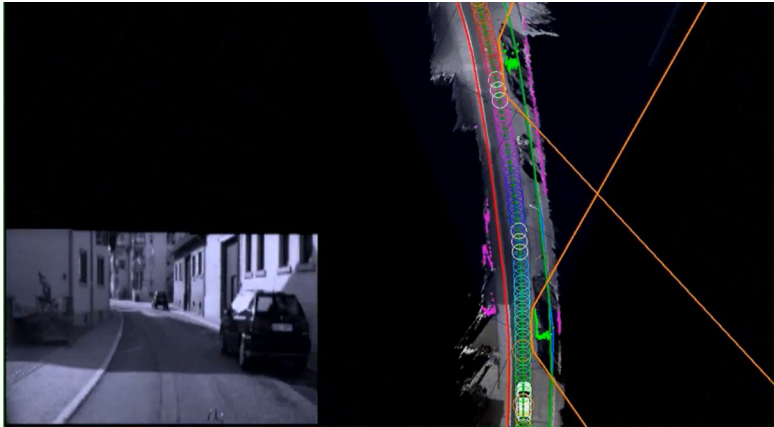
Consider, for instance, a short video (TAF BW, 2024a) available at TAF BW's website that explains the machine vision and motion planning of the earlier S500 AV prototype developed by Daimler in cooperation with the FZI and KIT (KIT, 2013). While the left side of the video shows an on-board roadside view similar to that of a real driver, the right side of the screen displays the same situation from a bird's-eye perspective (Figure 3). In contrast to the driver's view on the left side, the overhead view includes various layers of additional information visualized through overlaid geometric forms of different colours and shapes: For instance, while the AV's own position is indicated through a small car symbol at the centre of the top-view scene, road-side objects such as parked cars or passers-by are visualized as moving pink dots; street limits are shown as continuous slim lines (red for left, green for right), and the AV's near-future trajectory is projected ahead of the car symbol as a moving line of small circles of various colours, which represent the varying time differences of the car's projected near-future position(s) in relation to its present location. Two orange polygons further delimit the drive corridor around immediate obstacles – in this case, two parked cars. The projected trajectories of oncoming vehicles, meanwhile, are equally visualized through shape-shifting lines of coloured circles. While the shifting meaning of all of these visual signifiers may variously exceed the capacities of the human eye and intellect, these signifiers are there exactly for this purpose: to render visible to the human viewer the spectacle that is going on 'inside' the black box of the self-driving AI.

Parallel to a plethora of similar visual materials currently produced and circulated in the context of HD mapping and autonomous driving (see e.g. Waymo, 2021), TAF BW's video can be understood as a sequence of 'operational images'⁸ (Parikka, 2023): images that are not needed by the machine itself but whose main purpose is to make the machine's 'internal' operations more understandable for the human viewer. 'Machines,' as Trevor Paglen explains, 'don't need funny animated yellow arrows and green boxes in grainy video footage to calculate trajectories or recognize moving bodies and objects. Those marks are for the benefit of humans – they're meant to show humans how a machine is seeing' (2014: 73). Who then are the human addressees of TAF BW's video? We may think here of three groups, each somewhat wider in extent than the one before it. First, it is not unlikely that the researchers

8 The term was coined by the filmmaker and theorist Harun Farocki (Paglen, 2014).

of the S500 prototype project themselves might have relied at times on visual aids identical or at least similar to those exhibited in the video. Second, it is fair to assume that one of the video's main 'target audiences' is comprised of exactly those personae that in the context of this chapter I referred to as professional space-makers, to wit: urban planners, political decision-makers, public officials, policy 'experts', regulators, and more. Third, and accounting for the fact that the video is openly available on TAF BW's webpage as well as on YouTube, videos such as the one discussed here clearly also address the wider public 'as such'. Particularly vis-à-vis this wider public as well as professional space-makers, the video's dominant visual language is of interest as it conveys – exactly *through* the visual overlay of simple geometric shapes and forms – a sense of absolute precision, calculability, and control that stands in maximal contrast to many of the prevailing uncertainties that I explored in the sections above.

Figure 3: Screenshot taken from video explaining the technology of the S500 AV prototype developed by Daimler in cooperation with the FZI and KIT.



Source: TAF BW (2024a). Image reproduced here with the kind permission of Forschungszentrum Informatik (FZI) Karlsruhe.

Conclusion: Studying autonomous driving and tech urbanism in context – What next?

As discussed in this chapter, procedures of HD mapping mark a primary site of urban future-making. Similarly to current practices of AV testing and trialling (Marres, 2020; Dowling et al., 2023), HD mapping can be understood as an attempt of making manageable the inherent uncertainties of the city's urban street life with its myriad of objects and subjects, both mobile and static. In this context, the HD map serves as one of the technologically most advanced instruments of urban risk mitigation. As I argued with recourse to the case of TAF BW, however, practices of HD mapping are themselves embedded within broader – often still 'black-boxed' – conflict constellations of contemporary tech urbanism: latent conflicts of governance, regulation, and imagination. Crucially, these three arenas of social struggle and ongoing political (re)negotiation are subject to historically path-dependent and spatially variegated trajectories of professional space-making in different urban settings worldwide (Robinson, 2011; Brenner, 2014). Within these differential and multi-scalar settings, closer *situated* engagement with the urban implementation of AVs in general and HD mapping in particular forms a vital field of both theoretically informed and empirically grounded critical urban research in the context of a multitude of 'actually existing' tech urbanisms (Shelton et al., 2015).

It is against this background that I want to make three brief methodological suggestions for further scholarly work on the nexus of autonomous driving and HD mapping. First, I see it as one of the most pressing tasks for critical and radical urban scholarship to relate these phenomena *to*, and make them intelligible *within*, both wider and longer existing contexts of urban future-making worldwide: contexts of planetary urbanization that continue to shape the very conditions of existence of 'the' tech city itself (Brenner, 2014). Such 'horizontal widenings', second, should not and need not exclude equally paramount 'vertical' orientations towards analytical depth and empirical detail. In this respect, Susan Leigh Star's (1999: 383) time-honoured plea for an ethnography of infrastructure 'capable of surfacing silenced voices, juggling disparate meanings, and understanding the gap between words and deeds' still has much to offer in the face of dangerously narrow and oftentimes outrightly techno-determinist visions of the urban future (Mattern, 2021). Finally, echoing Shapiro (2021), there is a need to look beyond tech capitalism's more visible end-user products as *things* (AVs, drones, robots, and more) and engage

with the often more inaccessible *processes* that underlie these eventual use cases. HD mapping, as this chapter aimed to show, marks only one of these more deeply buried and still widely black-boxed procedures at the heart of current urban future-making.

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Contrasting Cultures and Institutions

8. Mapping destabilization journeys in urban mobility systems

The case of Hamburg

Tom Hawxwell

Introduction

Positioned at the juncture between the persistent forces for transformative change and the obduracy of established systems, urban areas are increasingly understood as promising yet highly contested spaces for transformation towards sustainability (Bulkeley et al., 2014; Rutherford and Coutard, 2014). The growing tensions between the lock-ins inherited from the past and the ambitions for a different future are particularly present when considering urban mobility systems. At the centre of these tensions is the car. During the 20th century, riding on the back of promises of freedom and progress, planners set about transforming urban environments into car-centric cities: cities designed and built around the personal motorized vehicle as the dominant, and in some cases the only legitimate, mode of transportation (Sheller and Urry, 2000). In recent decades, these promises seem to have faded, while the ubiquity of the car in urban life appears to have stabilized as part of the 'system' (Urry, 2004) or 'regime' (Böhm et al., 2006) of automobility, along with its many consequences. In Europe, there is an estimated €409 billion in externalized costs of car and motorcycle usage annually, mainly due to their disproportionate contribution to 'accidents', but also to local air pollution, climate change, noise pollution, and habitat damage (Heinrich-Böll-Stiftung, 2021). However, car hegemony also has far-reaching consequences that extend beyond those that are easily quantified, such as the segregation and the fragmentation of social practices that once occurred in shared public spaces (Sheller and Urry, 2000).

Despite a growing understanding of these issues, car hegemony prevails in most urban areas globally. This paradox has inspired a vast body of literature to understand how and why the car maintains its privileged status despite its built-in antagonisms (Sheller and Urry, 2000; Urry, 2004; Böhm et al., 2006). Yet due to changes in recent decades, it appears that the privileged position of the car is under pressure. Researchers highlight the emergence of ‘cracks’ in the regime (Geels, 2012; Ruhrort, 2020) and challenges to the car’s culturally hegemonic status (Haas, 2020; Ruhrort, 2022). This pressure is particularly present in urban areas, with the emergence of concepts for more sustainable, liveable, and healthier cities (Nieuwenhuijsen, 2021). These alternative urban mobility futures seem to be more and more incompatible with the prevailing automobility imaginary (Braun and Randell, 2023), creating conflicts between the locked-in material, institutional, and cultural arrangements of the past and the aspirations for more just and sustainable urban futures.

In light of these changes, to what extent can it be said that the locked-in arrangements around car-based automobility are becoming destabilized? This question is aligned with an emerging strand of research that responds to a prevailing overemphasis on novelty and innovation in transformation-oriented research (Shove and Walker, 2010; Turnheim and Geels, 2012). However, a growing body of research is engaging with questions around how technologies, social practices, the use of particular substances, etc. decline or are discontinued or how the socio-technical systems that hold them in place become destabilized (Shove et al., 2012; Turnheim and Geels, 2012; van Oers et al., 2021; Koretsky et al., 2023). Contributing to these emerging debates, I argue for a need to place an emphasis on the importance of multi-scalar investigations of processes of destabilization and make a case for investigations into these processes on the local level. As Fuenfschilling and Binz (2018) argue, investigations into socio-technical change are influenced by an implicit methodological nationalism: a tendency to take the nation-state as the unit of analysis to investigate socio-technical change. I contend that, like investigations into innovation journeys, there is value in a multi-scalar understanding of destabilization processes. There is a contradiction in calling for a multi-scalar investigation into destabilization processes and proceeding to explore exclusively the local scale. However, whilst still appreciating that automobility regimes extend beyond the local scale, I argue that the local level can be a helpful starting point and/or additional perspective to shed light on the emerging tensions between locked-in arrangements and ambitions for desired socio-technical change and consider potential avenues for unlocking car-based automobility. The spatial diversity

in aspects such as pressures to transform, population density, access to alternative transport modes, levels of car dependency, engaged civil society, etc. is highly place-specific. While conflicts and their underlying drivers extend beyond the local, they are experienced locally and these experiences can be an important source of political mobilization. Therefore, as is the case for other foci on socio-technical change, place, space, and scale matter when considering destabilization (Hansen and Coenen, 2015).

This chapter aims to explore the utility of investigations into processes of destabilization of urban car-based automobility in one particular urban context: the city of Hamburg, Germany. Through historical reconstruction, I map central changes in the local arrangements that have governed urban mobility in the city since an identified historical turning point in the late 1970s. Building on concepts from Turnheim (2023), I identify mounting *pressure fronts* (as quasi-manifestations of conflicts) within the prevailing arrangements and corresponding *incumbent responses* to the mounting pressures. Methodologically, the research attempts to operationalize these concepts to assess their usefulness for investigating the broad contours of socio-technical destabilization processes. Drawing on changes to the incumbent responses, I identify five phases which help map the changing strategies of incumbents to *accommodate, ignore, mobilize, divert, and transform* the mounting pressure fronts. Empirically, the research exposes underappreciated historical developments in the governance arrangements around urban mobility in Hamburg.

From innovation to destabilization journeys in socio-technical systems

Growing awareness of the gravity of the multiple social and environmental crises that humanity faces, combined with the insufficiency of the hitherto societal responses, has given rise to diverse research communities crossing multiple disciplines that focus on questions of transformative change. What these communities typically have in common is an understanding that grand societal challenges cannot be effectively tackled through incremental changes or technological solutions alone, but require deeper and more fundamental shifts in how humans exist. One such community, working under the banner of ‘sustainability transitions’, sees value in centring investigations into transformative change on the ‘meso’ level of socio-technical systems (Geels, 2004). This means (1) appreciating that social and technological systems are

so deeply intertwined that it is more helpful to consider them collectively and (2) considering that systems of provision (food, mobility, housing, etc.) can be a productive analytical focus to conceptualize and identify the mechanisms through which radical transformations can take place in the way these systems of provision are organized (Köhler et al., 2019).

On the flip side of this work are questions around why such transformations are *not* taking place despite the growing pressures for change. There have been helpful conceptualizations of so-called *path dependencies* and *lock-ins* (Unruh, 2000; Seto et al., 2016): These forces dynamically stabilize the prevailing arrangements, holding (often unsustainable) arrangements in place. Whilst these are helpful concepts, all too often they are considered primarily as an obstacle along the path of some predefined innovation journey (Turnheim, 2023). To compensate for this bias, researchers have begun to shift their perspective towards the mechanisms and agency underpinning the stability of locked-in constellations and improving conceptualizations of the power at play in the reproduction of such lock-ins as well as avenues for their unlocking (Stirling, 2019; Kok et al., 2021). One manifestation of this shift in perspective can be seen in the increased interest in socio-technical destabilization.

Turnheim (2023) offers an overview of the core notions in the emerging work on socio-technical destabilization. He describes it as a 'longitudinal process by which otherwise relatively stable and coherent socio-technical forms [...] become exposed to challenges significant enough to threaten their continued existence and their "normal" functioning triggering strategic responses of core actors within the frame of existing commitments (preservation) and in certain circumstances away from such commitments (transformation)' (Turnheim, 2023: 45). To understand the sources of stability, investigations into destabilization will typically start by identifying the prevailing structural and enacted forms of lock-in and path dependency. While previous work has exposed many forms of lock-in and path dependency, certain formations – particularly those with strong political, institutional, and cultural dimensions – remain particularly difficult to pin down (Simoens et al., 2022; Turnheim, 2023). Without playing down the power of such forces, it is important to recognize that *unlocking* does occur (Turnheim, 2023). Sources of destabilizing change could constitute '(1) technical dysfunctions, technological discontinuities or performance erosion, (2) social and political mobilization, delegitimation, the emergence of new rules or the breakdown of existing

rules, and (3) challenges by new actor coalitions, the disbanding of existing coalitions or the accumulation of poor strategic choice' (Turnheim, 2023: 48).

Turnheim (2023) also emphasizes the role of those who hold positions of power within socio-technical arrangements: the so-called incumbents. The notion of the 'incumbent actor' is often used as a shorthand for powerful actors that stand in the way of desired socio-technical change (Turnheim and Sovacool, 2020). Powerful actors do play a central role in bringing about and inhibiting change. However, there are different forms of power to be considered through which arrangements are challenged and reproduced (Avelino and Rotmans, 2011). Therefore, the prevailing arrangements are maintained and challenged by many types of actors in many areas of social life (Stirling, 2019). Another common misconception about incumbents is that their role in transition processes is strictly to buffer the pressures to inhibit change. However, strategies employed by incumbents can be more extensive and can range from purely resistive positions to more proactive approaches and can differ greatly from one actor to another (Turnheim, 2023).

These insights provide a helpful starting point for investigations into processes of socio-technical destabilization. They do not provide a clear theoretical framework that can be easily applied to investigate such processes. On the contrary, they remind us that such processes are highly complex and context-specific, and that if analytical scopes are set too narrowly, important factors can be lost. The sources of (de)stabilization can be more or less structural, enacted, and/or elusive, and these can change over time. Therefore, there is a trade-off between getting the kinds of high-resolution perspectives that are necessary to trace the processes through which destabilization occurs and appreciating the (likely broad) spatial and temporal sources of destabilization.

Case and methods

The city of Hamburg is Germany's second-largest city, with a population of just under 1.9 million in 2023 (5.4 million if the broader metropolitan region is considered) (FHH, 2023). Hamburg is considered an important hub in the European trade and transportation network, and the city's port has historically played an important role in shaping the city physically, economically, and culturally (Lieber, 2018). Planners and politicians alike also strive to live up to the city's image as a 'green', 'inclusive', and 'growing' city by the water (FHH, 2014). This relates both to maintaining and improving its physically green

spaces and urban nature, and also to sustainability ambitions more broadly. The city has committed to achieving climate neutrality by 2045 as part of its climate protection plan (FHH, 2019a), and it was crowned the 2011 European Green Capital. Tensions between the often contradictory ambitions around economic growth and environmental protection have a long history in the city (Bauriedl and Wissen, 2002). Furthermore, Hamburg's status as both a city and a federal state (*Bundesland*) provides relative political autonomy for actors engaged on the municipal level to shape institutional arrangements and development direction. These factors – the strong tensions between the priorities of economic growth and sustainability and the relative independence of the city's decision-making bodies from the nation-state – make Hamburg a very suitable case for investigation into destabilization processes at the local level. If such processes occur and matter on this level (and do not, for example, just trickle down from higher governance levels), it can be expected that they can be observed through investigation into this case.

A case study is conducted as a research strategy to gain a full insight into one or several objects or processes confined in space and time (Verschuren and Doorewaard, 2010). As a first step in this case study, two 'helicopter' interviews (Hajer, 2006) were conducted with senior academics who have an overview of the historical development of the urban governance arrangements around urban mobility in Hamburg. Additionally, 24 semi-structured interviews (approximately 90 minutes in length) were conducted with individuals (15 male and 9 female). Interview partners include retired practitioners (4); current practitioners from a range of transportation and urban planning organizations (13); representatives of civil society organizations (3), and academics (4). The limits of the municipal administrative area were considered as a general spatial boundary. However, as the mobility system extends beyond the municipal borders, what is considered to constitute Hamburg's urban mobility system was left open to the interpretation of interview partners. In terms of temporal demarcation, the overall duration of a process of destabilization depends largely on 'when one counts' (Sovacool, 2016; Turnheim, 2023). Therefore, an inductive approach was taken to identify one particular turning point away from car-centric urban development – a perceived 'high point' of car-based automobility in this context – and then elicit development phases from that point until the present.

The approach utilizes an abductive methodology moving between observations in the data and the concept development in iterations (Charmaz, 2014). I draw upon four concepts, as articulated by Turnheim (2023), deemed help-

ful for this investigation. First, I consider the dialectical relationship between (1) *weakening continuities* (the erosion of the ties that hold locked-in arrangements together) and (2) *intensifying discontinuities* (threats and challenges to the prevailing arrangements) (Turnheim, 2023: 49). In appreciation of this relationship and the multitude of forces at play when considering socio-technical change, I further draw on the notions of (3) *pressure fronts* (observable emergent tensions) and the corresponding (4) *strategic responses* of incumbent actors to these mounting pressure fronts (Turnheim, 2023). These were not operationalized through the development of indicators that would constitute evidence of their occurring. Rather, they were considered sensitizing concepts (Charmaz, 2014) to investigate destabilization processes openly and inductively over long periods. Beyond striving for a broad range of actor perspectives, the approach sought to triangulate different sources of data, particularly transport development plans and other municipal strategic documents (Patton, 2015: chap. 9). References are made to specific interviews¹ or documents when possible, suitable or necessary.

Destabilization of urban automobility in Hamburg

A clear turning point away from car-centric urban development in Hamburg can be seen in the public opposition that emerged in response to the planned expansion of the street network that was articulated in the city's General Transportation Plan (Generalverkehrsplan, GVP) of 1976 (FHH, 1976). Attempts to implement the plan in the following years, which would have meant deep cuts in densely settled urban areas to make way for large-scale motorways, were met with strong public opposition, sending a message to politicians and planners alike that such projects to meet growing rates of motorization had become an impossibility (RP1; RP3; RP4).

¹ References have been anonymized according to the following codes: P = practitioner, RP = retired practitioner, CS = civil society (NGO), A = academic. The abbreviation is followed by a number producing a unique code for each interview partner.

1976–2001: *Accommodating* metropolitan development through incremental changes

Population decline and the regional relevance of the port during the Cold War had been playing a central role in Hamburg's urban governance since the 1960s. The city was characterized by growing unemployment, with a turn towards stronger economic growth first emerging in the 1990s. Transportation planning was embedded in the Department for Economic Development (Wirtschaftsbehörde), as transport was understood as imperative for an effectively functioning port and economy more broadly. Due to public opposition to the 1976 plan, the mandate for the unfettered development of the city's street network was lost despite growing motorization rates and suburbanization, and planners were forced into a piecemeal approach to traffic planning (RP1; RP3). Some central projects from the 1976 plan became institutionalized through separate legislation or integrated into the city's land-use plan, leading to the incremental expansion of the road network and the extension of certain rail lines (RP3; RP4). The approach still aimed to maximize performance in terms of movement of goods and people, but planners were presented with obstacles when doing so. With the growing awareness of the problems associated with auto-centric urban design, the image of the car as a symbol of progress and freedom was in decline (P2; RP3). This emerging realization of the mistakes of the preceding decades manifested in wider public discourses as critical questions were being asked about the type of city inhabitants wanted to live in (P2; RP3). Localized initiatives and individuals began pushing for low-car and traffic-calming measures in their places of residence, work, and study (RP3; A2).

In the late 1980s, planners began experimenting with speed limits, specifically focusing on residential areas (P2; RP3). Through parking controls in the city's core, and the establishment of park-and-ride (P&R) facilities, there was a steady shift towards commuting by car to public transport. Maintaining Hamburg as a strong metropolitan area was ideologically a central building block of the social democratic project of the ruling Social Democratic Party (SPD) (A2). This helped justify the expansion of the road network (as well as the public transport system) to connect the inner city to the surrounding regions. Recognizing the challenges of negotiating the increasing tensions and conflicting goals in transportation development in a growing city, policy-makers opted to develop a Transport Development Plan (Verkehrsentwicklungsplan, VEP) during the 1990s, which proposed further instruments to encourage modal shift

(FHH, 1999). The *Veloroute* (cycling network) concept was also developed in the '90s, with the first route completed in 1999. However, these early signals of the re-emergence of cycling were primarily because of activities outside of the formal planning arrangements. Within formal transport planning circles, cycling was largely neglected as a credible form of transportation during this period (CS3; A2; A4; P2; P5).

2001–2008: Hamburg first – *neglecting the metropolitan project*

After the city election in 2001, the centre-left SPD was forced into opposition for the first time since World War II. The conservative Christian Democratic Union (CDU) took over leadership, initially in coalitions and later governing alone from 2004 to 2008. Metropolitan development – connecting the city with its surrounding areas – was strongly associated with a social-democratic project embedded in a general framework of Fordist ideology: a car for every worker and the freedom to move around was a central promise to the working class in the decades prior (A1; A2). Signalling a shift towards more neoliberal logics, the new coalition was less interested in maintaining that project. This manifested in a relative indifference towards projects that would better connect the inner city and outer suburbs (whether by road or public transport) in favour of promoting growth in the urban core (A1; A2).

In terms of municipal organizational structure, transportation planning was separated from economic development to join construction in the Department for Construction and Transport (Behörde für Bau und Verkehr) and in 2004 joined the Department for Urban Development and Environment (BSU), which centralized key public authorities around urban development. The newly formed government disregarded the earlier transportation development plan and abandoned initiatives to promote cycling and reintroduce a light rail network. A selection of the planned motorway projects and extensions to the rail network (which were present in the initial plan) were continued, maintaining the overall development trajectory but forsaking early efforts to encourage modal shifts in transportation (P4; RP3). A new rail line (U4) was planned to link up the newly developing HafenCity largely because of pressure from developers of the new district (RP3). The period also saw growing pressures from other governance levels through European laws that set standards for local air and noise pollution.

2008–2011: The just-do-it interlude – *mobilizing unsuccessfully*

In 2008, the conservative CDU entered a coalition with the environmentally progressive Green Party, which required agreement on a series of contentious projects, including a range of motorway developments. In exchange, the Greens successfully negotiated a range of key projects of their own, as well as control over the influential BSU. This included the establishment of the Cycling Forum (Fahrradforum), through which the city's first cycling plan and a city-wide bike-sharing system would be developed. The unconventional coalition was understood as a marriage of convenience despite some common ideological ground around the 'creative city' (Landry, 2008; A4). The powerful position held by a Green senator in the BSU led to a strategy less focused on long-term planning as much as it was on implementing initiatives to establish concrete results (A1). However, this approach encountered formidable challenges, with two of its central projects faltering in their advanced planning stages: a shared space concept and implementation of the planned light rail system. These were both physical interventions in urban space, and they encountered significant local opposition from residents and businesses in the targeted development areas.

2011–2020: *Diverting towards economic growth through ITS*

The election of 2011 marked an important ideological turning point as the SPD returned to power, winning an absolute majority. Coinciding with mounting pressure on the city to address air quality issues, driven largely by the threat of lawsuits for systematic non-compliance with European air quality standards, the newly elected government embraced the concept of intelligent transportation systems (ITS) and smart cities (A1; RP2; RP3). Not only did ITS carry lofty promises to improve traffic flow and mitigate the negative effects of transportation, but it also promised an avenue for economic development (A1). Hamburg was thus announced as 'open for business', as companies were invited to test smart mobility solutions in the city (A1). During this time, the meaning of transport planning was further broadened beyond the creation of infrastructure to include the management of real-time traffic flows and mobility management (A1). Notably, citing budget restrictions, the SPD abandoned the light rail project that was developed under their leadership during their previous term in power. This excluded it as a potential consideration in

the transportation strategy, and the leadership instead opted to optimize the existing bus network.

These ideological shifts were manifested in the city's organizational structure. Transportation re-joined with economic development in the Department for Economic Development, Transport and Innovation (BWVI). The BWVI was consecutively led by two independent senators with close ties to the private sector, although much of the ongoing smart mobility activities were directly managed by the mayor's office (A1; RP4). Several letters of intent (LOIs) were signed between the city and companies. The mayor himself was involved in establishing the Platform for Urban Mobility (Plattform Urbane Mobilität), bringing together a range of German cities and representatives from the automotive industry, among others, to envision the future of urban mobility centred on ITS (P1). In 2014, a master plan for the city's e-mobility charging infrastructure was developed (P1). In 2015, the senate published a digital city strategy, followed by an ITS strategy the next year, including the establishment of an ITS project management office to organize activities around smart mobility in the city. Swift action was taken to modernize the city's outdated or non-existent traffic management systems, piggybacking on Hamburg's successful bid to host the 2021 ITS World Congress to justify investments in traffic management technology (RP2; P1) and the implementation of a range of urban testbeds to experiment with new mobility services and autonomous vehicles.

The Transport Development Plan (VEP) was reintroduced as an instrument for long-term planning and coordination. Additionally, a Mobility Advisory Board (Mobilitätsbeirat) was established within the framework of transportation development planning. This board was designed to integrate a broad group of stakeholders from politics, the administration, business, research, and selected civil society organizations to steer the development of the ongoing planning process (FHH, 2013).

After the election in 2015, the SPD could not maintain their majority alone and went into a coalition with the Greens. This coincided with the announcement of plans for a new heavy rail line (U5) and the role of cycling coordinator becoming formalized in the transportation department. The following year, the Alliance for Cycling (Bündnis für den Radverkehr) was endorsed by senate representatives, borough offices, councils, and the mayor to commit to developing Hamburg into a 'cycling-friendly city', striving to increase its modal share of cycling to 25%. Together with the public transport authority, an 'offer offensive' (*Angebotsoffensive*) was proposed as a means to create a 'real alternative to the car' through the improvement of public transport and on-demand shuttles,

vehicle and ride sharing, and other mobility services (FHH, 2019b). In 2019, 200 experts and around 8,000 other visitors came together in the Bauforum workshop to contribute to the development of a master plan for the city's main arterial roads, reimagining them as *Magistralen* that would 'put people first' (RP4; A2; BSW and Meyhöfer, 2020).

2020–2024: Reimagining 'smart'– *mobilizing and transforming*

An election in 2020 followed significant environmental protests in the city throughout 2019. The Greens experienced a notable surge in election results, nearly doubling their voter share to 24%. The emergence of a new Greens-led organizational entity, the Department for Transport and Mobility Transition (Behörde für Verkehr und Mobilitätswende, BVM), once again separates transport from economic development, establishing it as an independent department with 'Wende' ('transition' or 'turnaround') imprinted in its title. This signalled change, fostering a new culture within the mobility department characterized by an ever-growing new generation of planners whose education extended beyond conventional transportation planning to consider more integrated perspectives on urban development and sustainability (P4; A1).

There was an important shift in the framing of ITS. The new perspective decentres the car and integrates the improvement of public transport and cycling more explicitly (FHH, 2016; 2021). The *Hamburg-Takt* became a central coordinating vision: a goal to offer every city inhabitant a mobility connection within 5 minutes of their location to anywhere else in the city through enhancing the public transportation network and integrating on-demand services. A commitment to the further development of the city's shared autonomous vehicle project was formalized through the signing of a declaration of intent between the city and national governments, aiming to position Hamburg as a Metropolitan Model Region of Mobility. Through this agreement, a goal was set to have up to 10,000 autonomous vehicles on Hamburg's streets by 2030, serving as a modern on-demand transport service. Traffic calming in the inner city was also expanded and certain areas were made car-free. Though not uncontentious, decades of incentives to encourage modal shifts for inner-city commuting helped justify these measures (A2).

Table 1: Overview of the phases.

Period	Phase	Party Control	Formal Institutional Arrangements	Mounting Pressure Fronts	Incumbent Responses
1976–2001	<i>Accommodating</i> Metropolitan Development through Incremental Changes	SPD (coalitions with FDP, STATT, Greens)	Transport embedded in Dept. for Economic Development (Wirtschaftsbehörde)	Public demand for better cycling infrastructure, safer streets, and enhanced liveability; decreasing importance of cars as a symbol of progress; growing congestion; limits on road expansion; environmental protection institutionalized	Parking management and park-and-ride; traffic calming in residential areas; incremental expansion of public transport and streets; light rail network planning; long-term planning through Transport Development Plan (VEP)
2001–2008	Hamburg First: <i>Neglecting</i> the Metropolitan Project	CDU (coalitions with Schill, FDP)	Transport joins Construction Dept. (Bau und Verkehr); later Urban Development and Environment (BSU)	Intensification of pressures, including lawsuits for forced bike-lane use and compliance with EU noise and air pollution standards	Abandonment of previous transport plans, maintaining selected projects; incremental public transport and street network expansion; rollback on metropolitan development; neglected street maintenance; discontinuation of light rail and cycling infrastructure upgrades

2008–2011	The Just-Do-It Interlude: <i>Mobilizing</i> Unsuccessfully	CDU (Green coalition)	Green control of BSU	Opposition from local businesses and residents; citizen-led referendum against light rail; budget constraints	Incremental expansion of public transport and street networks; implementation of shared space and light rail projects; development of a cycling plan and establishment of a cycling forum
2011–2020	<i>Diverting</i> Towards Economic Growth through ITS	SPD (Green coalition from 2015)	Transport reassigned to Dept. for Economic Development, Transport, and Innovation (BWVI); new organizational units for ITS World Congress	Budget constraints; referendums for green space protection and improved cycling infrastructure; legal threats over air quality; district-level experiments with car-free or low-car initiatives; climate plan and large environmental demonstrations; reimagining <i>Magistralen</i>	Mobility management and ITS; experiments with mobility services (autonomous vehicles, ridesharing); 'Offender Offensive' in public transport; revival of long-term transport planning (VEP); formalization of objectives and advisory board; institutionalization of cycling promotion
2020–2024	Reimagining 'Smart': <i>Mobilizing</i> and <i>Transforming</i>	SPD (Green coalition)	Transport reassigned as an independent department: Transport and Mobility Transition (Verkehr und Mobilitätswende)	Space availability (e.g., parking vs. blue/green space); sector-specific climate goals; opposition to parking management	Reframing 'smart' with public transit and cycling prioritized; redistribution of space (car-free zones and temporary bike lanes); unsuccessful attempt to expand parking management and speed limits; pledge of up to 10,000 autonomous vehicles by 2030

Source: Author.

The incoming Green senator and cycling coordinator prioritized the improvement of the cycling infrastructure, supported by the established Alliance for Cycling and substantial grassroots pressure through the *Radentscheid*, a citizen-initiated referendum demanding improvements to the city's cycling infrastructure. While previous attempts to implement the *Veloroute* concept faced frequent local opposition, the reduction in commuter traffic and the shift to remote work during the Covid-19 situation provided planners with an opportunity to implement and expand street space redistribution through 'pop-up' bike lanes. This became feasible in streets where such interventions would have encountered substantial opposition only a few years prior (P2; RP2; CS3). The significant physical transformation of the cycling infrastructure in a relatively short period was seen as somewhat radical by some (RP1; RP3). For others, it merely compensated for decades of neglect of cycling as a legitimate transport mode (P5; CS3).

Local dimensions of socio-technical destabilization

The introduced developments demonstrate that there have been significant changes to the governance arrangements around urban mobility in the city of Hamburg since a turning point in the late 1970s. Since that moment, the auto-mobility regime has been exposed to mounting pressure fronts, with the array of problematized issues also widening over time. Initially, pressures were mainly about congestion, death and injury, and local air quality, while more recently, the scope of problems has widened to also include climate change, space scarcity, and broader questions of environmental health, quality, and justice. Throughout the observed period, five phases can be identified, reflecting changes in the incumbent response to the mounting pressures. Responses have ranged from incremental efforts to *accommodate* the mounting pressure fronts (1980–2001); to largely *ignoring* them (2001–2008); to *mobilizing* them unsuccessfully (2008–2011); to *diverting* them through reimagining the problems as new opportunities for economic growth (2011–2020); to *transforming* them into physical changes in the urban fabric (2020–2024). Each phase has its path dependencies. To name just a few examples, the implementation of car-free inner-city areas was supported by decades of incentives to discourage car travel into the city centre (A2). Rising maintenance costs to compensate for neglect of infrastructure in the 2001–2008 period contributed to budget restrictions which were a barrier for the implementation of the light rail and

shared space projects in 2009–2011 (A1). The embracing of ITS and associated projects in the early 2010s created a pathway through which the promised ‘mobility transition’ a decade later brought with it the involvement of Germany’s largest car company in the local governance arrangements (VW through its subsidiary MOIA). Nevertheless, there is also scope within incumbents’ respective terms to shape the mobility arrangements and change direction.

The turning points are typically the product of changes in government or coalition partners. Based on these patterns, it might be tempting to assign too much responsibility for changes to the government in power. However, the case shows that important shifts (such as infrastructural and technological decay, civil society organization and mobilization, staff turnover, changes in other urban contexts, etc.) are constantly influencing the governance arrangements and play a role as well. Often, the change in government and the associated reshuffling of formal institutional arrangements reflect an opening of the metaphorical floodgates, bringing about a more rapid change of direction. Formal reshuffling can also have the opposite function of stifling or diverting emerging pressures for change into other political topics (e.g. economic growth). Nevertheless, shifts are indeed clearly marked by elections, emphasizing the importance of formalized local politics and formal institutional arrangements in processes of destabilization.

To exemplify the importance of locally embedded and dialectical dimensions of *weakening continuities* and *intensifying discontinuities* that play a central role in the emergence of pressure fronts, in the following section, I bring to the fore two concrete examples that can be drawn from the case. It is important to note that these are multi-scalar in that they have both endogenous and exogenous dimensions but that they are enacted and institutionalized (or mitigated and resisted) locally.

***Weakening continuities* through shifts in planning logics**

Changes in the logics that underpin transport planning reflect important examples of weakening continuities. One example is the weakening in the supremacy of absolute traffic performance or ‘efficiency’ (*Verkehrsleistung*) and a shift towards a broadening of evaluation criteria. Traffic ‘performance’ has typically been understood primarily in terms of efficiency in a very narrow sense, leading transport planners to focus primarily on improving traffic flow, congestion, travel time, and overall system capacity (Banister 2008). This can lead to the counterproductive assumption that if a system is delivering

maximum movement in terms of distance travelled per capita, this system is performing better than one in which there is less physical movement, even if the latter might deliver all necessary and desired trips in a safer and more environmentally friendly manner. The dogma of traffic performance and its underlying assumption that increased efficiency is inherently desirable appears to be shifting, partly through the lessons learned from other urban contexts:

We had a brief conversation with a colleague from Vienna who is responsible for transport planning [...] and she told us [...] they don't actually look at the efficiency [*Leistungsfähigkeit*] of [...] intersections when they are being rebuilt because even if it goes down, that's the goal. [...] In order to encourage fewer people to drive, we no longer want to be so efficient.² (P4)

Transport planners have an important role in determining the future mobility arrangements of urban developments by anticipating dimensions such as future traffic volumes, modal split, and car ownership rates. In recent decades, there has been a shift from anticipating these factors to prescribing them, with the underlying objective of minimizing the role of the car in future arrangements. This has been supported by local legislative changes offering more flexibility on parking minimums that give planners the freedom to make these decisions, but also through planners' changing perceptions about what is plausible in terms of minimums on car ownership and use. This has partly been spurred on by car-sharing organizations, which have demonstrated that their services can offer the same mobility with significantly fewer vehicles through modelling exercises (P2; P3). These changes are evident in the layers of development behind a large urban development project, the Leap Across the Elbe. This development began with the building of the HafenCity district in the early 2000s with remarkably low ambition in terms of prescribed car ownership and use and has now become progressively more ambitious:

I think that is what the car-sharing providers are saying: '100 to 105 vehicles per 1,000 inhabitants and we can organize everything for you.' And that would be 0.2 [parking spaces per residence], and that's Grasbrook. [...]

2 Interviews were conducted in German; interviews and non-English quotations have been translated by the author.

In 2000, we had a parking space ratio in the HafenCity of 1 to 1.5 per residential unit, i.e. built in Kaiserkai. And now we're doing 0.4 in the eastern part. Yes, that's also a huge step. That wouldn't have been possible back then. (P2)

These are manifestations of a departure away from logics of 'predict and provide', a shift that has been common knowledge in mobilities research for some time (Banister, 2008). However, there appears to be a difference in how long it takes for such paradigm shifts to make their way into the day-to-day activities of practitioners and to what extent they do so. In Vienna, for example, according to the quote, planners aren't looking at efficiency at all, and they have an *explicit* goal of reducing efficiency. In Hamburg, efficiency is apparently still important, but not as central as it had been.

Intensifying discontinuities through a broadening opposition to the car

Pressures on the prevailing governance arrangements have largely been driven by an ongoing and consistently growing local opposition to auto-centric urban planning. Although not only targeting the transport sector, a growing environmental movement has been central to the problematization of the negative impacts of the car. Indications of the institutionalization of the movement in the local governance arrangements can be seen in the rise of the local branch of the Green Party and the professionalization of a range of local NGOs (CS1; CS3). Growing environmental awareness has also been institutionalized in the city bureaucracy. Management of environmental issues began formalization from 1978, becoming the Department for the Environment (Umweltbehörde) in 1985 and gaining further competencies (water, energy, and waste management) in 1987. The department developed strategies for environmental protection (e.g. noise pollution, local air pollution, climate change mitigation and adaptation, green space protection, etc.). An independent Department for Urban Development (Stadtentwicklungsbehörde) was formed in 1991, marking a moment of institutionalized weighing up of an ever-growing list of urban priorities and their consideration in spatial terms (RP3). While it is impossible to account for all the work of these institutions over the period investigated, the recent Master Plan for the city's main arterial corridors, reimagined in the plan as '*Magistralen*' (as a callback to the pre-car-centric terminology), is one example of how the work of these organizations directly challenges the prevailing automobility regime. These major thoroughfares facilitate most of the

road transportation to and from the city centre from the urban peripheries. Through the process of motorization throughout the 20th century, their mono-functionality purely to facilitate traffic has made them normalized keystones of the city street network. However, urban planners have recently embarked on an initiative that builds on a large-scale visionary workshop (Bauforum) to transform precisely *this* space.

If you look at what is being created as a vision [...] you can see in this [Magistralen] Master Plan that all the authorities are involved and it's no longer just some crazy ideas from the Bauforum. Then you suddenly see that [...] these major thoroughfares have been reduced from four lanes to two lanes with two lanes of greenery. [...] I was totally surprised when I saw this the other day because it means that the transport department is somehow supporting this. (RP4)

Actually, the idea of replanning the main roads, [...] that was actually the first visible confrontation against the old orientation, which was to optimize commuter traffic as much as possible, and to relativize it this time. In other words, this trend, which started in the 1970s and '80s because of suburbanization, was undisputed until 2020. (A2)

These main corridors form the backbone of road-based transportation in the city. In the past, traffic-calming measures and space redistribution were always limited to residential areas. Because the logics of transportation planning were dominated by ensuring maximum 'efficiency', anything that would not enhance or maintain capacity was largely out of the question. But in this case, the effort to change the roads has come from outside formal transport planning, and this initiative seems to be supported from within transport planning, a scenario which appears not to have been plausible in the past.

Conclusion

This investigation underscores that there are fruitful insights to be gained by investigating processes of destabilization on the local level. There are myriad forces at play that contribute to the challenging and reproduction of automobility on multiple governance levels (Böhm et al., 2006; Canzler et al., 2018; Haas, 2020; Manderscheid and Cass, 2022; Hawxwell et al., 2024). However, considering the particularities of the urban in terms of obduracy (Hommels,

2005), it is not surprising that investigations into destabilization at the urban scale can expose new faces of the regime and unique dynamics of its potential unmaking (Jayaweera et al., 2023). For example, an emerging pressure front around space scarcity and the zero-sum nature of space allocated to different forms of transportation and the many other functions that urban space performs suggests that this is a particularly urban phenomenon (Petzer et al., 2021). Despite this, one should be wary not to fall into the 'local trap' (Purcell, 2006), losing sight of broader forces that extend beyond the local. This investigation is somewhat blind to the extent to which changes could more credibly be assigned to other governance levels. While it is clear that pressure fronts will have both exogenous and endogenous dimensions, focusing exclusively on the local makes it difficult to identify the relative strengths of the endogenous or exogenous forces, respectively: It is difficult to know the extent to which changes are predominantly the product of the work of actors locally.

Beyond negotiating trade-offs in terms of scale, trade-offs between breadth and depth also need to be considered when investigating destabilization journeys. A broader goal of destabilization research is to move towards the identification of common underlying mechanisms behind such processes (Turnheim, 2023). Getting at such detail likely requires high-resolution perspectives. To account for the long-term shifts away from car-centric urban development, this study was only able to sketch the contours of a destabilization journey, providing a glimpse into its dynamics. Therefore, it likely misses the nuances of particular moments but helps identify starting points for such higher-resolution investigations. These shortcomings stress the need to also move between *temporal* scales, as well as the importance of collaboration and coordination between different cases and research approaches.

Despite the long-term scope applied in the investigation, it is still difficult to assess the relationship between *destabilization* and *decline* of the role of the car in the mobility system. As has been demonstrated, there have been shifts in the underlying logics and a rising formidable force to challenge car-based automobility. Also, the portion of trips by car in the modal split has been in decline since 2000 (FHH, 2023). However, there are some developments that suggest the cracks in the regime of automobility might not be as deep as they appear. Hamburg's senate still lobbies on the national level for, and itself invests heavily in, new motorway developments to expand road-based transportation, which is an obvious contradiction to a transformation agenda. Looking at car ownership also shows a regime more locked-in than ever, with the absolute number of privately owned vehicles in the city steadily increasing until 2022, when

there were signs of levelling off (FHH, 2023). Looking at the space allocated to (road-based) transport infrastructure over time would likely tell a similar story. Another example is Hamburg's leading role in the emergence of autonomous mobility services and the associated for-profit models that have the potential to transform the mobility system into an even more problematic regime of automobility (Freudental-Pedersen et al., 2019; Marletto, 2019). Future research could therefore investigate the forming of new ties between new and old elements that are reproducing and mutating urban mobility regimes in the making of urban mobility futures.

Identifying pressure fronts can be a helpful means of recognizing that emergent matters of concern (Latour, 2004) are the products of opposing forces coming into contact with each other rather than some objective problem. The car's impact on the city only becomes a problem when it is problematized (see also Jørgensen, 2012). The many environmental and social conflicts the car has created and continues to create only become contested under particular circumstances. Those challenging the prevailing arrangements play an important role in this process of problematization and are helped or hindered immensely by the prevailing institutional arrangements. Once a pressure front that is deemed to be of particular importance along a destabilization journey has been identified, a deeper investigation into processes of (de)legitimation and associated justification strategies could be a fruitful avenue for investigation. Furthermore, by focusing on *destabilization*, the approach is not blind to novelty or innovation. It brings to the fore precisely the innovation that can be directly assigned to the pressures that force meaningful change. This can help decipher 'what makes for a destabilising source of change' (Turnheim, 2023: 48). It can therefore be a well-justified means of identifying 'niches' that warrant 'strategic management' (see Schot and Geels, 2008). This underscores the Hoffman and Loeber claim that there is 'no clear-cut division between innovative practices on the one hand (often referred to in terms of a "niche") and the vested interests manifest in institutions, prevailing rules, and actors (alternatively referred to as "regime") on the other' (2016: 706). It further bolsters calls to, therefore, focus on the 'processes of translation' that shape interactions between 'niche' and 'regime' rather than seeing them as dichotomous entities (Raven, 2006; Smith, 2007).

The research provides important insights into questions of governance of, and intentionality behind, destabilization (Frank and Schanz, 2022; Turnheim, 2023). This Hamburg case shows that even though incumbents have not intentionally been curbing auto-centrism in any serious way, an ever-growing force

of actors (in terms of power and numbers) has intentionally been working towards dethroning the car within the urban development paradigm of the city for decades. This highlights the important processes and 'work' that occur long before more formal decisions to 'phase out' or 'discontinue' (Koretsky et al., 2023) have been taken. It shows that forces of change might lie much deeper in the historical record than one might expect. Until 2011, there was no apparent intention articulated on the side of incumbents that the system should be fundamentally changed. After that point, the intentions appear to be mainly techno-utopian promises, and later, more explicit albeit moderate efforts to discourage car ownership and use. The concessions made prior could be understood as efforts to *disarm* rising pressure fronts to *maintain* the prevailing car-based arrangements. This is exemplified considering the change to the conservative government in 2001, which marks a shift towards a more neglectful stance regarding the emerging pressure fronts rather than making incremental concessions, as the previous incumbents had done. One could speculate that this neglect played an important role in the dramatic change in the direction that came after. Therefore, investigations into destabilization should consider the question of whose intentionality matters. The case also points to the importance of more relational and emergent understandings of governance (Briassoulis, 2019) when investigating destabilization rather than limiting the scope of governance to the 'cockpit' (Smith and Stirling, 2007; Stirling, 2019). Finally, connecting to the theme of this volume, this contribution highlights that urban future-making does not take place in a vacuum. Not only do conflicts emerge between rival imaginaries about the future of urban areas, but also in the *unmaking* of that which has been inherited from the past.

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9. Contested mobilities and the role of conflict in making sustainable cities

Malene Freudendal-Pedersen and Sven Kesselring

Cities are not just what is inside them. They are largely produced by what flows through them. In addition to the everyday mobilities of city dwellers, multiple mobilities, such as the movement of workers, tourists, business travellers, goods, information, waste, symbols, and so on, make cities vibrant and nourish them. Mobilities are part of producing and reconfiguring urban meanings, identities, and daily cultures (Kesselring, 2006; Urry, 2007; Freudendal-Pedersen, 2022). They are constitutive forces that shape the world as we see it. In cities, these forces come together, making them the product of interactions, intersections, separations, and segregations.

As a consequence, the physical forms of modern societies are strongly rooted in mobility. Material structures such as transportation infrastructures, gateways, and global transfer points such as train stations, ports, highway intersections, and airports play a key role in defining the metabolisms of cities and what, who, and how much flows in and out of urban bodies (Sennett, 1994; Kesselring, 2008; 2009). Nevertheless, issues of mobility and transportation have become highly politicized and contested, through struggles over who has the right to the city. In relation to highways, airports, train stations, and bridges, but also to the use of urban space for vehicles, parking, urban life, and other purposes, underlying conflicts break out (Sachs and Santarius, 2007; Faburel and Levy, 2009; Gualini, 2015). Discussions crystallize around questions such as: What is a good mobile life? Does it require a car? What makes a city a liveable place? Do we really want sustainable mobility if it means changing our current lifestyles and daily routines?

Infrastructures have become political and reflexive in the sense that even modernized and wealthy societies such as Germany, France, Denmark, Australia, the United States, and many others have growing problems with financing and maintaining roads, highways, bridges, railroad tracks, train stations,

and so on. In the past, these infrastructures became reference points for conflicting discourses about the need for and use of acceleration and the genesis of more and faster flows (Virilio, 2007). It can still be argued that such discourses are prevalent, not least because of the conviction that this accelerated flow is the way to increased growth. But in the mobile risk society, concepts such as seamless mobility and 'zero friction' (Hajer and Kesselring, 1999) are being challenged. In a phase of modernization in which financing becomes precarious, citizens of all social classes fear being the losers of globalization, and the negative unintended consequences of the acceleration of societies become predominant and part of everyday perceptions and discourses. The 'more mobility argument' is losing the persuasiveness and legitimacy it had in the past (Beck, 2016; Kesselring, 2019).

Today, the consequences of climate change are becoming an essential element of the discussion on how future cities and lives might and should develop. Over the past decade, new planning concepts have emerged that focus on urban life that is not dominated by the car and that offer the possibility of transforming some of the urban asphalt into green or blue spaces (Nieuwenhuijsen, 2021). The major focus here has been on promoting active green mobility made possible by the transformation of common urban spaces. These new planning concepts, such as superblocks, low-traffic neighbourhoods, Kiezblocks, or the 15-minute city, have created struggles and conflicts by raising people's fears, doubts, and resistance to changes in current transportation systems. The suggested reconfigurations of urban development are part of the search for alternative futures and sustainable development. The above-mentioned concepts of the 15-minute city, superblocks, or low-traffic neighbourhoods are presented as sustainable urban developments; even though these concepts contain many other elements, it is the issues around mobilities that provoke opposition and resistance, primarily by focusing on blocked flows and immobility.

The questions we want to raise in this chapter are: What are the causes of conflicts in urban and transportation policies? Are there societal benefits to the creation of sustainable mobilities? Can the social forces emerging from such conflicts lead to new concepts of public participation, institutional innovation, and social change towards sustainable mobilities? Is it desirable or even possible to avoid escalation and conflicts? Are there strategies of conflict regulation that allow the politics of life and resistances to participate and contribute to the creation of sustainable mobilities?

Obviously, this chapter cannot provide comprehensive answers to these fundamental questions, but it does emphasize the urgent need for rethinking

the role of conflict as an early-warning system. Such a warning system may signal new communities struggling for the right to the city, or mark alternative paths into the future, or perhaps change the transportation paradigm that has dominated cities as well as rural landscapes for more than a hundred years.

To start this examination, we provide an entry point by focusing on cities, mobilities, and climate change as the framework for the discussion. Following this, we touch upon alternative urban futures and the frictions involved in them, as their forward-looking perspective challenges current planning paradigms and life-worlds. This leads to a discussion of the mobile risk society and its ambivalences, using the example of mobility transition policies as applied in the southern German state of Baden-Württemberg. The chapter concludes by pointing out the need for different urban futures and the role of conflict as a way forward in this transformation.

Cities, mobilities, and climate change

Cities are shaped not only by their physical structures, but also by their flows. These movements contribute to the dynamic and evolving nature of urban life, constantly generating and reshaping meanings, identities, and cultures within the cityscape. Georg Simmel already pointed out in the 1920s that what is visible is only the materialized form of social processes and dynamics. But behind it, the world is mobile and dynamic, constantly changing. In other words, mobilities are constitutive forces that shape the world and its materialities (Cresswell, 2006; Sheller and Urry, 2006). With the pressing issue of climate change, the discussion and promotion of sustainable modes of transportation is becoming increasingly relevant. Transportation is a major challenge but may also contribute to making cities sustainable (World Business Council for Sustainable Development, 2004; Vergragt and Brown, 2007; High-Level Advisory Group on Sustainable Transport, 2016). It makes a material imprint on the city, roads, railways, and all the other materialities of mobilities that visibly occupy urban space, creating pollution, noise, and insecurity.

The Industrial Revolution produced a series of inventions that fundamentally changed transportation. Both speed and capacity increased rapidly, leading to technologically specialized and ecologically devastating forms of industry and transport. The history of transportation and how it has changed lives, economies, urban form, etc. has been described by countless researchers (e.g. Jensen and Richardson, 2004; Urry, 2007; Kesselring, 2014). What is

visible today is how these inventions have required infrastructures to facilitate new, faster, and more efficient movements. In principle, infrastructure is characterized by collectivity; as a starting point, it is thought of as a structure available to the whole of society. Thus, infrastructure development is politically regulated, and infrastructure is traditionally owned and operated by the state. The state builds the structure, but the users can be both public and private. Mobility and its infrastructure systems have long been at the centre of urban planning as the basic principle for creating good and accessible cities (see e.g. Hajer and Kesselring, 1999; Bertolini, 2017; Freudental-Pedersen, 2020) while simultaneously constituting the material substrate of the mobile risk society in the age of the second modernity (see Kaufmann, 2002; Canzler et al., 2008).

Infrastructure development is closely linked to economic growth, and here, automobility has been at the centre, as the private car has been seen as the starting point for growth, along with logistical networks (Newman and Kenworthy, 1999; Manderscheid, 2014). This has resulted in cities where life is subordinated to the accessibility of the private car, with a large amount of urban space dedicated to facilitating automobility. In fact, this has transformed the landscapes of time and space for city dwellers (Camagni et al., 2002; Samson and Freudental-Pedersen, 2022; Boussauw et al., 2023). Neil Brenner argues that

processes of deterritorialization are not delinked from territoriality; indeed, their very existence presupposes the production and continual reproduction of fixed socio-territorial infrastructures [...] within, upon, and through which global flows can circulate. Thus the apparent deterritorialization of social relations on a global scale hinges intrinsically upon their reterritorialization within relatively fixed and immobile sociospatial configurations at a variety of interlocking subglobal scales. (Brenner, 2004: 56)

This way of allocating space has been criticized for decades. Already Jane Jacobs (1961) was very precise when she predicted how the car and its infrastructures would deteriorate a great deal of urban life; today, that life is seen as an important element to recreate so that cities become places of community and healthy living.

What Jane Jacobs did not know was that climate change and its consequences would become the best visualization of the stress that the focus on flow, efficiency, and speed has put on the planet. In today's cities, most

transportation is done by car and public transportation, although in a few cities bicycles account for a large number of daily trips. Climate change and its consequences have reinvigorated discussions about what the good city is and the role of infrastructural systems focusing on speed and zero friction.

Very visible are the streets, filled every day by an increasing number of cars, occupying and coinciding with what could be inhabited spaces. In a city like Copenhagen, for instance, road and parking facilities occupy 58% of the common space in the city (Københavns Kommune, 2023). At the same time, transportation, locked in as part of everyday routines, is a prerequisite for life. It creates opportunities and ideas about possibilities. The car, for instance, is, for many people, linked to the idea of freedom, but at the same time, it imposes certain structures on us, with unintended consequences that make us unfree (Freudental-Pedersen, 2009; Cass and Manderscheid, 2018). The close link between freedom and mobility is based on a value system created by modernity and maintained by the right to free movement, now considered a fundamental right. Sennett argues that the cities of the second modernity lack a sense of time: 'not a nostalgic backward time – but a future time. The city must be understood as a process, the images change as they are used, and we must create an urban fantasy formed by expectations that invite surprises' (2007: 290).

Even if nearly all stakeholders agree that most of the current systems are unsustainable, urban transportation is still an area with very little or very slow progress. Thinking outside the traditional rational transportation paradigm and designing cities with expectations that invite surprises has not had much success. There are many explanations that can be found in the political economy of this sector, but it seems plausible that the essential problem with transportation is its energy supply: It comes from oil-based fuels produced by stationary labour practices (Urry, 2007; Adey, 2009). Infrastructure systems that facilitate transportation are very much part of political negotiations, where infrastructure has a long lifespan and decisions on such matters therefore have future consequences for the development of cities, nations, and the world. This also means that massive changes and transformations are needed to overhaul current mobility systems to make them sustainable and climate-neutral.

Different urban futures

Although cities and their mobility systems were largely planned according to the same modernist principles after World War II, planners and architects created very different visions and utopias of concrete places. There was also strong emphasis in the post-war period on the social construction of spaces and the imagined communities that would inhabit these places (Pinder, 2005; Jensen and Freudendal-Pedersen, 2012). In many cases, utopian thinking was sought as a way to inspire social change and innovation. Often, these theoretical concepts and thought experiments were aimed at critiquing existing societies and imagining alternatives to urban life and the sociality of urban spaces. Frequently, authors of such critiques began with perceived shortcomings in contemporary social structures and discussions about how to create a better future. Many utopian societies have been imagined as prioritizing equality and justice, often emphasizing strong community ties and cooperation among members of society (Harvey, 2000; Jacobs, 2006). A more recent strand of utopian visions focuses on how to create sustainable practices and harmony with the natural environment (Johns-Putra et al., 2017; Harnesk and Isgren, 2022). In relation to movement and transportation, utopian ideas often incorporate advanced technologies, imagining that these will enhance human well-being, minimize laborious tasks, and create sustainable futures (Timms et al., 2014; Lane, 2019). Thus, utopian literature and theories can be found across various disciplines within the social sciences, and they are a valuable tool for imagining more sustainable futures.

At the same time, utopian thinking has been criticized for being impractical, idealistic, or even oppressive. Yet much of what we take for granted in urban and transportation planning today was conceived as a utopian idea before it was implemented. For example, Le Corbusier's idea of the Radiant City, designed in 1930, was developed as a utopian concept that sought to solve the social, spatial, and environmental challenges of cities (Le Corbusier, 1933/1967). Not by coincidence did it become influential after World War II. The zoning system, which separates different urban functions into distinct areas to optimize efficiency and reduce conflicts; the high-rise residential buildings surrounded by green spaces; the transportation networks, including highways, boulevards, and public transit systems, with the automobile at the centre; the modular design principles and standardization in construction to increase efficiency and reduce costs: all these elements of urban planning were seen at

the time of their implementation as the way forward to creating efficient and prosperous societies.

Today, this approach to urban planning is highly criticized for being unsustainable and human-unfriendly, as its emphasis on standardization and separation of functions has led to sterile, monotonous environments that fail to accommodate the diverse needs and preferences of city dwellers. The Radiant City concept is still influential in the field of urban planning and architecture. Planning guidelines around the world have since been heavily inspired by the ideas of zoning (Koglin, 2013; Fishman, 2016), which has been criticized for its perceived homogeneity, top-down approach to planning, and disregard for the existing urban fabric and social dynamics of cities. The strict separation of functions and reliance on automobile-centric design has shaped the large problems cities are today trying to solve (Urry, 2004; Canzler, 2008). All this is just to point out that previously wild and radical ideas can end up being taken for granted to the degree that they are no longer recognized as such.

Thinking in new futures, with utopias as a tool, does create friction. It can be argued that mediating opposing arguments and facilitating conversations are always good, but that stripping automobility from its power over urban space, transport, and urban planning will create conflict. Within policy analysis and planning there is a long tradition of understanding conflict and its potential ability to innovate and strengthen (Friedmann, 1987). Focus has been on 'the question of the conditions under which conflicts and antagonism can be turned from disruptive social phenomena into transformative potentials' (Gualini, 2015: 3). Scholars have drawn on interdisciplinary approaches to understand the complex social, political, and spatial dynamics underlying planning conflicts and to develop strategies for more inclusive, equitable, and sustainable urban and regional development (Mitchell, 2003; Henderson, 2013). The focus of their analysis is often how different stakeholders, including governments, developers, community groups, and advocacy organizations, exercise power and influence decision-making (Healey, 1993; Flyvbjerg, 2004; Friedmann, 2011). Here, focus is also on finding strategies to mitigate conflicts and build consensus and to recognize the importance of inclusive and participatory planning approaches in this. That conflict often arises in planning contexts related to environmental conservation, land use, and natural resource management is not new, but today, the pressing issue of climate change is enhancing these conflicts. Issues such as urban sprawl, industrial development, protected areas, and resource extraction have intensified the struggle over space.

Gualini points to what he calls the *aggregative-representative* democratic model and how it is premised on

the assumption of a 'tacit consensus' on the political validity of technocratic choice – one that could only be validated, self-referentially, through technical-instrumental verification. In light of such assumption, conflict is bound to be viewed as either expression of political arbitrariness or 'systemic noise.' Conflict is seen as a disruptive force that causes an imbalance in a system of interrelated parties – an imbalance that needs to be institutionally resolved through legitimate modes of representation and aggregation of interests. (2015: 5)

This assumption suggests that there is an implicit agreement or acceptance among policy-makers, experts, and the public regarding the legitimacy of technocratic decision-making in certain policy domains, and here especially transportation and mobility planning come to mind. Despite increased critique and debate, the technological fix seems to be prevalent, which we will touch upon in the example from Baden-Württemberg in the next section. The issue at stake is that while technocratic expertise can offer technical efficiency and expertise in complex policy areas, it may also undermine democratic norms by concentrating decision-making power in the hands of unelected elites or bureaucratic experts, potentially marginalizing input from both the public and the social sciences. The assumption of a 'tacit consensus' overlooks the contested nature of technocratic decision-making, which is influenced by ideological biases, power struggles, and competing interests. Technocratic expertise is not value-neutral but shaped by political, social, and cultural contexts, raising questions about whose expertise is privileged and which interests are served by technocratic policy solutions. At least it seems certain that this way of planning future mobility systems has not yet solved the problem of CO₂, nor the many other issues related to the dominant role of automobility (Manderscheid, 2023).

Alternative approaches to technocratic decision-making emphasize the importance of deliberative democracy, participatory governance, and citizen engagement in shaping public policy. Mechanisms for integrating technical expertise with democratic values, such as citizen juries, deliberative forums, and participatory budgeting, all in order to enhance the legitimacy, transparency, and accountability of decision-making processes, are seen as part of new planning concepts. There are examples where, for instance, participatory

budgeting has been implemented (Bernaciak and Bernaciak, 2019; Bartocci et al., 2023). Also the increasing interest in living labs or real-world laboratories that serve as platforms for alternative approaches to technocratic decision-making and innovation can be seen as indicators for new opportunities to bridge the gaps between citizens, politics, and planning (Bergmann et al., 2021). These formats of participatory research and development build on the problem-solving capacities of real-world environments, often situated in urban settings, where stakeholders collaborate to co-create, test, and evaluate solutions to complex societal challenges. These labs typically involve interdisciplinary teams of researchers, policy-makers, businesses, and citizens working together to develop innovative solutions by involving end users in the innovation process from the outset; living labs thus ensure that solutions are tailored to meet users' needs, preferences, and aspirations. Also, they provide opportunities for experimentation and learning in real-world settings where they can gather feedback from users and iteratively refine their approaches based on empirical evidence (Mück et al., 2019; Kesselring et al., 2023).

These examples bring up questions about the roles of expertise, democracy, and power in shaping policy decisions about mobility and urban planning. Competing interests, values, and perceptions of environmental and climate-related risks are at stake in these planning decisions.

The mobile risk society and the case of a mobility transition

The discussion so far shows that mobility and transport are not only highly debated and contested issues related to urban and societal developments. In particular, the rapidly advancing climate crisis (Aron, 2022; Archer and Rahmstorf, 2011) makes it clear that mobility and transportation also remain the biggest problem areas of climate policy, with the least improvement in terms of overall greenhouse gas (GHG) reductions (see e.g. IPCC, 2022). Net GHG emissions from transport remain at 1990 levels despite visible political efforts at the national and European levels to promote the electrification of transport and expand public transport capacities; technological innovations to reduce the consumption of the car fleet and develop alternative fuels; regulatory innovations such as stricter EU fleet limits, the EU Clean Vehicles Directive, and the EU-level Sustainable and Intelligent Mobility Strategy; and noticeable changes and objections in public discourse on the importance of the car and measurable changes in mobility behaviour. In other words, despite these numerous

measures and a decline in average annual car mileage in Europe, there have been rebound effects such as consumer choices for larger vehicles, increased safety measures by the automotive industry, and an increase in weight-intensive technologies in cars, which have all contributed to the fact that there has been no reduction in the absolute levels of GHG emissions from transportation compared to almost 35 years ago. While other sectors such as manufacturing, heating, buildings, agriculture, and others are showing significant declines in GHG emissions, the transportation sector is far from any kind of significant change in trend. In fact, the opposite is the case: Mobility and transport are still the accelerators of climate change in Germany as well as globally. While the 'German Energiewende' has become a technical term in the vocabulary of sustainable transition, no one would ever mention the 'German Verkehrswende' (i.e. transit transition), even though the term has been around in Germany since the early 1990s (Hesse, 2018).

Against this background, several questions have become relevant for the analysis of political processes in the 'mobile risk society' (Beck, 1992; Hajer and Kesselring, 1999; Kesselring, 2008; 2019). The production and management of risks increasingly characterizes contemporary societies. Climate change has been considered the proof case for the 'world risk society' and the ability of global nations to cope with the self-inflicted problems caused by an unsustainable and carbon-based lifestyle and system of production and consumption (Beck, 2016). In industrial societies, risks were once primarily associated with industrial accidents and pollution. Today, risks have become more complex, globalized, and interconnected, encompassing issues such as global warming, worldwide pandemics, financial crises, cyberwarfare, and technological disasters. Yet they are also becoming more concrete and visible, even for those citizens of the Global North who have understood climate change as an abstract threat and have been able to ignore the unintended consequences of carbon-based economies and societies. The concept of the risk society (Beck, 1992) emphasizes the uncertainty, reflexivity, and collective responsibility inherent in managing these emerging risks.

In the following, the mobility policy of the federal state of Baden-Württemberg in southern Germany will be used as an example. We will show how work is being done to mitigate the climate impacts of transport-related environmental risks such as air pollution, GHG emissions, particulate matter, and traffic accidents. Dependence on fossil fuels and inefficient transportation systems contributes to environmental degradation and public health hazards, posing significant risks to current and future generations. Addressing

these risks requires a transition to more sustainable modes of transport, such as public transport, active mobility (cycling and walking), and electric vehicles. In the future, the use of green hydrogen energy and fuels derived from renewable energy (fuel cells) may also be considered. Policies that address these challenges must navigate the complex interconnection between technological innovation, regulatory frameworks, and social practices for sustainable mobility. They must ensure that emerging mobility solutions contribute to sustainability goals while minimizing potential risks and negative externalities.

The mobility transition in Germany: The case of Baden-Württemberg

In Germany, the state of Baden-Württemberg is one of the pioneers of mobility transition. It is located in the southwest of Germany, bordering Switzerland and France. With 11 million inhabitants, it is the third most populous state in Germany, and its capital, Stuttgart, has 610,000 inhabitants.

Baden-Württemberg is the cradle of the modern automobile. Bertha Benz, business partner and wife to Karl Benz, was the first person able to see the societal relevance and the innovative potentials of the vehicle constructed by her husband, patented in 1886. Today, Baden-Württemberg hosts leading car producers Daimler, Porsche, and Audi, as well as a variety of global suppliers such as Bosch and Mahle, together with a wide range of so-called hidden champions: small- and medium-scale manufacturing companies that hold leading positions in producing for and maintaining the worldwide 'system of automobility' (Urry, 2004). It is easy to imagine that the current transitions and upheavals in automobility, and the question of what the future of motorized individual transport will be, are on top of the region's political agenda. In Baden-Württemberg alone, conservative estimates suggest that up to 35% of jobs directly related to the production of the internal combustion engine will be lost as the industry transforms. About 3.3% of new jobs could be created, for example, by the new electric powertrain industry (Frieske et al., 2019; Loogen, 2023).

In what is now the third Baden-Württemberg government under Green Party leadership, and despite very ambitious attempts at sustainable mobility transition, transport still remains the major problem area of the federal state's climate policy. The state government has made visible efforts to promote the electrification of transport, expand public transport capacities, and develop new funding schemes for financing sustainable mobility; this has happened alongside technological innovations to reduce fleet consumption and propel

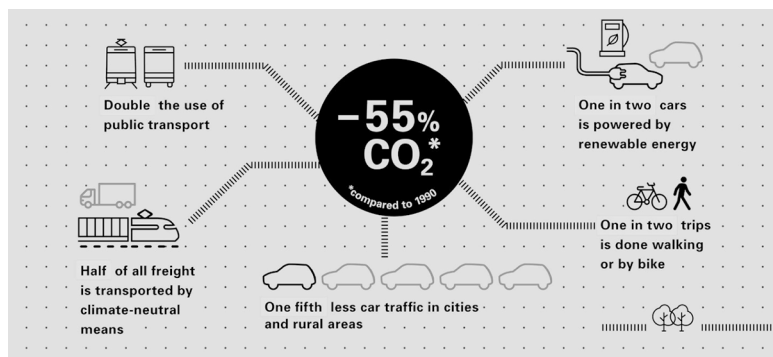
sustainable fuels, regulatory innovations such as stricter EU fleet limits, Germany's Clean Vehicles Procurement Act (SaubFahrzeugBeschG) to implement the EU Clean Vehicles Directive, the Sustainable and Smart Mobility Strategy at the EU level, and a decline in the importance of the automobile in mobility behaviour. Despite all of this, net GHG emissions from transport remain at the 1990 level. In absolute numbers, there is no discernible decrease compared to the values 35 years ago. However, in 2021, as in the previous legislative period, the Green–Conservative coalition in Baden–Württemberg once again made a clear and unambiguous commitment to ambitious climate protection in its coalition agreement. In it, ambitious GHG reduction targets were formulated for the period up to 2030 and beyond. They go far beyond what the German coalition on the national level announced at the same time. With regard to the mobility sector, the 2021 Baden–Württemberg coalition agreement states that

in the coming years, we will jointly see sustainable mobility as a key element for climate protection and for the economic future of our state. We are implementing the European Union's climate protection goals in Baden–Württemberg, especially in the transport sector, and are consistently pursuing the path to a new mobility culture. We will take advantage of the challenges and opportunities of Baden–Württemberg as a climate protection state by harmonizing economy and ecology through innovation and technical progress. (Bündnis 90/Die Grünen und CDU, 2021; translated by the authors)

With its Climate Protection and Climate Adaptation Act (KlimaG BW), Baden–Württemberg has committed itself to achieving its climate protection targets. By 2030, net GHG emissions are to be reduced by a total of 65% compared to 1990. By 2040, Baden–Württemberg aims to be net GHG-neutral. The state can achieve these targets only if it uses political instruments at the national and EU levels and also supplements them with its own targeted measures. Precisely because Baden–Württemberg wants to be GHG-neutral five years earlier than the federal government and 10 years earlier than the EU, it needs innovative approaches that go beyond business as usual.

In the transport sector, the state government has defined five sub-targets, based on extensive calculations (Figure 1).

Figure 1: Targets for the transformation of the transport sector as set by the Ministry of Transport Baden-Württemberg.



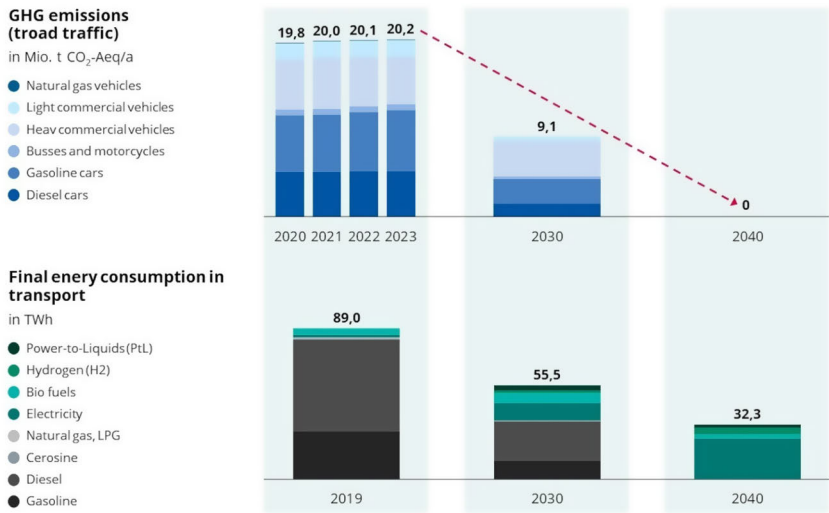
Source: Adapted from *The Mobility and Climate Concept of the State of Baden-Württemberg*.¹

These targets must be achieved by 2030 in order to realize the state's contribution to achieving the goals ratified in the UN Paris Climate Agreement of 2016. In addition, they make very clear that climate neutrality can only be achieved by 2040 through the interplay of political regulation with the technological, transport-organizational, and social-innovation strength of the economy and society in Baden-Württemberg. In response to the worsening problem of global climate change, these targets have repeatedly been adjusted since they were first set in 2011. While the coalition agreement of 2021 states that every third car must be climate-neutral by 2030, it now claims 'every second car will be climate-neutral'. Whereas in 2015 the state transport minister assumed that it would be sufficient if every third ton of freight transported was carbon neutral by 2030, it is now assumed that 50% of freight transport must be decarbonized to achieve the necessary effects. In contrast, as a reaction to ongoing and controversial political struggles, the target for 'climate-neutral' cars in cities has been softened from 33% to 20%. It is not difficult to see that these goals are highly contested in the realm of political action. In order to achieve climate neutrality in transportation in 2040, Baden-Württemberg has to reduce GHG emissions from 19.9 million tons of CO₂ equivalents per year in 2022 to 9.1 in 2030 and to net zero in 2040 (Klima-Sachverständigenrat [Climate Expert Council] Baden-Württemberg, 2023: 62). Clearly, this cannot

1 <https://vm.baden-wuerttemberg.de/en/humans-the-environment/targets>

be achieved through technological and regulatory measures and innovations alone. Rather, it requires significant changes in the mobility practices of households, businesses, public institutions, and administrations.

Figure 2: Projected Greenhouse gas emissions in transport in Baden-Württemberg (road transport).



Source: Climate Expert Council Baden-Württemberg (2024).

So far, however, the emphasis in Baden-Württemberg has been on technologically and instrumentally oriented measures and policies. Up to now, it has not been possible to say that measures aimed at technological and planning innovations and those aimed at social practice innovations have been treated equally or integrated conceptually. From the point of view of social science-based sustainability and mobility research, it seems urgently necessary to integrate the mobility practices of private households, businesses, and administrations in Baden-Württemberg even more strongly into the state government's mobility transition strategy. Adjustments of different measures to support the socio-cultural change towards sustainable mobility are comparatively inexpensive. In times of increasing uncertainties and insecurities about the best development path and increasingly fragile social and political consensuses, it is all the more important for politicians to reconnect with soci-

ety. A topic as emotionally charged and relevant to everyday life as sustainable mobility can be successfully developed in the direction of climate neutrality if people see themselves as part of the process and the solution design and do not feel that they are being overrun by politics. This is an explosive political issue, especially when it comes to the climate-neutral transformation of city and town centres, which needs to be handled with sensitivity.

Conclusion

The planning of transportation and urban environments is in a phase of potential conflict, or at least there is significant friction in the field. The work of reconstructing community representation through advocacy, as Davidoff (1965) pointed to decades ago, is still relevant today, even if current focus is more on collaborative approaches rooted in communicative ethics and argumentative rationality (see e.g. Fischer and Forester, 1993; Healey, 1993). This also means that an acknowledgment of power relations and conflicts when transitioning towards sustainable mobility involves a change in 'business as usual'. Building resilience to existing and emerging risks while adapting to changing social, environmental, and technological conditions requires approaches that facilitate collaboration, social innovation, and learning among diverse stakeholders. These include governments, businesses, civil society organizations, and communities. This resilience can enhance society's capacity to respond effectively to the challenges of a mobile risk society, and to increasing uncertainties, in order to promote sustainable mobility transitions.

In relation to the questions posed at the beginning of this chapter, we argue that conflicts arise when different stakeholders' priorities regarding transport and mobility begin to diverge. Sustainable mobility is needed to reduce GHG emissions, air pollution, and dependence on fossil fuels to mitigate climate change. Promoting active transportation, such as walking and bicycling, improves public health and stimulates economic development by making urban areas more attractive to residents, businesses, and tourists. Walkable neighbourhoods, vibrant public spaces, and active transportation enhance liveability, well-being, and urban aesthetics. This will create friction and conflict but can also serve as a catalyst for new approaches to public participation, institutional innovation, and social change towards sustainable mobility. These conflicts can mobilize diverse stakeholders, including residents, community groups, advocacy organizations, policy-makers, and

experts, to engage in dialogue, collaboration, and collective action to address common challenges and advance sustainable mobility goals. Conflicts can catalyse broader social change by raising awareness, mobilizing public support, and shifting societal norms and values towards sustainability.

While it may not always be possible or desirable to avoid all conflict, efforts should be made to minimize escalation and manage conflict constructively to achieve positive outcomes for sustainable mobility. We suggest engaging stakeholders early in the decision-making process to identify and address concerns, build trust, and foster cooperation before conflicts escalate. We suggest to conceive of conflict as an opportunity for learning, innovation, and growth, rather than as an obstacle or failure. Engaging in conflict allows urban future-makers to learn from decision-making processes and to build resilience. Finally, strategies of conflict regulation can enable participation and resistances, and may contribute to the creation of sustainable mobilities.

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10. Navigating conflictual cooperation

Temporary power coalitions in the planning and approval of large-scale Chinese green technology projects in Eastern Germany

Hannes Langguth

Introduction

Large-scale green energy and technology projects are pivotal for driving the European Union's energy and mobility transition. Spurred by investment from multinational corporations, they encompass offshore and onshore wind farms, solar photovoltaic and solar thermal technologies, green hydrogen and hydropower plants, and large-scale facilities for the manufacturing and recycling of electric vehicle (EV) battery cells. However, the expansion of these projects, which predominantly affects peripheral and rural regions across Europe, brings significant challenges such as uneven spatial development and land-use conflicts, emerging frictions amid the shift away from fossil fuels, and tensions between implementation and public interest objectives (see Gailing and Röhring, 2015; Eichenauer, 2018; Bosch and Schmidt, 2022). In addition to increasing calls for streamlined planning and approval procedures, planning disciplines thus face the crucial task of managing the multitude of conflicts that arise during the implementation of large-scale green energy projects and their associated infrastructures.

In international planning theory, planning conflicts have increasingly been addressed through the concept of agonistic planning (Pløger, 2004; Collins, 2010; Gualini, 2015a; Roskamm, 2015; Kühn, 2021). This builds on earlier critique of consensus-oriented communicative and deliberative planning (Huxley and Yiftachel, 2000; Flyvbjerg and Richardson, 2002; Purcell, 2009) and views conflicts as productive political negotiation processes that either allow an exploration of relational dynamics of the consensus–conflict binary

(Legacy et al., 2019) or advocate for the re-politicization of planning (Gualini, 2015b; Gribat et al., 2017). Concerning conflicts over large-scale green energy projects, in recent years, scholars have primarily focused on the confrontation between planning and public protest, particularly addressing questions of social and economic justice (Eichenauer, 2023), the ambiguous role of participation (Kühn, 2023), and local co-optation by right-wing populist movements (Beveridge et al., 2024).

However, emerging conflicts among institutions involved in the actual planning and approval procedures of large-scale green projects, especially within Germany's multilevel governance system, remain largely unexplored. Amid increasing international investment in Europe's green transition, these conflicts provide critical insights into how transnational cooperation unfolds. This is particularly pertinent given the European Union's technological dependence on East Asian, particularly Chinese, corporations in key transition technologies (MERICS, 2022). Against this backdrop, conflicts arise due to differing planning cultures, legal frameworks, or divergent institutional and corporate objectives, impacting interactions among professionals in planning, administration, and politics, as well as with investors, businesses, subcontractors, and the public. Professionals must navigate these complexities to facilitate project implementation, guided by institutional responsibilities, political mandates, and prevailing regulations. Understanding professionals' interactions illuminates how conflicts are negotiated from local to national levels and reveals the underlying interests and power dynamics of projects.

This chapter addresses planning conflicts arising in the implementation of large-scale Chinese EV battery cell gigafactories and associated manufacturing, logistics, and energy infrastructures in Eastern Germany. The novelty, complexity, and scale of these projects, combined with divergent conceptions, interests, and cultural norms in Sino-German cooperation, put pressure on professionals, especially on the local level, leading to conflict-laden implementation processes. The examination presented here thus mirrors the growing interest in studying the (trans)local urban effects of China's global expansion (see Zheng et al., 2021; Shin et al., 2022; Apostolopoulou et al., 2023). Contrary to 'singling out, essentializing and demonizing' (Lee, 2022: 317) China's global activities, this analysis understands China's increasing presence in Europe as a 'collaborative power project' (ibid.). It moves the host states and their place-specific conditions, histories, and power structures to the fore in order to study how vested interests are negotiated locally across various levels, actors, and institutions.

Applying methods of institutional and non-local ethnography (Smith, 2006; Feldman, 2011), this analysis examines the planning and approval procedures of a successfully implemented gigafactory in Thuringia and a failed one in Saxony-Anhalt. It draws from 21 qualitative expert interviews conducted between January 2023 and June 2024 with professionals from local to state authorities, external planning firms, consultancies, and Chinese EV battery cell manufacturers. In addition, ethnographic and participatory observations were conducted at planning meetings, information events, town hall gatherings, trade fairs, and conferences. Textual sources such as urban development plans, architectural layouts, expert reports, approval documents, legal texts, newspaper reports, local gazettes, and social media posts were also analysed.

The chapter shows how planning conflicts in Sino-German cooperation are pivotal moments when contested interests become empirically tangible. It explores how conflicts arise, are navigated, and managed, highlighting institutional frameworks that govern professionals' interactions. Its findings reveal that despite similar conflict fields, responses differed between the two cases and were shaped by different power coalitions. Thuringia saw successful project implementation through intense state intervention and a coalition with Chinese investors. In contrast, Saxony-Anhalt faced resistance despite state efforts, leading to a coalition marked by a sceptical attitude towards Chinese involvement. The chapter thus underscores using planning conflicts as analytical lenses to study power dynamics in large-scale green energy projects, emphasizing their importance in future research.

The next section integrates qualitative policy research into planning research, broadening the conceptual and methodological framework of agonistic planning theory in relation to planning conflicts. After that, the two case studies of new Chinese EV battery cell gigafactories in Eastern Germany are presented, followed by a section which outlines the planning and approval procedures that shape both cases and introduces the roles of professionals and their interactions with other cooperation partners during implementation of the two projects. Subsequent sections highlight the conflict fields arising in Sino-German collaboration, then mobilize the identified conflicts to trace emerging power coalitions, and discuss resulting conflict lines. The concluding section evaluates the conceptual relevance of the empirical findings.

From agonistic planning to planning conflicts as formations of the political

Agonistic planning scholarship resonates with earlier work on the political, economic, and social power relations inherent to planning (Flyvbjerg, 1996; Flyvbjerg and Richardson, 2002; Burkhardt, 2004). It draws from Mouffe's political science theory of agonistic pluralism (2013), which views conflicts as constituting elements of pluralistic democracies. This aligns with critiques of post-political planning (Swyngedouw, 2013; Metzger, 2018), which highlight how technocratic and consensus-driven tendencies sideline dissent and conflict within hegemonic planning structures. Instead, agonistic planning views conflicts and the actors behind them as productive forces for social and institutional change and actively seeks to cultivate respectful 'strife' in planning (Pløger, 2004).

While I agree with agonistic theory's view of conflicts as stimuli for change, I also acknowledge recent critiques of the concept's entrenched confrontation between planning and public protest, as well as its lack of precise insights into how conflicts can actually become productive (Bertram and Altrrock, 2023). In my view, the theory's main shortfall lies in overlooking the changing nature of the power relations in which planning procedures are embedded, particularly regarding the interactions between planning, policy, and administrative professionals – an overarching gap in international planning theory. Professionals interact within institutional frameworks, routines, and regulations. Their actions are coordinated through formal procedures but are also shaped by individual relationships, interests, and institutional cultures. By integrating agonistic theory with qualitative policy research approaches, I aim to cultivate an expanded understanding of planning conflicts that leverages conflicts as entry points for exploring professionals' interactions within and across institutions, time, and scales.

Qualitative policy research views policies as dynamic political actions (Shore and Wright, 1997; Wedel et al., 2005), offering analytical insights into broader societal transformations, governance mechanisms, and power dynamics (Shore et al., 2011: 12). This perspective challenges the conventional view of policies as linear sequences of rational actions imposed from state to local levels to solve presumed objective issues (Shore and Wright, 1997). Instead, anthropologically informed policy research sees policies as 'central organizing principles' that, akin to concepts such as 'class', 'nation', or 'citizenship', are socially constructed and reciprocally shape everyday lives (Shore

and Wright, 2011: 2). Adam and Vonderau (2014) adopt this approach, framing policies as productive and performative ‘formations of the political’. They draw on Bourdieu’s ‘political field’ (Bourdieu, 2001), expanding its scope beyond the elitist realm of state power to encompass the intricate and ever-evolving dynamics of diverse, often improvised and transient, power configurations that emerge from policy practices.

Adopting this concept of formation of the political in planning research enhances agonistic planning theory in at least three ways. First, it shifts away from agonistic planning’s entrenched confrontation between planning and the public, instead foregrounding interactions among planning professionals, including their institutional and societal entanglements. Second, it accounts for the dynamic and fragmented negotiation and decision-making processes underlying planning conflicts, including their multi-scalar configurations of actors and power. And third, by tracing these dynamic power relations and networks, it holds the inherent potential to generate a better understanding of how conflicts actually become productive in stirring change and, relatedly, who benefits from these processes and who does not. These goals are achieved by mobilizing planning conflicts as empirical instances to analyse individual interactions and decision-making processes across institutions and scales. Here, my focus lies on individual actions of the involved planning, administration, and policy professionals and their cooperation partners. Before I do so, in the next sections, I briefly outline my two case studies.

The cases: Arnstadt-Ichtershausen and Bitterfeld-Wolfen

This analysis centres on the planning and approval of two Chinese EV battery cell gigafactories and associated infrastructures in Eastern Germany (Figure 1). Announced and implemented nearly simultaneously, these were their investors’ first factories outside mainland China and the first large-scale Chinese construction projects in Germany’s new federal states (*Neue Länder*). Both locations, marked by industrial decline and post-reunification outmigration, saw a revival as industrial hubs focusing on ‘future-oriented’ flagship projects (AR04, 2023; BW09, 2023).¹ Thus, the Chinese investments became pivotal in

1 Information from interviews regarding the two cases is cited using a code system: Arnstadt-Ichtershausen (AR) and Bitterfeld-Wolfen (BW) are specified, whereas individual interview participants are anonymized and identified only by an assigned number

regional politics, sparking intense competition among federal state ministries aiming to secure regional prosperity (AR03, 2023; BW08, 2023) and between German car manufacturers aiming to diversify their production networks across Europe (AR09, 2023; BW09, 2023). Both projects also encountered similar challenges during implementation, including Covid-19 travel restrictions, supply chain disruptions, and increased construction costs exacerbated by the war in Ukraine. The cases thus offer comparative lessons on emerging planning conflicts and power dynamics in Sino-German cooperation on large-scale projects.

Figure 1: Localization and main facts of the two selected case studies of Chinese EV battery cell gigafactories in Thuringia and Saxony-Anhalt.



Source: Author.

The first case is a project by Contemporary Amperex Technology (CATL) in Arnstadt-Ichtershausen, Thuringia, implemented between 2018 and 2023. In addition to the new EV battery cell factory itself, CATL acquired a vacant office and module assembly complex, established a joint research centre with the Fraunhofer Institute for Ceramic Technologies and Systems (IKTS), and planned a new Rail Logistics Centre with DB Cargo. It has also utilized Opel's

(see Appendix). Interviews were conducted in German; interviews and non-English quotations have been translated by the author.

freight station in nearby Eisenach and leased warehouses in Erfurt-Vieselbach and Magdeburg-Sülzetal. Initially budgeted at €1.8 billion, the investment escalated to more than €2 billion in late 2023. The actual factory construction site is a 34-hectare plot in the western extension of the Erfurter Kreuz industrial park. It falls under the jurisdiction of Ichtershausen, a part of the larger administrative district Amt Wachsenburg. Ichtershausen itself has a population of 8,000 and is situated on the northern outskirts of Arnstadt, a town with 28,000 inhabitants. Initially planned as a three-stage construction project, with an additional 70 hectares reserved for CATL, the plans for extension were officially cancelled in December 2023. In early 2024, around 750 Chinese (office employees and engineers) and 750 non-Chinese workers (mainly assembly and logistics staff) were employed on-site (AR13, 2024).

The second case is a failed project by Farasis Energy in Bitterfeld-Wolfen, Saxony-Anhalt, which was planned between 2019 and 2022. The intended investment amounted to €600 million for a total of 12 facilities, encompassing manufacturing, research, and logistics. The preliminary manufacturing capacity was announced at 10 GWh per year, envisioning 600 new on-site jobs (BW03, 2023). After purchasing land and a vacant factory complex in mid-2019, construction of the factory project was scheduled to start in February 2020 on a 97-hectare site in the Solar Valley industrial park. The site is located at the western outskirts of the town Bitterfeld-Wolfen, which has a population of 37,000. Following the planned completion of the construction phase of the building shell in April 2021, the delivery of the first cells was slated for early 2022. However, after Farasis failed to provide necessary information and materials for planning and approval, causing multiple delays to the schedule, the project was terminated by the town of Bitterfeld-Wolfen in April 2022.

Formal planning and approval procedures and the role of professionals

Implementation of the two projects, including their related manufacturing, logistics, and energy infrastructures, has been governed by three formal planning and approval procedures within Germany's multilevel governance system. These include the amendment of the local development plan (*Bebauungsplan*) according to the German Building Code, the approval procedure (*Genehmigungsverfahren*) under the German Federal Immission Control Act, and the planning approval procedure (*Planfeststellungsverfahren*) under the

German Administrative Procedure Act. These regulatory frameworks form the legal basis for interactions among planning, administration, and policy professionals, as well as their cooperation with partners such as Chinese investors, subcontractors, and German car manufacturers. The regulations encompass emission standards, environmental and public safety protections, and requirements for public participation and handling objections. Additionally, investment and development contracts establish shared goals and responsibilities among the partners, while practices already established from previous project implementations also shape cooperation among professionals. In the following, I introduce the different procedures and related cooperation practices in both cases to clarify the roles, responsibilities, and relationships of the professionals involved.

Amendment procedure of the local development plan according to the German Building Code

The amendment procedure of each municipality's local development plan, regulated by the German Building Code (Baugesetzbuch, BauGB),² is the tool that establishes legal planning conditions for the factories' implementation. According to §8 BauGB, the plan navigates legally binding determinations to maintain the urban development order. This includes specifying land use, building dimensions, setback areas, natural climate protection, and ensuring supply and mobility infrastructure. Derived from the local land use plan, the development plan is approved as a statute by the respective municipality and must be publicly accessible.

To meet safety measures required for building approval and to accommodate CATL's factory layout requirements, amendments to the Erfurter Kreuz West development plan were necessary. These included expanding traffic areas, establishing a new helicopter emergency landing site, and securing rights of way for drinking water pipelines. The first amendment cycle was initiated by the responsible municipality of Amt Wachsenburg using a simplified procedure in October 2018, before CATL's property purchase. According to §13 BauGB, the simplified procedure allowed the omission of early public notification and objections, justified by the assessment that the amendments

2 Baugesetzbuch in der Fassung der Bekanntmachung vom 3. November 2017 (BGBl. I S. 3634), das zuletzt durch Artikel 3 des Gesetzes vom 20. Dezember 2023 (BGBl. 2023 I Nr. 394) geändert worden ist.

would not significantly impact the environment or alter fundamental planning principles and the character of the surroundings.

However, after local criticism over CATL's lack of transparency occurred and objections from the Amt Wachsenburg municipality against a planned high-voltage power line were rejected by the power grid operator, the investor, and the responsible authorities, municipal representatives aimed at 'finding a healthy balance between CATL's development and the prosperity that the municipality gains from it' (ARO1, 2023). In early 2020, the council renewed plan amendments, adding enhanced environmental protection measures and requiring an environmental report. They issued a position paper to CATL and state-level authorities, making further amendments contingent on key demands: stopping large-scale projects such as overhead power lines, providing financial support for municipal housing and education, and improving fire and disaster protection (*ibid.*). Consequently, the local council withheld plan approval in order to exert pressure during negotiations.

The subsequent demands made by the Amt Wachsenburg municipality on CATL and state-level authorities became necessary due to the municipality's otherwise weak negotiating position. Despite the municipality's role in approving plan amendments, the State Development Corporation of Thuringia, acting on behalf of the Thuringian Ministry of Economic Affairs, Science and Digital Society, set the initial conditions in a bilateral investment agreement with CATL in July 2018. The municipality of Amt Wachsenburg was only informed about the project's implementation afterwards. The reason dates back to the late 1990s post-reunification restructuring of former East Germany, when the State Development Corporation acquired the land in question. Since then, it has been responsible for developing the land into fully prepared industrial sites to be offered to international investors (ARO6, 2023). Unlike other new federal states where development corporations typically serve solely as intermediaries, Thuringia stands out by empowering its State Development Corporation to directly purchase land. This unique authority enables direct contractual engagements with international investors, circumventing the need for involvement from local municipalities.

In Bitterfeld-Wolfen, the municipality directly negotiated with Farasis, with the Investment and Marketing Corporation Saxony-Anhalt only initially involved. Unlike in Thuringia, the earmarked land consisted of 84 individual plots sold by the municipality and private owners. Farasis's factory required significant changes to the local development plan, including building new roads, relocating a brine pipeline, and adjusting building plots, heights, and

infiltration facilities (BW04-06, 2023). Public objections and Farasis's constantly changing requirements led to three revisions of the local development plan, each involving public consultations. Despite strong municipal commitment, Farasis failed to meet the schedule and became 'the first and so far the only investor we had to chase up' (BW04-06, 2023).

The approval procedure was underpinned by a bilateral urban development agreement in accordance with §11 BauGB, signed between Bitterfeld-Wolfen's town administration and Farasis in November 2019. It detailed mutual responsibilities, the plan amendments, and preparatory measures to be carried out at Farasis's expense (BW02, 2023). However, in April 2022, the town administration terminated the agreement after Farasis did not comply with its terms. After the project's failure, two new amendment proposals were launched to reverse the changes and establish small-scale manufacturing with on-site renewable energy (BW04-06, 2023). At the time of this writing, the plan amendments remain unresolved and are still pending approval because Farasis retains ownership of parts of the land (*ibid.*).

Approval procedure under the German Federal Immission Control Act

The approval procedure under the German Federal Immission Control Act (Bundesimmissionsschutzgesetz, BImSchG)³ governs the planning, implementation, and operation of large-scale industrial facilities processing harmful substances. It consolidates all environmental regulations into a single assessment, ensuring compliance with standards for hazardous material storage, air toxin emissions, and waste discharge. The procedure aims to expedite planning and coordinate authorities. Compliance imposes requirements on implementation and operation, monitored continuously by state and local authorities.

In the Arnstadt-Ichtershausen case, due to the project's complexity and tight schedule, CATL adopted an iterative approach called rolling wave planning (*rollierende Planung*). This method involved refining and adjusting plans across eight application cycles. The main approval authority, the Thuringian State Office for Environment, Mining, and Nature Conservation, in Weimar,

3 Bundes-Immissionsschutzgesetz in der Fassung der Bekanntmachung vom 17. Mai 2013 (BGBl. I S. 1274; 2021 I S. 123), das zuletzt durch Artikel 11 Absatz 3 des Gesetzes vom 26. Juli 2023 (BGBl. 2023 I Nr. 202) geändert worden ist.

was responsible for checking application completeness, publishing notices, receiving feedback, coordinating hearings, and issuing decisions. It also classified the project according to the act's Appendix 1, the ordinance on installations subject to authorization. However, since CATL's EV battery cell factory was the first of its kind in Germany, it was classified as a 'facility for surface treatment of PVC films', which allowed it to bypass a detailed environmental impact assessment that would have required additional planning time (AR07, 2023).

A leading role in CATL's approval procedure was taken by the general planning firm GICON-Großmann Ingenieur Consult, which have extensive experience with the planning approval of large-scale industrial projects. GICON handled the application process and gathered necessary information, documents, and expert reports from specialist engineers and firms, supported by the project management firm Pro Terra Team (AR05, 2023). The planning of the cleanroom – the factory's manufacturing area with constant air purity, temperature, and humidity – was done by Exyte, which joined the project in mid-2019 (AR12, 2024). They took over the original planning from the Chinese firm SEEDRI, which prepared the project's first approval application. Exyte subcontracted the construction work to the firm Goldbeck Ost (*ibid.*). The actual manufacturing facilities were imported from China and installed by the Chinese firms Wuxi Lead Intelligent and Shanghai SK Automation (AR13, 2024).

The total of eight approval notices contained hundreds of regulations that CATL had to consider, covering both the construction and operation of the factory. The first partial approval, granted in July 2020, issued permission for the construction of the manufacturing building and ancillary facilities but also stated structural and occupational safety requirements.⁴ The second and third partial approvals focused on operationalization and emphasized compliance with air quality, water management, and environmental conservation.⁵ Extensive fire safety regulations were addressed throughout all approval notices. In sum, the requirements necessitated numerous additional and cost-intensive expert reports throughout the procedure (AR06, 2023).

The additional reports and permits conflicted with CATL's ambitious schedule. With approval for preliminary measures, CATL began construction

4 TLUBN, Thüringer Landesamt für Umwelt, Bergbau und Naturschutz, Genehmigungsbescheid Nr. 11/19, 14.07.2020.

5 TLUBN, Thüringer Landesamt für Umwelt, Bergbau und Naturschutz, Genehmigungsbescheid Nr. 18/20, 17.01.2022 and Genehmigungsbescheid Nr. 05/23, 18.10.2023.

in October 2019, risking dismantling at their own expense if full approval was not granted. The second partial approval, for starting two manufacturing lines in test mode, was handed over by Thuringian ministers in April 2022 during an effective publicity event on-site. Although CATL couldn't manufacture battery cells due to incomplete facilities (AR12, 2024), this event politically adhered to the original schedule of a planned manufacturing start in 2022. In fact, significant delays occurred due to additional expert reports and Covid-19 restrictions (AR03, 2023). Consequently, in 2023, even with the final approval, CATL couldn't fully process raw materials into electrodes and battery cells in the new Arnstadt-Ichtershausen factory (AR12, 2024). Instead, orders were fulfilled with imported cells from China and modules assembled on-site (AR13, 2024).

In the Bitterfeld-Wolfen case, the BImSchG approval procedure never fully commenced. However, significant groundwork was laid in the first half of 2019. This included Farasis commissioning the general planning firm Drees & Sommer to prepare application documents and coordinate the procedure. It also involved several *jour fixe* meetings between the investor and local-, county-, and state-level authorities, organized by the town administration. These rounds with the authorities (*Ämterrunden*) stemmed from collaboration habits in previous projects and took place bi-weekly during the initial months (BW02, 2023). The meetings aimed to prepare for the June 2019 scoping meeting, the first coordinating step of the approval procedure.

Although the two cases are not directly linked, professionals from both projects were indeed in contact with each other. Employees of the State Administrative Office in Halle leveraged personal contacts with the approval authority and the State Development Corporation of Thuringia to gain insights on how things were handled in the CATL case in Thuringia (BW03, 2023). Additionally, annual informal meetings among senior officials from the State Administrative Offices of Saxony-Anhalt, Thuringia, and Saxony further facilitated mutual exchange (*ibid.*). And at the ministerial level, personal contacts were utilized to stay mutually informed about the projects' respective statuses (BW08, 2023).

Planning approval procedure under the German Administrative Procedure Act

The planning approval procedure under the German Administrative Procedure Act (Verwaltungsverfahrensgesetz, VwVfG)⁶ does not concern the factories themselves but the associated large-scale infrastructure projects related to CATL's developments in Arnstadt-Ichtershausen. These included a new 110 kV high-voltage overhead power line and a new Rail Logistics Centre. According to §72 VwVfG, they fall under the formal procedure due to their exceptional spatial dimensions and impacts (noise, environment, costs), affecting various public and private interests. The procedure aims to negotiate and balance occurring tensions between affected stakeholders. In the case of the overhead power line, the Thuringian State Administration Office in Weimar acted as the approval authority. For the Rail Logistics Centre, due to its relevance for national freight logistics, the German Federal Railway Authority would have led the procedure had the project not first been cancelled.

The construction of a new 110 kV high-voltage overhead power line and transformer substation was prompted by CATL's energy needs. In November 2019, Thüringer Energienetze, the regional grid operator, initiated the plan approval process by applying for a scoping meeting with the Thuringian State Administrative Office, which was held in January 2020. Following that, a preliminary assessment was conducted to determine if a formal spatial planning procedure (*Raumordnungsverfahren*) was required. However, in June 2020, the Thuringian state planning authority denied the necessity of such a procedure, as the project complies with Thuringia's current 2025 development programme and the Mittelthüringen regional plan.

In the first half of 2020, the approval authority reviewed initial objections. While an alternative substation site was approved, the Amt Wachsenburg municipality's proposal for a significantly costlier underground cable, which they intended to provide the extra costs for (ARO1, 2023), was rejected. The authority stated that 'there are no spatial planning reasons to justify the professional ne-

6 Verwaltungungsverfahrensgesetz in der Fassung der Bekanntmachung vom 23. Januar 2003 (BGBl. I S. 102), das zuletzt durch Artikel 1 des Gesetzes vom 4. Dezember 2023 (BGBl. 2023 I Nr. 344) geändert worden ist.

cessity of underground cabling over the planned overhead line'.⁷ Consequently, the decision for the initial overhead version was published two years later, with public consultation in July 2022. Despite the municipality's persistent objections, the planning approval was upheld in September 2023. In November of the same year, the municipality challenged this decision in a lawsuit filed with the Thuringian Higher Administrative Court, which was dismissed in March 2024.

Parallel preparatory measures for the planning approval procedure for the second infrastructural project, a new Rail Logistics Centre (RLC), began in July 2021. DB Cargo initiated the project with CATL and acted as the leading contractor. The aim of the proposed RLC was to reactivate and extend Arnstadt's vacant freight station to handle CATL's raw materials and battery cells via rail. This involved repurposing the freight yard by constructing new tracks, a transshipment hall, container parking spaces, a DispoTower, two gantry cranes, and a noise barrier to shield nearby residential areas. In October 2021, DB Cargo held an on-site information event. Initially estimated at €12 million, construction costs were later calculated to be €30 million (ARO9, 2023). Construction was scheduled for 2023, with commissioning planned for early 2024. However, the project did not progress beyond preparatory measures and failed before submission to the approval authority. It was officially cancelled in April 2023.

Frictions, obstacles, and disputes in Sino-German cooperation

During the aforementioned planning and approval procedures, numerous frictions, obstacles, and disputes arose in both projects. These can be analysed in terms of three fields of conflict: lack of preparedness of Chinese investors regarding local planning contexts, differing conceptions of cooperation formats and communication, and non-compliance with contracts and agreements.

Ignorance, unpreparedness, and distinct planning cultures

Chinese investors faced significant challenges in navigating German approval procedures, causing conflicts and delays. Reflecting on the Bitterfeld-

7 TLVwA, Thüringer Landesverwaltungsamt, Stellungnahme Errichtung 110-kV-Anschlussleitung Erfurter Kreuz incl. Umspannwerk durch die Thüringer Energienetze GmbH & Co. KG (TEN) in der Gemeinde Amt Wachsenburg, Ilmkreis, 07.09.2020, 14.

Wolfen case, a Saxony-Anhalt government representative expresses frustration: 'Via video conference, I repeatedly dictated to the CEOs [of Farasis] what they needed to do. [...] None of it worked' (BW09, 2023). The Chinese firm overlooked the fundamental preparatory steps. A local administrative representative notes, 'We repeatedly emphasized that you must first purchase the land before you can even begin to submit a building application [...]. Then, everything that needs to be done in Germany, like archaeology surveying or disposal of contaminated soil' (BW02, 2023). Repeated delays and failures in providing necessary information led to growing frustration among partners, causing officials to become obstinate and suspend meetings until progress was seen (BW08, 2023).

In Arnstadt-Ichtershausen, frictions stemmed from the project's approval procedure and the Federal Immission Control Act's legal requirements. CATL initially hired a Chinese planning firm due to too high quotes from three German planning firms (AR15, 2024). This led to confusion, as a state representative highlights: 'They [CATL] immediately asked, "What kind of law is this? Can you send it to us? [...] We would like to take it and translate it into Chinese. Then we will give it to our planning firm so that they can plan accordingly." [...] They actually did that. [...] Again and again, it failed' (AR03, 2023). In general, CATL felt frustrated by numerous regulatory and environmental requirements. A transport and logistics company employee remarked, 'CATL was pretty upset about the conditions in Europe, particularly the numerous local requirements' (AR09, 2023).

The approval procedure incurred costs for permits, consultation dates, and public announcements totalling around €465,000 between 2020 and 2023. Numerous expert and inspection reports, along with structural adjustments such as extensive sprinkler systems, resulted in additional and unforeseen costs for CATL. The issue intensified with the legal stipulation that 'defensive fire protection must be able to carry out effective firefighting operations 24 hours a day, 7 days a week, within 5 minutes of being alerted',⁸ which CATL could only accomplish with a costly in-house emergency response team. Consequently, CATL 'encountered a scenario where costs spiralled out of control. [...] They significantly underestimated the approval procedure. The biggest letdown for them was the costs' (AR03, 2023).

8 TLUBN, Thüringer Landesamt für Umwelt, Bergbau und Naturschutz, Genehmigungsbescheid Nr. 11/19, 14.07.2020, 36.

The lack of transparency and disregard of local interests caused further frictions. A district-level official highlights that compared to non-Chinese firms, past projects had stronger public engagement and information policies (AR06, 2023). Another official acknowledges that ‘too little reached the citizens’ (AR05, 2023). And a local politician cites an information event where citizens’ concerns about energy supply and pollution were dismissed. Shortly after, the municipality learned about planning approval for a new 110 kV high-voltage line and ‘from that moment on, all minds changed’ (AR01, 2023). The municipality then opposed the power line project, partly restricting access for federal state authorities and planning firms to the affected properties.⁹

Thus, CATL’s and Farasis’s ignorance of German planning and approval procedures created a range of conflict-laden situations, increasing pressure on federal state and local authorities. In Thuringia, the state government struggled to balance diverging interests, knowing that ‘regional acceptance doesn’t concern the firm [CATL] at all’ (AR03, 2023). Parallel to this, pressure was further amplified by conflicting statements from the investor. A local policy representative notes, ‘If the Chinese feel that this is not profitable in the medium term or if the hurdles become too great, they just pack up and leave immediately [...]. That was a clear statement [from CATL] already in 2019. Not in public events, but behind closed doors, when we were in the ministry’ (AR01, 2023). This highlights the demanding behaviour of the Chinese investors, who exerted considerable pressure on their partners to advance the projects.

Misconceptions, conflicting expectations, and (non)communication

During the planning and approval procedures, German cooperation partners faced unanticipated expectations from the Chinese investors regarding political support and the streamlining of procedures. Significant displeasure arose at the ministerial level in Saxony-Anhalt, where it was expected that the state ‘should push prices [for land purchases] or procure generous banking conditions’ (BW09, 2023). The expectation of political support was also evident in

9 TLVwA, Thüringer Landesverwaltungsamt, Planfeststellungsbeschluss, Errichtung einer 110-kV-Freileitung zwischen den Umspannwerken Thörey und Wachsenburg, Änderung der 110-kV-Leitung Thörey-Gotha/ Vorhabenträgerin: Thüringer Energienetze GmbH & Co. KG, 19.09.2023, Anlage 2: Information über die Durchführung von Untersuchungen für das Vorhaben Trassierung des 110-kV-Anschlusses UW Wachsenburg der Fa. CATL, 26.02.2021, 1.

Thuringia, where ‘the Chinese thought “Okay, the minister is here. So he approves everything”’ (AR03, 2023). And regarding the RLC project in Arnstadt, a cooperation partner notes, ‘Even though we are Deutsche Bahn and somehow belong to the state – which they [CATL] made a point of – we are a company that must operate economically’ (AR09, 2023).

Divergent views on land prices, the number of Chinese employees in Germany, and cost assumptions heightened tensions during contract negotiations. In Arnstadt-Ichtershausen, a federal state official recalls, ‘There were simply points in the [investment] contract that we couldn’t sign, but CATL really wanted them in there’ (AR03, 2023). In Bitterfeld-Wolfen, the urban development contract led to ongoing friction between the town administration and Farasis. As Farasis faced delays, land for their gigafactory was sold to new investors, leading to contract termination due to no response from Farasis (BW02, 2023). The town administration tried to repurchase land from Farasis to enable new development, offering compensation for preparatory costs. However, the town couldn’t meet Farasis’s higher price, leaving local officials with limited influence over land development (*ibid.*).

Mutual communication issues and a lack of contact persons and decision-makers on the Chinese side presented significant challenges. Regarding the failed RLC project, a partner expresses frustration: ‘We had to find a way to communicate about a problem that is not ours. Rather, it’s a political problem: a problem with how China, or how CATL, manages its direct investments here. And they don’t manage them at all’ (AR09, 2023). Other issues included CATL’s sudden and unannounced visa applications to the local immigration authority, which caused great discomfort among clerks (AR03, 2023). In Bitterfeld-Wolfen, senior state officials travelled to Farasis headquarters in China for face-to-face meetings, only to return uncertain: ‘Not much happens in their faces and behaviour [...]. We flew back and didn’t know what actually happened’ (BW08, 2023). The town administration echoed frustration, noting ongoing communication breakdowns: ‘Everyone who was here on-site said, we can’t decide anything, we have to pass it on [...]. That’s where communication always faltered’ (BW02, 2023).

These examples demonstrate that intercultural differences, lack of communication, diverging expectations, and mutual uncertainty regarding responsibilities significantly shaped cooperation in the two Sino-German projects. Chinese investors expected more direct support from federal state governments, whereas German partners struggled with the hierarchical but non-transparent decision-making structures of Chinese firms. State representatives from

Saxony-Anhalt describe Farasis's communication as 'so non-transparent that we didn't even realise there was no transparency' (BWO8, 2023). However, in Thuringia, state officials acknowledged, 'You must at least have a hint of an idea how the company is structured. [...] You also need to discuss things with the boss directly. And I can't discuss that with the boss, as I don't hold his rank. Instead, we'll need to let the minister handle it again' (ARO3, 2023). This demonstrates that the established communication and decision-making formats of the host state actors clearly reached their limits with the new Sino-German projects.

Deception, false promises, and unfulfilled obligations

Tensions among partners arose due to the lack of information provided by Chinese investors. An employee of a planning firm working with Farasis recalls, 'It's always the case in every project that you have to chase things a bit to get them in [...], but then we realized that nothing was coming in at all' (BWO7, 2023). Another individual involved summarizes Farasis's lack of details on manufacturing capacities, material flows, and production processes, saying, 'it was always very tough [...]. They couldn't provide this information, partially due to the lack of knowledge (BWO8, 2023). Similarly, CATL failed to provide information about their Thuringian site's manufacturing capacity and material flows, especially when it came to the development of the RLC. A cooperation partner states that CATL employees were repeatedly asked, 'What kind of goods are coming in? What are the material flows? Again we said, show us your volumes so that we can understand what we need to plan for now. The answer was "Oh, that's not certain yet, and we don't have that information"' (ARO9, 2023). This lack of commitment led to political escalation and meetings involving CATL and Wolfgang Tiefensee, Thuringia's Minister of Economic Affairs, Science and Digital Society. Ultimately, the RLC plans failed, officially attributed to a restructuring within CATL in January 2023.

Another conflict source was the failure to uphold contracts and agreements. CATL's lack of commitment regarding the RLC planning caused controversies with Volkswagen (VW), whose supply chains largely depend on rail freight transportation. Promised rail deliveries of battery cells could not be fulfilled due to the RLC's failure, 'which led to massive tensions at VW as well [...] so that VW increased pressure [on CATL] from their side and said, we need this [rail freight]. Please make sure you get it done. How, we don't care. You guaranteed it in the contract' (ARO9, 2023). However, the problems

with the RLC also originated from inaccurate assurances made by the State Development Corporation of Thuringia during the project's coupling phase, as CATL was promised an existing railway connection that later proved unsuitable. Nevertheless, this dilemma was mainly triggered by CATL themselves, as they 'did not think much about logistics and did not adapt to how logistics work in Europe, especially in the automotive sector' (ARo8, 2023), leading them to underestimate the issue and enter into agreements that they couldn't entirely fulfil.

Another issue that further exacerbated tensions was the failure to meet payment deadlines. Whereas CATL settled accruing costs for approval procedures and certificates in Arnstadt-Ichtershausen only after multiple reminders, invoices in Bitterfeld-Wolfen went partially unpaid. A local planning firm commissioned by Farasis stopped work due to non-payment (BW04-06, 2023). Another contracted planning firm also terminated cooperation with Farasis in 2019 because of similar issues: 'We actually had the contract with the German subsidiary, but it turned out that they didn't have any money, yet they were still entering into contracts. And eventually, the Chinese main firm was unwilling to pay for the fees' (BW07, 2023). However, according to involved parties, outstanding payments were settled only after a lengthy legal dispute. This shows that the German subsidiaries of the Chinese investors in both cases had limited authority, and their cooperation with partners was always dependent on decisions and payments from the firms' headquarters in China.

Tracing temporary power coalitions and the emergence of new conflict lines

Conflicts in the two Sino-German projects highlight moments of tense negotiation among planning, administration, and policy professionals and their partners. Embedded in complex 'project ecologies' (Grabher and Ibert, 2011), these involve federal, district, and local authorities, Chinese investors, Chinese and German planning firms, German car manufacturers, and subcontractors. While they act on behalf of their institutions, and their interactions are shaped by institutional and legal frameworks and routines, their practices are also influenced by personal ties, interests, and experiences. By viewing the identified conflictual situations as 'genuine ethnographic moments' (Adam and Vonderau, 2014: 24), my ethnographically inspired approach traces these mul-

tiple connections and thus the ways 'power creates webs and relations between actors, institutions, and discourses across time and space' (Shore and Weight, 1997: 14). In the following, I map the formation of two temporary power coalitions that both underlay the Sino-German conflicts and resulted from how those conflicts were handled. These coalitions significantly impacted project implementation and led to the entrenchment of new lines of conflict.

In the case of Arnstadt-Ichtershausen, the first temporary coalition was formed between CATL's operational management and Thuringian state authorities, particularly the State Development Corporation. Initially, state officials focused on building rapport at top decision-making levels and personally travelled to Ningde with the Thuringian Minister for Economic Affairs, Science and Digital Society to advocate directly with CATL's management (AR02, 2023). A bilateral investment agreement encouraged close ties, providing practical support such as a 150-square-metre shared office space at the development corporation's office building in Erfurt (AR03, 2023). This partnership extended to shared daily routines such as having lunch together, allowing state-level actors to oversee critical implementation points in a more informal setting. Ministry-led working groups regularly brought together planning professionals, CATL managers, and stakeholders to address key issues, resulting in significant adjustments. These included transitioning to a specialized German planning firm, engaging a cost-effective German construction firm known from previous cooperations with the State Development Corporation, and the Thuringian Ministry of Economic Affairs, Science and Digital Society issuing official letters to Chinese authorities to facilitate unrestricted travel for over 1,400 Chinese engineers during Covid-19 restrictions (AR03, 2023).

The powerful coalition between Thuringian state-level actors and CATL thus facilitated a range of necessary adjustments for successful project implementation but resulted in neglecting the demands of other actors, particularly at the local level. Local municipal officials complained about the lack of understanding for their positions, which were brushed aside by state-level authorities without response (AR04, 2023). The demands of both the Amt Wachsenburg municipality and the town of Arnstadt were repeatedly disregarded, leading to aborted negotiations. Local officials in Amt Wachsenburg have viewed the top-down planning approval procedure regarding the overhead high-voltage power line as a state-led intentional circumvention of local planning decisions, feeling their planning autonomy was violated, and thus developed a list of demands to be met (AR01, 2023). State-level officials, on the other hand, have felt validated in their approach and express incomprehension

towards the local demands (AR03, 2023). The conflict eventually escalated into court proceedings.

In contrast, in Saxony-Anhalt, a temporary power coalition emerged between state-, district-, and local-level officials and their German cooperation partners, following failure and subsequent lessons learned. In this case, officials struggled to establish a strong connection with Farasis's management at any stage of the project. Their efforts seemed almost futile, as conversations with the investor's representatives yielded no tangible results (BWO8, 2023). Despite continuous attempts, they could not identify the right stakeholders and were often unable to gauge the intentions of their counterpart (*ibid.*). As a result, local authorities now insist on having on-site project teams for future Chinese investments, with communication in German or English, plus specific contract terms to prevent land speculation (BWO2, 2023). At the ministerial level, a strong commitment to negotiating binding investment agreements and conducting thorough company assessments emerged, particularly regarding ties to Chinese state-owned enterprises (BWO8, 2023). And the involved planning firm demanded prepaid arrangements for further cooperation with Chinese partners (BWO7, 2023). Subsequently, the new coalition exhibited a critical evaluation of their own actions, accompanied by growing scepticism and 'China-as-threat' rhetoric (Rogelja and Tsimonis, 2020) towards Chinese investors.

In sum, the analysis underscores that the project implementations have depended on both the intervening role of host state actors as well as the flexibility of Chinese investors in adapting to the respective contexts (Lee, 2017; Tsimonis et al., 2019). Both projects' planning and approval processes were significantly shaped by interventions by actors from the federal state level, with differing outcomes. While in Thuringia, professionals from state ministries and authorities were able to achieve a series of adjustments for successful project implementation by forming a coalition with the Chinese investor, state-level officials in Saxony-Anhalt, despite significant efforts, were unable to exert much influence on the project's progress. Their attempts to build a closer partnership with the investor failed, fuelled by the latter's lack of flexibility and willingness to adapt to the context. Instead, a coalition of host state professionals and German cooperation partners became increasingly hostile to the project. Concurrently, officials in Thuringia and Saxony-Anhalt adjusted to aspects of Chinese 'speed urbanism' (Chien and Woodworth, 2018), which involves speculative investment with heightened demands on host state decision-makers. This has fuelled intense competition between states for

the speed of project implementations. Interventions by host state actors are thus pivotal in facilitating large-scale Chinese projects and infrastructures as ‘capital fixes’ outside mainland China (Wiig and Silver, 2019).

Conclusion

This chapter examines planning conflicts that have arisen during Sino-German cooperation in both a successful and a failed implementation of Chinese battery cell factories and associated infrastructures in Eastern Germany. By focusing on the projects’ formal planning and approval procedures, the study leverages emerging conflicts to grasp the underlying interests and power relations among planning, administration, and policy professionals and their cooperation partners such as Chinese investors, subcontractors, and German car manufacturers. The chapter thus brings agonistic planning theory and qualitative policy research into closer dialogue with each other to productively enhance our conceptual and analytical capabilities for unpacking the dynamic nature of power that shapes the implementation of large-scale projects.

The analysis highlights that both projects have had disruptive effects on local planning and approval procedures, with host state actors – particularly federal state ministries and authorities – actively intervening in the processes. While interventions by host state actors are also evident in other, non-Chinese, infrastructure projects, typically due to their economic and political relevance and cost overruns, interventions in the cases studied differ primarily in terms of nature and scope. Here, due to the inexperience and lack of preparedness of Chinese investors, federal state officials have gone beyond their usual responsibilities, such as bargaining, concluding investment agreements, or engaging in political advocacy. Instead, driven by ongoing conflicts in Sino-German cooperation and the constant threat of project failure, they have aimed at creating and cultivating close partnerships with Chinese investors and planning firms, with measures ranging from ministerial directives to shared on-site offices.

However, these interventions have had different effects in the two cases studied, leading to the emergence of diverging temporary power coalitions that, in turn, create new conflict lines. In Thuringia, a close alliance between federal state authorities and the Chinese investor has led to the latter adapting to local planning conditions, thus becoming an important component in the project’s success. At the same time, the coalition has resulted in increasing disregard for local demands and an open conflict between local- and state-

level authorities, which hardened over the course of the project's implementation. In contrast, in Saxony-Anhalt, despite extensive efforts, federal state actors failed to counteract the Chinese investor's lack of commitment. Instead, the project's failure has led to a coalition between officials at the federal state, district, and local levels which is constituted by self-assurance in their own actions, a critical assessment of shared futures, and growing opposition to Chinese investors.

In conclusion, using planning conflicts as analytical windows exposes dynamic, improvised, and often covert interactions among professionals and their multinational partners. These interactions shape, expand, and sometimes challenge formal planning procedures. Applying an ethnographic approach to the analysis of planning conflicts thus complements the conceptual considerations of agonistic planning theory in several ways. First, it sheds light on the often-elusive interactions and decision-making processes of professionals and their cooperation partners within and across institutional settings. This addresses agonistic planning's limitation in advocating for an open-ended and publicly inclusive negotiation of interests that is usually in conflict with actual decision-making on the ground (Hesse and Kühn, 2023). Second, it transcends specific conflict sites, offering a multi-scalar and multi-temporal analysis of interactions. Third, by scrutinizing planning conflicts as empirical moments, it unveils underlying power dynamics and interests, clarifying who does and does not benefit from the projects' implementation. This study's findings underscore the role of host state actors in project implementation, as they use their influence to advance interests and thereby strengthen entrepreneurial and technocratic planning (Raco and Savini, 2019). This, in turn, raises doubts about the transparency of outcomes in large-scale projects and intensifies the need to balance interests during the projects' implementation (Kühn, 2023). As global green investments rise, future planning research should boldly pursue ethnographic inquiries into planning and governance in order to reveal complex transnational power dynamics often obscured behind the closed doors of authorities, investors, and planning firms.

Acknowledgements

I wish to thank the numerous interviewees for their valuable insights into the Sino-German cooperation on the ground. I am particularly grateful to

the anonymous reviewer and the editors of this volume for facilitating a very productive peer-review process. Any remaining errors are my own.

Appendix

All interviews were conducted by the author between January 2023 and June 2024. The interviews were semi-structured and lasted on average 90 minutes. Quotes from the interviews are presented in anonymous and non-attributable form. The following chart provides an overview about the interviews, referencing either the Arnstadt-Ichtershausen (AR) case or the Bitterfeld-Wolfen (BW) case.

Code	Pers.	Date	Position
BW01	1	19 January 2023	Local policy, representative
BW02	1	16 February 2023	Local administration, division manager
AR01	1	02 March 2023	Local policy, representative
BW03	1	17 March 2023	Federal state administration, division manager
BW04-06	3	07 March 2023	Local administration, planners
AR02	1	03 April 2023	Private planning firm, division manager
AR03	1	04 April 2023	Private planning firm, division manager
BW07	1	13 April 2023	Private construction company, engineer
BW08	1	13 April 2023	Federal state policy, representative
AR04	1	02 May 2023	Local policy, representative
AR05	1	03 May 2023	District administration, division manager
AR06	1	03 May 2023	District administration, division manager
AR07	1	14 June 2023	Federal state administration, staff
BW09	1	30 June 2023	Federal state policy, representative
AR08	1	14 July 2023	Private transport company, logistics planner
AR09	1	14 July 2023	Private transport company, logistics planner
AR10-11	2	20 July 2023	District administration, division manager and staff
AR12	1	17 April 2024	Private planning firm, lead engineer
AR13	1	19 April 2024	Private battery company, logistics planner
AR14	1	17 June 2024	Private planning firm, manager
AR15	1	27 June 2024	Private construction company, division manager

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11. Uneven coastal geographies

Sea level rise and contested urban future-making in Bangkok

Lucas Pohl

In the future [...] there will remain vast
spaces, but deserted, little inhabited.
(Lefebvre, 2000: 208)

It is clear today that sea level rise will have a massive impact in the coming decades, especially on coastal cities. How urban futures will look in many parts of the world significantly depends on sea level. When considering the fatal effects of sea level rise, however, it is crucial to acknowledge that sea level rise does not affect humanity equally. Sea level rise affects all parts of the world, but unevenly, a fact which becomes particularly manifest in the urban realm. This paper focuses on water as a political vehicle for framing and shaping the contested urban futures in and around sinking cities. Taking Bangkok, Thailand, as a case study, the paper traces the multilayered challenges and potentials posed by spatial transformation in the wake of urban sea level rise. While the rising sea level itself can be considered a 'natural line' along which contested urban futures are made, I will stress how the will to (not) protect certain environments from the water politicizes sea level rise in an utterly conflictual way. Territorial borders and distinctions between centre and periphery or city and hinterland gain crucial importance with regard to urban sea level rise, as they allow us to pose the existential question of who and what is deemed worthy of having a future. Given the existence of differential vulnerabilities between the city of Bangkok and its surrounding coastal areas, I will focus on the uneven geographies of sea level rise that are shaped along administrative borders, thereby (re)producing what I refer to as 'extended disaster urbanization'. By ex-

ternalizing the disaster to Bangkok's outskirts, the city can be prevented from sinking. From this, I conclude that there is a possibility that already existing urban inequalities are exacerbated by the permanent flooding of urban spaces and that water levels will increasingly become a demarcation line showing who can still afford to live in a given area and whose homes, workplaces, and daily lives have no future. Yet, there is also potential in this profound transformation of urban space. Sinking cities, and their urban societies, demand new ways of thinking through and practicing the (built) environment as a space without borders and urge us to reconsider the right to urban life.

Last lines of defence

Arriving by car from Bangkok, visitors encounter a barrier when trying to enter Ban Khun Samut Chin. The road ends here. The path to the community centre leads along a narrow wooden walkway surrounded by water. The fact that there used to be land here is hardly traceable anymore. Only a roof protruding from the water indicates that the water has not been here forever. When I arrived for the first time in the community in September 2022, together with my research assistant and a friend of hers,¹ we met a shrimp farmer who had lived there all his life. He told us that he had already moved four times because the sea had washed away his house. Now making our way through the settlement towards the coast, we notice plenty of ruins and traces of decay (Figure 1). The community once had over 600 members. Today there are just under 100, most of whom are shrimp farmers. For them, it is possible to convert the freshly flooded areas into farms. At least until the sea level rises so high that the basins are permanently underwater.

1 I would like to express my sincere gratitude to Kittima Leeruttanawisut, who, as a research assistant, supported me in this study, and Kannika Janchidfa for joining us during the trip to Ban Khun Samut Chin. I would also like to thank Danny Marks and Eli Elinoff, who helped me access the field.

Figure 1: Abandoned houses in Ban Khun Samut Chin.

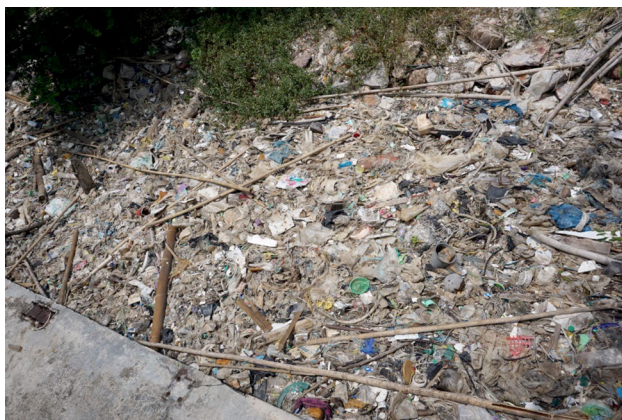


Source: Author.

On our way, we stop by the local school to meet the teacher in an open common room. We learn that there are four schoolchildren left in the community. There used to be over 50. The school has six classrooms, most of which are no longer in use. The teacher tells us that she doesn't know how long the school will remain open because there are no new children born in or moving to the community. Also, the school building is dilapidated due to regular flooding, and there is neither money nor support to repair the building.

The further we walk towards the coastline, the more waste surrounds us. Mountains of plastic, glass, metal, technical waste, and organic materials such as food scraps and fishing residue pile up at the edge of the path: a dense jungle of debris with no clear origin, much of it washed ashore over the years (Figure 2). Without the elevated concrete path that someone built to get through here even during floods, it hardly would have been possible to go any further. When we finally reach the shore, we see a number of electricity pylons jutting out into the water, indicating that roads once ran along them (Figure 3). At the edge of the water stands a large Buddha statue looking out to sea with its hands raised to stop the water from getting any further.

Figure 2: Waste along the footpath in Ban Khun Samut Chin.



Source: Author.

Figure 3: Submerged electricity pylons in Ban Khun Samut Chin.



Source: Author.

The fishing community Ban Khun Samut Chin is located in Samut Prakan, one of the six provinces in the Bangkok Metropolitan Region, and is located at the mouth of the Chao Phraya River in the Gulf of Thailand on the southern outskirts of Bangkok. Ban Khun Samut Chin is one of the 'last lines of defence' protecting the capital city from permanent flooding, as political scientist Naim Laeni put it (interview, 18 September 2022 in Bangkok). The fishing settlement has been seriously struggling with coastal erosion and rising sea levels for years, with the result that large parts of the community are already permanently underwater.

Uneven geographies of urban sea level rise

Sea level rise gives rise to a powerful future-oriented imagination and materializes via a series of environmental, institutional, economic, and behavioural effects (Arnall and Hilson, 2023). Moderate projections indicate a global sea level rise of half a metre by the end of the century, largely due to the thermal expansion of seawater resulting from ocean warming and the influx of water from melting glaciers, particularly from Greenland and Antarctica (Lindsey, 2022). Some calculations suggest that the future average sea level could rise by two metres by 2100 if increases in carbon dioxide levels follow current trends (Bamber et al., 2019). With regard to the impact of sea level rise on human life, cities are of particular importance. Nearly 75% of cities worldwide are located in coastal areas. Studies show that larger cities tend to be concentrated in low-lying coastal areas and that about 65% of cities with more than 5 million inhabitants are located in these areas, most of them in East and South-east Asian countries such as China, Bangladesh, India, Vietnam, Indonesia, Thailand, the Philippines, and Japan (Kulp and Strauss, 2019). Current projections indicate that even under a moderate future scenario, projected sea levels will rise by the year 2050 to the point where the households of about 150 million people worldwide could be permanently flooded (ibid.). In the case of Antarctic instability, by 2050, some 300 million people would live in areas considered at risk for an annual flood event. Furthermore, it is estimated that the average annual cost of global flood damage will increase from the equivalent of €5 billion in 2005 to €48 billion in 2050 (Hallegatte et al., 2013), and it has been highlighted that several UNESCO World Heritage sites would be severely damaged or even completely destroyed by the year 2100 if sea level rise remains unchallenged (Reimann et al., 2018). As oceanographer John Englander (2021:

xix) points out, 'while dramatic sea level rise (SLR) seems scary, and may be impossible to imagine, the process is underway and is unstoppable in this century.'

Therefore, it would be wrong to assume that sea level rise is only a future threat. Indeed, sea level rise is often considered a devastating forecast of unimaginable scale, closely linked to the current apocalyptic zeitgeist (Swyngedouw, 2010; Pohl, 2021; Kowalewski, 2023). More precisely, however, sea level rise is not a forecast, but a constancy that has been part of the world for over a century. 'The water will come', as journalist Jeff Goodell (2017) describes the catastrophic future scenario of sea level rise, is therefore not quite right – after all, the water is already coming, just not yet to the places we usually find in Hollywood blockbusters and science fiction novels envisioning the climate catastrophe. Yes, the water *will* come to cities such as Miami, New York, and London in the future, but it *has already* reached other cities such as Jakarta and Bangkok.² Due to the highly unsustainable production relations in fossil-fuel-based societies and the unevenly distributed damage they cause elsewhere, sea level rise can therefore be mapped onto similar patterns of inequality that also impact other socioecological relations. These inequalities are marked by socioecological dynamics of 'externalization' (Lessenich, 2019) that have shaped inequalities between the Global North and South for centuries and are structured along intersectional forms of marginalization and discrimination: The ways in which sea level rise affects social actors at various scales are thus also shaped along interconnected lines of social difference, including gender, race, and class, that co-constitutively shape social experiences of climate change in complex and shifting ways (Garcia and Tschakert, 2022).

When following the conflicts that arise around the uneven impacts of sea level rise, borders play a central role. Along borders and demarcations, whether they be social, economic, administrative, territorial, racist, or of another kind, we can trace the powerful dynamics that sea level has on some parts of the population (and not others). Borders are the result of contingent acts of boundary-drawing, facilitated both by official state agencies and by other ideological apparatuses (Giudice and Giubilaro, 2015). From the standpoint of critical geopolitics, political geography, and border studies, there are no unquestionable or 'natural' borders, as all borders are, in a sense, political (Fall, 2010; Jones and

2 Due to my focus on the urban dimension of sea level rise, I do not refer to the various island and atoll states, such as Kiribati, the Marshall Islands, Tuvalu, and the Maldives, which were some of the first that faced the existential crisis of sea level rise.

Johnson, 2014). There is a broad common understanding in politics and the media today that borders have gained new importance in times of climate change (White, 2011). With the prospect of an increase in uninhabitable environmental conditions worldwide, climate change is considered the trigger for new waves of mass migration, particularly from the Global South to North, thereby leading to a renegotiation of territorial borders (Baldwin, 2014), security politics (Boas, 2015), and apocalyptic fears of racialized 'Others' (Bettini, 2013). In this paper, I want to shift from the global level of imagining climate futures to the local everyday level of future-making. In the following, I want to show how everyday future-making in confrontation with rising sea levels takes place along conflicts that are governed through borders.

I therefore emphasize that the power dynamics that maintain and (re)produce prevailing lines of inequality and unjust socioecological conditions have a particular urban geography. Not only are cities the main drivers of both economic wealth and the climate crisis, but they are also 'places where uneven vulnerabilities and inequalities related to climate change are produced and reproduced' (Rice et al., 2023: 1). Environmental vulnerability in cities is already radically uneven with regard to one's chances of surviving isolated events such as a hurricane or typhoon. These uneven vulnerabilities are a crucial aspect of what David Madden (2021) has termed 'disaster urbanization', i.e. the contested and contradictory processes of shaping urban spaces in anticipation of, during, and as a result of disasters. When it comes to the permanent flooding of urban space, this uneven vulnerability stands out even more prominently.

It makes little sense to talk about urban sea level rise without considering that not every part of the city contributes to issues such as carbon emissions to the same degree. In major cities such as Bangkok, out of hundreds of thousands or even a million buildings, only a very few – mainly skyscrapers, luxury apartments, and commercial buildings – consume the majority of the city's total energy. Similarly, one can only properly address urban sea level rise when taking into account how social inequality renders particular parts of the urban population more vulnerable than others. Efforts to challenge environmental injustice in sinking cities even hinge on the most basic questions of survival: Who has the right to stay in their homes, to keep their jobs and everyday lives, when the water comes? It is against this background that Ashley Dawson (2019: 6) speaks of inequality as not only 'the defining urban characteristic of our time' but also as 'one of the greatest threats to the sustainability of urban existence', and that Kian Goh (2021: 3) states, 'in the face of climate change and uneven ur-

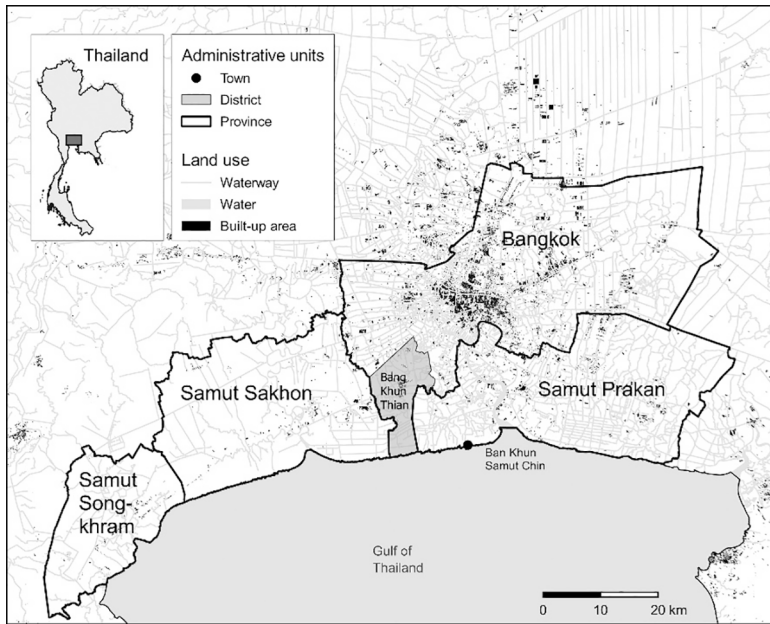
ban development,' it is crucial to ask 'how contesting visions of urban futures are produced and how they attain power'.

Bangkok, a drowning city?

Bangkok was recently listed as the number one city in Asia when it comes to the impact of sea level rise on GDP, population, and area within the city (Wang and Kim, 2021). In recent years, media headlines have repeatedly declared that Bangkok is under existential 'threat from sea level rise' (Blair, 2023), that the city is 'sinking' (Rujivanarom, 2023), and will probably be 'underwater by 2050' (Lu and Flavelle, 2019). Bangkok is located in the large Chao Phraya Delta and has an average elevation of 1.5 metres above sea level. Deltas form at the mouths of rivers, where sediment carried by the river is deposited as it meets a standing body of water, typically an ocean or sea. These regions are often characterized by a network of river courses, swamps, and soft sediment deposits. In addition, they are often low-lying and, due to their proximity to the sea, are particularly exposed to sea level rise and have a high potential for flooding and erosion. Next to overfishing and marine pollution, coastal erosion is a particularly influential factor when it comes to why 'coastal regions are increasingly threatened, destroyed, or degraded by human behaviour' (Bercht et al., 2021: 307). In the case of Bangkok, erosion acts as an accelerator of sea level rise (Marks et al., 2023), making the land even more vulnerable to seawater. The stronger the erosion, the faster the land is eroded, and the higher the sea level, the more the waves push further inland.

The coastal areas surrounding Bangkok are divided into the three provinces: Samut Sakhon, Samut Songkhram, and Samut Prakan (in which the fishing community Ban Khun Samut Chin, mentioned in the introduction, is located). While most of the coastline, around 100 kilometres in total, belongs to these independent provinces, a small area named Bang Khun Thian, with a coastline of around 5 kilometres, connects the city with the Gulf of Thailand (see Figure 4). Bang Khun Thian is the only district on the coastline that is officially counted as part of the city, which creates a difficult administrative situation when it comes to the coastal politics in the metropolitan region (as I will further emphasize below).

Figure 4: Administrative borders of the Bangkok Metropolitan Region.



Source: Data by Geofabrik GmbH and OpenStreetMap contributors (CC BY-SA 2.0); Open Development Thailand (CC BY-SA 4.0). Cartography © Katja Janson.

While Bangkok is already at risk of sea level rise due to its location in the Chao Phraya Delta, there are other factors that are exacerbating this process. One of these factors is land subsidence. Due to rapid urbanization, uncontrolled groundwater extraction, and the sheer weight of the city's built environment, Bangkok has a sinking rate of 1 centimetre per year. This phenomenon is exacerbated by the geological characteristics of Bangkok being built on soft clay and alluvial deposits. Understanding this complex interplay between anthropogenic activities and geological factors, and the implications this has for urban vulnerability to flooding and sea level rise, is paramount. After more than five decades since identification of the issue, land subsidence is associated with a multitude of problem framings, monitoring, and policy-making (Bremard, 2022). While the average subsidence rate in inner Bangkok has successfully been reduced due to new laws and regulations, its outer districts tell a different story (as further elaborated in the next section). Moreover, even though the city

now has an extensive network of drainage canals, pumping stations, retention areas, and floodwalls, these measures are not sufficient to protect the growing population and rapidly developing built environment of Bangkok from sinking (Tebakari, 2020).

In 2011, Bangkok experienced the worst flooding in its history and faced a major crisis due to the combined effects of flooding and storm surges together with the government's badly coordinated flood risk management and disaster response (Komori et al., 2012; Marks, 2019; Tuitjer, 2023). After months of persistent rainfall and the release of water from two of the main dams in Northern Thailand, a significant surge of water reached the capital in October. As an immediate response, the local government initiated a series of defence measures to protect the city's central districts. The Bangkok Metropolitan Administration implemented sandbag barriers, closed floodgates, and redirected water westward to shield the central regions of the city from flooding. However, as Danny Marks (2015) highlights, the protective measures enacted in the city centre came at a cost to outlying areas. The construction of these barriers and the closing of floodgates resulted in prolonged inundation of northern and western zones, adversely affecting their residents for weeks. Following the construction of a substantial sandbag barrier near an air force base at the border between Bangkok and the northern province Pathum Thani, the water level on the city side was almost 1 meter lower than outside the city boundaries (Marks, 2015: 643). The uneven protection of different parts of the population triggered public discontent, sparking demonstrations and uprisings, with local communities attempting to dismantle the barriers as a response to the perceived inequities in flood protection measures.

Even though sea level rise was not the main cause of the 2011 flooding, the event remains relevant for analysing Bangkok's disaster urbanization, also because it is most likely that the city will face more floods in the course of climate change and sea level rise, which is why that flood 'presages what could happen in the future' (Marks, 2020: 170). According to a recent study, more than 96% of Bangkok could be underwater during a heavy rainfall event already by 2030, including great parts of Bangkok's core central business district Silom/Sathorn as well as the new parliament house of Thailand (Wang and Kim, 2021). This forecast is in some ways even optimistic, as it overlooks the uneven ways in which urban space is governed in response to the climate catastrophe. No matter how high the water rises, it will certainly not simply flow into the city and destroy its economic 'heart'. It is more likely that the protection of certain parts of the city will again be ensured at the expense of other areas. 'Why

are some people left exposed while others take cover behind sea walls?’ (Malm, 2013: 804) – this is the key question that a critical geography of urban sea level rise brings to the fore. As a border space, sea walls and other measures distinguish between the people and places that are worth defending and those exposed to catastrophe (whether or not the event occurs). Focusing on the 2011 floods, Marks (2015: 638) highlights that the spatial patterns of the defence infrastructures were uneven, ‘protecting the inner city, the location of the palace, shopping malls, and government buildings, at the expense of the outer city’. A similar process of differentiation is taking shape on the horizon for Bangkok’s urban future in the face of sea level rise, and as I will lay out in the following, the logic of uneven development is expanding even further from the city to the extended urban areas.

Contested future-(un)making in Bangkok’s extended urbanization

While the vision of Bangkok as a drowning city seems devastating, a closer look at the outskirts of the city shows how the disaster is already, to a certain extent, part of today’s reality. As landscape architect Kotchakorn Voraakhom put it: ‘[O]h my gosh, are we going to sink? [...] I think we are already sinking right now. If you go to the south of Bangkok, the boundary of Bangkok already disappears from the paper’ (interview, 22 October 2022 via online video). As such, Bangkok is a prime example of what I would refer to as ‘extended disaster urbanization’. This term denotes an understanding of urbanity that is not limited to the city (as a unit, territory, etc.) but allows for a broader perspective of urban society, including its peripheral, suburban, peri-urban, and planetary relations (Monte-Mór, 2014; Keil, 2018; Schmid, 2019). Paraphrasing Christian Schmid (2019: 158), extended disaster urbanization therefore ‘means decentering the focus of analysis, looking from an ex-centric position, one that looks from the periphery and asks where to find “the urban” [disaster]’. In a similar vein, if we look at sea level rise from an ex-centric position, by pointing to Bangkok’s coastal peripheries, we can map out a contested field of urban future-(un)making.

I have already emphasized how the annual subsidence rate in the inner city of Bangkok has decreased in recent years due to the implementation of new drainage canals, pumping stations, and retention areas. However, what is neglected when referring to the ‘successful reduction in the subsidence rate in inner Bangkok’ (Bremard, 2022: 21) is the continued increase in subsidence

rates in the peri-urban spaces around Bangkok, where the rates are 2 to 4 times as high (Thalang 2015). Most of the region's large companies and factories with high groundwater usage are not located in the city centre, but within a radius of 5 to 20 kilometres outside it, in the surrounding provinces, where the legal framework and enforcement of regulations were less strict when these facilities were sited in the 1980s and 1990s (Marks et al., 2023: 265). These particularly low-lying areas are located in the immediate coastal area, in some cases not even 0.5 metres above sea level, and are characterized today by a mix of urban, industrial, and natural landscapes. Besides industrial uses, many parts of the coastal area are also used for shrimp farming and are predominantly populated by poor households.

As highlighted in the introduction by focusing on the case of Ban Khun Samut Chin, these coastal communities, in their shape and size, as well as in their entire everyday life, are permeated by sea water. How high the water rises is decisive to how and whether life goes on in these areas. In interviews I conducted in Bangkok with professionals from urban planning and politics, it was repeatedly suggested that places such as Ban Khun Samut Chin have no future. Somkiat Prajamwong, who advises the Thai prime minister as an expert on water, emphasized that the city can cope with losing an arm, but not its heart: 'You can cut your hand ... but you have to keep your heart' (interview, 21 September 2022 in Bangkok). He thus alludes to a certain political willingness to make sacrifices with regard to climate change, accepting the loss of some outlying districts as long as the core city of Bangkok remains intact.

While sea level rise is still not part of the coastal plan of the Bangkok Metropolitan Administration (BMA), various organizations are working on proactive measures to address the issue of coastal erosion, with the Drainage and Sewerage Department in Bangkok leading the charge. A central debate here revolves around the implementation of 'grey' or 'green' coastal protection measures (Al, 2018; Gesing, 2021).³ The BMA plans to build a barrier system at the mouth of the Chao Phraya River, comparable to the Thames Barrier in London, which aims to protect the inner city from flooding. Other ideas range from reclaiming new land in the Bay of Bangkok to plans for building a dam or sea wall. The BMA initiated a comprehensive barrier project in Bang Khun Thian, aimed at mitigating the threats posed by coastal erosion (Figure 5).

3 'Grey' infrastructures typically refer to human-made systems used for urban development and management, while 'green' infrastructures involve natural and semi-natural systems that provide environmental benefits and help manage urban environments.

Figure 5: Coastal protection measures in Bang Khun Thian.



Source: Author.

To garner community involvement, the BMA District Office in Bang Khun Thian has initiated a collaborative effort with citizens, entrepreneurs, and various organizations to support mangrove tree planting along the Bang Khun Thian coastline. Furthermore, between 2016 and 2023, the district installed bamboo lines along a 2.2-kilometre stretch to attenuate waves, leading to a notable expansion of the mangrove forest area. The accumulation of sediment behind the bamboo lines has resulted in an elevation of approximately 80 to 120 centimetres, effectively raising the ground level along bridges and walkways by 50 centimetres. By actively engaging with the community, listening to their concerns, and securing their cooperation, the Urban Planning and Development Office (URB) has furthermore proposed a land readjustment scheme, which includes the allocation and relinquishment of private land for the collective public good, along with the sale of some public land to fund the construction and maintenance of essential public utilities such as electricity, water, roads, infrastructure, and drainage.

While the recent measures undertaken in Bang Khun Thian demonstrate a political will to take the threat of coastal erosion and sea level rise into account by implementing different measures to experiment with a mix of solutions, the other parts of the coastline south of Bangkok do not follow the same procedure. The administrative fragmentation of the coastal area (see Figure 4) creates a peculiar situation in which different parts of the shoreline respond differently to

the challenges of sea level rise. The small part of Bang Khun Thian that belongs to Bangkok has undergone the greatest development in recent years and has installed a number of 'green' and 'grey' measures to prevent the water from taking even more of the land. The provinces that fall under the Ministry of Interior have not yet shown similar efforts to do something about the situation. While Marks et al. (2023: 267) rightly conclude that 'these differing lines of authority have made it difficult to coordinate regional- or national-level responses to erosion in the three provinces', one can state that they also prevent a coordinated response to sea level rise. Bangkok's coastline appears as a set of 'disjunct fragments' (Lefebvre, 2003: 14). As such, each politically separate unit has to cope with the rising presence of seawater. While in one fragment resources and possibilities are mobilized to protect the land and its inhabitants from the seawater, other fragments remain relatively defenceless against it. When dealing with inherently transboundary processes such as sea level rise, it becomes clear how powerfully borders shape living conditions under climate change and, at the same time, how truly effective climate politics cannot be limited to and by these borders (Sammiller, 2020). Protecting Bangkok only along the areas that officially count as part of the city will not stop the water from making its way through the other provinces into the city. Only a politics and planning 'without' borders could keep the water at bay.

The process of disaster urbanization is thus not limited to the space of the city but also, and even more prominently, shapes the conditions in those areas that may initially seem detached from it. In a similar vein, scholars working on extended or planetary urbanization have highlighted that urbanized centres are not isolated from the periphery, as the centres often earn their prosperity, wealth, and power at the cost of these surrounding areas (Bartels et al., 2020). A classic example in this context would be how the innovative economies and technological advantages that drive many social and cultural activities in core urban areas, including IT networks, smart infrastructures, eco-architecture, and the like, depend upon the extraction of minerals like coltan from some of the most socioecologically vulnerable locations on earth (Arboleda, 2020); or how most of the urban economies in the Global North rely on production chains influenced by increasingly uneven socioecological conditions and recycling processes that redirect most electronic waste back to the socioecologically dystopian landscapes of informal suburban wastelands in cities like Mumbai or Dhaka (Swyngedouw and Kaika, 2014: 463).

Something similar happens regarding the distinction of centre and periphery within the Bangkok Metropolitan Region. Here, too, the prosperity

and security in the urban centre are based on the distress and destitution in the coastal peripheries. And yet, without the 'defence lines', which ensure that floodwater does not reach the city centre, Bangkok probably would have already been submerged. Due to this extended disaster urbanization, however, decision-makers have still not considered taking more drastic action to defend the whole coastline. Amidst these uneven geographies that shape Bangkok's future-making, it almost seems as if measures are being tested along the small section of Bang Khun Thian so that at a later date, when the water gets closer to the 'heart' of the city, knowledge and expertise will be there to protect it. Meanwhile, in the coastal provinces, more and more land will be left to the water. As in the case of the 2011 floods, it is therefore once again a question of who has the right to be protected from flooding and is therefore counted as part of the city.

When the excluded local communities fought in 2011 against the uneven measures to keep the city centre dry, they adopted the slogan 'We are quality citizens in Bangkok' (Marks, 2020: 171). They demanded an equal right to be recognized by the local government as residents of the city. Now, when engaging with sea level rise, we might formulate the same slogan. Here, too, the question arises as to who has the right to count as a Bangkok citizen and who is not considered one. Again, it is the right to be treated fairly and equally that is at stake here. The 'right to urban life' (Lefebvre, 2009: 194) – more than the notoriously often proclaimed 'right to the city' – therefore takes on a truly existential significance in the context of rising sea levels. People without a right to (peri)urban life not only lose their right to live and participate in a place, but also lose these places as such, including their place-based experiences, everyday lives, memories, histories, and their 'sense of place' more broadly.

Against this background, it seems unlikely that Bangkok will sink. The city will not perish due to rising seas. It seems more realistic that enclaves will form along the existing lines of social inequality and intersectional discrimination, which will persist regardless of the water level, while the rest of the urban area, especially areas that are already temporarily at risk during strong and seasonal floods today, could be permanently underwater in the future. For the coastal peripheries, such as the community Ban Khun Samut Chin, the future currently remains uncertain in the certainty of further deteriorating socioecological conditions. This testifies to the fact that the socioecological catastrophe posed by sea level rise is not only a semi-distant promise but an 'uneven and combined' catastrophe (Calder Williams, 2011; Malm, 2013) in the present, and that it is already shaping life in the marginalized interstices of the

uneven socioecological geographies produced by capitalist forms of extended disaster urbanization.

Imagining a future of sea level rise without sacrifice zones⁴

Processes such as sea level rise are accompanied by a radical re- and devaluation of space. Places with a certain social value, be it economic, symbolic, cultural or political, are defended from potential damage and dangers, while places that have no such value for the city and society are sacrificed to the water. The latter become waste spaces, spaces of ruination and decay, of dying and surviving. From this conflictual relationship, we can learn something about the power relations that shape coastlines in times of climate change. John Englander (2021: 6) states that ‘the shoreline is the most important line in the world, separating valuable real estate from that which is underwater’. If one follows this hypothesis, the coastline should be given top priority when it comes to shaping the futures of society and, more specifically, urban futures. It takes an approach that allows us to trace the multilayered challenges and potentials posed by spatial transformation in the wake of urban sea level rise (Frost and Miller, 2021). In terms of challenges, there is a possibility that already existing urban inequalities will be exacerbated by the permanent flooding of urbanized areas. Sea level rise will most likely lead to massive displacement, especially among the poor parts of urban society. However, sea level rise not only displaces residents but also the places themselves; it not only destroys communities, neighbourhoods, districts, etc. but also makes any future community, neighbourhood or district in a place impossible. It is in this sense that sea level rise creates potentially impossible geographies (Pohl, 2024).

Sea level rise allows us to face how urban futures can take shape at the expense of a lack of (urban) futures elsewhere. It therefore poses the question of *which* people and places are to be protected and *which* people and places are to be abandoned (Fincher et al., 2015), and, as with other types of disaster urbanization, the logic of protecting vulnerable populations in one place can directly collide with the logic of protecting valuable spaces elsewhere (Madden, 2021). The uneven geographies of sea level rise open up a conflictual terrain around

4 The title for this conclusion is inspired by the title of a keynote Naomi Klein gave at the Othering & Belonging Conference that was held in 2015 in Oakland, California.

which urban futures are negotiated. Whenever we look at technological and institutional advances that aim to secure an urban future in one place, we should, therefore, ask whether another (urban) future is being threatened by or even sacrificed for this future. As climate-colonial perspectives emphasize, 'Some lives and ecosystems are rendered disposable and sacrificial, whereby structural forces, both historical and contemporary, fuel [...] the racial logic of climate tragedies and cumulative impacts' (Sultana, 2022: 4). In similar terms, urban future-making in times of sea level rise is based on rapacious displacement, destruction, and excessive exposures to harms from climate-induced disasters. The advances that secure a socioecologically sensible city in one place are too often 'bought' for the price of another future elsewhere. This unmaking of (urban) futures due to the externalization of the climate catastrophe is probably one of the greatest challenges for urban future-making in the age of sea level rise.

Communities such as Ban Khun Samut Chin can, therefore, be considered not only as 'defence lines' but also as 'sacrifice zones' of urban sea level rise. Such zones, in which human life is becoming increasingly challenging, are a direct side effect of the disastrous societal conditions responsible for climate change and produce uninhabitable environments in which those who survive have no proper right to exist and are thus treated as 'less than fully human' (Klein, 2014: 363). Sacrifice zones are waste spaces that are rendered disposable: 'places that [...] somehow don't count and therefore can be poisoned, drained, or otherwise destroyed, for the supposed greater good of economic progress' (Klein, 2014: 169–70). In the case of Bangkok, places such as Ban Khun Samut Chin appear, at least from the standpoint of urban governance and planning, as places that count less than the economic centre of the city. The 'less-than-human' status of those who live in sacrifice coastal zones such as Ban Khun Samut Chin arises from a conflict over who counts as part of Bangkok. Being counted as 'urban' and 'human' therefore appear here as two sides of the same coin in the fight for a right to urban life, and this fight is ultimately a fight for having a future.

Yet, sea level rise creates not only defence lines and sacrifice zones but also the conditions for entirely new notions of urban space (Wakefield, 2022). What we can learn from the Bangkok case is that 'the border' as an administrative spatial category is an inadequate barrier to genuine political action in response to sea level rise. A truly effective attempt to govern urban sea level rise requires borders to be torn down and removed. Space must be liberated from its territorial constraints and (re)imagined in terms of its connections rather than its

divisions. Only when we recognize how processes such as sea level rise require spaces that are currently perceived and managed separately to be viewed as interwoven and interdependent can we start to imagine a climate-changed future without sacrifice zones. If sea level rise cannot be stopped, which is what most scientists today agree on, then sea level rise may open up a possibility of transformation based on the slow but equally unstoppable fight for new forms of spatialization quilted together around notions of equality, solidarity, and a collective mobilization for the socioecological right to urban life.

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Grounding Conflicts in Everyday Practices

12. Mobilizing the meaning of greening in a conflicted city

A case study from northwest Belfast

Robbie Gilmore

Introduction

Belfast is a city recovering from a vicious sectarian conflict (usually officially dated as running from 1969 to 1998) which fractured the city along ethno-political lines. Today these fractures remain, demarcated physically by 'peace walls' which divide the city, and by an imaginative geography which still apportioned certain parts of the city to 'us' and 'them' (Murtagh, 2011; Lang and Mell, 2020). In an attempt to overcome these divisions, the city council, with the support of the EU, have recently constructed a greenway (officially titled the Forth Meadow Community Greenway, from here, Greenway) which aims to knit the city back together through the provision of green space shared between the city's two main communities, often described using the acronyms CNR (Catholic/Nationalist/Republican) and PUL (Protestant/Unionist/Loyalist).¹ The project is about reshaping both the physical and imaginative landscapes of the city, breaking down literal and imagined barriers between divided territories. In this sense it is a project which is about creating a new way of seeing

1 In this chapter I use the technical terms CNR (Catholic/Nationalist/Republican) and PUL (Protestant/Unionist/Loyalist), as well as the more vernacular 'Catholic and Protestant' to describe political affiliations in Belfast. Although the former are more technically correct (as they consider these groups as ethno-nationalistic, rather than simply religious), the latter is the terminology more frequently used in everyday life by people living in the city, such as my interviewees. These identities were the poles around which the majority of the conflict was centred and remain key poles for the organization of Northern Ireland's (NI) society today.

and knowing the city as much as it is about imprinting a physical change into the city's material fabric.

A wide range of studies and frameworks have explored the relationship between urban politics and urban greening (e.g. Angelo, 2017; Anguelovski et al., 2019; 2020; Zuniga-Teran et al., 2021; Alexander, 2024). Here I make use of a framework recently developed by Hillary Angelo (2021), which argues that acts of urban greening are supported by a social imaginary that 'green is good', developed through the process of modern urbanization. This social imaginary means that greening protagonists can use acts of greening to re-make cities and citizenship without necessarily facing the kinds of conflict or opposition faced by other urban redevelopment schemes. In a city where politics has been closely entangled with violence, and which remains deeply divided along ethno-sectarian lines, using greening as a tool to take the heat out of potentially controversial projects has obvious appeal. The risk, however, is that this can move projects outside *all* politics, not just the forms of politics associated with ethno-sectarian division and violence. That greening the city is understood as something inherently good thus becomes a double-edged sword; while a pragmatic and useful means of moving beyond a conflictual politics, greening projects can also elude the types of oversight and discussion fundamental to democratic decision-making about city life.

Making use of Angelo's framework, this chapter explores two dimensions of the role greening may play in conflicts about urban futures. First, it explores how the social imaginary of greening is mobilized in ways useful in a place where politics can be particularly conflictual. Second, it explores how greening can be a means of articulating, and mediating, conflicts between different urban actors about what moving beyond war and towards peace might look like.² Below I briefly set out Angelo's framework, and in the subsequent section, I bring it into dialogue with a case study, illustrated through three vignettes.

2 In these two sentences I use the word 'war' to provide clarity for the reader. In the rest of the document I refrain from using this word – using the word 'war' for Northern Ireland's troubled past is, itself, contentious. For the reader this perhaps illustrates the degree of disagreement which remains associated with Northern Irish politics – not even the language used to discuss this politics can be agreed upon.

The meaning of greening

Hillary Angelo's *How Green Became Good* (2021) is centred around an historical study of the Ruhr region in Germany, which Angelo uses to explore – and develop a theoretical argument about – the social and spatial effects of greening in urbanized areas. Centrally, she argues that the process of urbanization can transform nature from a direct material good into an indirect moral or affective signifier – a signifier she calls ‘urbanized nature’. This urbanized nature can then, she explains, be deployed as a variable *within* urbanization to fix problems, something she describes as *urban greening*: ‘the normative practice of using everyday signifiers of nature to fix problems with urbanism’ (ibid.: 3). Most importantly for this chapter, she argues that urban greening ‘is a particularly powerful way of intervening in the built environment because, although specific projects are embedded in the political economy of each moment and reflect its biases, [...] they are constructed as universally beneficial investments in the public good by both greening protagonists and their target audiences’ (ibid.: 5). Urban greening is thus marked by something of a paradox: While urban greening projects can be ‘technologies of control which instantiate narrow, historically and class-specific ideas about what constitutes good cities and citizens, they are nevertheless carried out and widely received as universally beneficial investments in the public good’ (ibid.: 23).

Angelo's theory is built around the concept of a ‘social imaginary’: a shared set of practices, symbols, and narratives through which society is made sensible and meaningful. Charles Taylor (2003) describes such imaginaries as at once deeper and broader than a simple social theory; they are instead a kind of ‘background’ through which society becomes comprehensible, but one difficult to straightforwardly describe on a page. The concept was developed by Cornelius Castoriadis (1975/1997) and famously deployed by Benedict Anderson (1983/2006) to explore how the ‘imagined communities’ associated with modern nations came into being. The relationship between social imaginaries and material practices is neither straightforward nor necessarily linear (Gaonkar, 2002; Calhoun, 2016). Anderson (1983/2006), for example, emphasizes that the idea of nationhood was developed with the advent of new technologies and forms of communication. However, he also points out that certain material practices involved with realizing the nation – the creation of a physical border, for instance – are meaningless without the shared social imaginary of nationhood. Charles Taylor puts this more abstractly:

The relation between practices and the background understanding behind them is therefore not one-sided. If the understanding makes the practice possible, it is also true that the practice largely carries the understanding. (2003: 107)

Angelo makes an analogous argument regarding the relationship between urbanization and the practice of greening. If urbanized nature is a product of the process of urbanization, deploying it in practice, through acts of urban greening, can only be comprehended as benevolent once a shared social imaginary that greening is good has been developed. The primary focus of Angelo's book is on the way this social imaginary is developed and then migrates through space and time. However, as a recent forum discussing Angelo's work noted, some of her theory's 'most interesting and politically relevant aspects' are the way it explores 'the interaction between material and immaterial dynamics, and the extent to which urbanized nature – as idea and project – can escape the influence of social hegemonies' (Wachsmuth et al., 2024: 57). This chapter focuses upon these two facets of her work, first by exploring how the meaning of urban greening is mobilized through a variety of material practices, and second by exploring how urban greening can be mobilized by actors aiming to contest contemporary arrangements of power.

Angelo herself points out that her work 'primarily documents greening in its top-down, large-scale, and hegemonic moments' (Angelo, 2021: 22), thus only partially representing the diversity of ways which urban greening might be mobilized. This chapter, by contrast, explores the way urban greening is deployed by a variety of different actors contesting the same geography. This is possible because urban greening is a 'specific idiom or grammar of moral action rather than a specific viewpoint' (ibid.: 22), meaning that 'greening is a practice that is available to a wide range of actors and political projects even in the same place and time' (ibid.: 22).

Ultimately this means that there is no inherent relationship between the potential of urban greening and the ability of urban actors to shape the trajectory of urban development. On the one hand, urban greening can be deployed by actors as a means of cementing established norms and circulations of power. On the other hand, urban greening can be deployed as a means of highlighting, and disrupting, the status quo. Perhaps most importantly, though, through deploying urban greening as a practice of remaking the city, urban actors can come to re-evaluate their own work; put differently, whilst deploying this social imaginary, actors are, themselves, subject to it. These dynamics

have important consequences for opening and closing the space for politics in the making of urban futures, as set out empirically through the case below.

Belfast and its fractures

The conflict in Belfast can be thought of as an ‘urban problem’ in two main ways. First, most literally, the spark which lit the ethno-political conflict in its modern form came from a series of marches in 1968 and 1969, for which concerns about housing equality and corrupt municipal governments were central motivations (Wiener, 1976; Stewart, 1997). The landscape of housing in Northern Ireland has changed markedly since, but housing remains an important political topic, and one which is often associated with CNR–PUL political issues. Second, the conflict led to the destruction of public space, literally (through the construction of barricades and the shockwaves of bombs), but also more metaphorically, due to the widespread violence deployed by various groups to control, and demarcate, their respective urban territories. In a very literal way, the scars of this destruction remain written across the city in the form of ‘peace walls’ – large steel and brick constructions, most of which are impromptu barricades turned into permanent structures over the decades (Boal, 2002; 2008). Also known as ‘interfaces’, and initially built with the explicit aim of ensuring segregation in the name of securitization, these walls are now often perceived as barriers to integration and realization of enduring peace. As important as the physical walls which transect the city, however, are the imagined walls which accompany them; whilst crossing a road during a walking interview conducted as part of this study, my interviewee paused on its centreline, describing it as an ‘interface’ because Protestants walk down one side of the road and Catholics down the other.

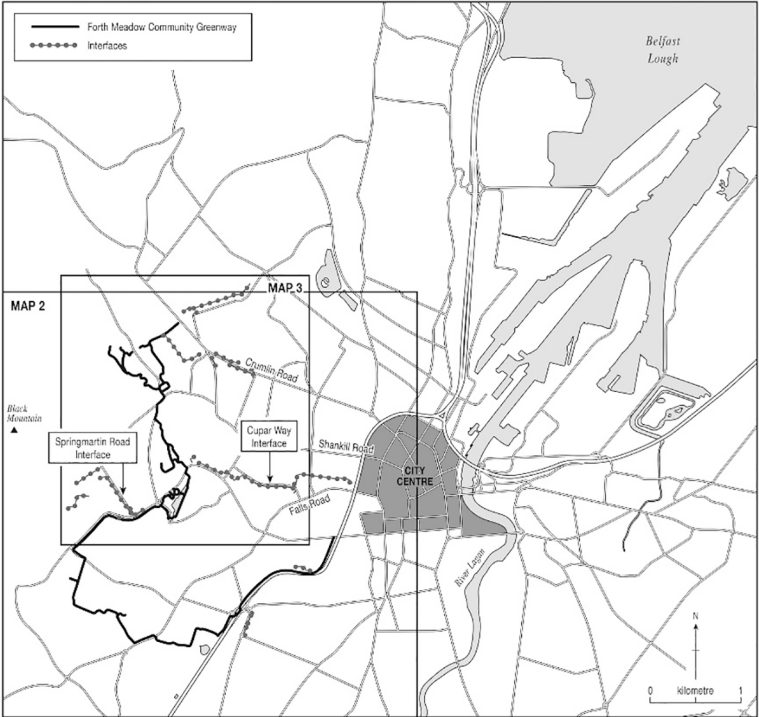
The largest visible peace wall in the city is officially called the Cupar Way interface and divides the PUL heartland of the Shankill Road and the CNR heartland of the Falls Road (see Figure 1). Further west lies the Springmartin Road interface, which is effectively joined to the Cupar Way interface by a piece of land known locally as ‘the Mackies site’ (see Figure 2 and Figure 3). The Mackies site was once home to the city’s second-largest machinery factory, which sent industrial equipment around the world; its importance to the city was emblemized by a visit from Bill Clinton, who in 1995 delivered an important peace-process speech from a stage on the factory floor. Despite successfully surviving the worst of the city’s ethno-political conflict, deindustrialization

brought an end to the factory, which was demolished in 2003. A bellwether for the city's economic fortunes, in the early 2000s the site was used as a municipal dump, where waste from the construction of a new downtown shopping centre was deposited, and in 2016 a corner of the site was used for the construction of an entrepreneurial hub. Meanwhile, the municipal dump fell out of use, and until recently most of the site was vacant, overgrown, verdant, and wild. Where the factory walls once effectively joined together the Cupar Way and Springmartin Road interfaces, by the 2010s the vacant site served as a buffer between the PUL and CNR communities: a no man's land keeping the two territories separate.

But in 2020, the diggers arrived at the Mackies site. They'd been sent by the Belfast City Council, fuelled with EU funding, to realize the Greenway. Costing just over £5.1 million, conceptually the Greenway is very simple – it is a cycleway and walkway which joins together a series of green spaces across the north-west of the city, including Mackies. The broad context of the project is illustrated in Figure 1, which shows the positioning of the Greenway relative to the city centre, the city's main interfaces, and the largely CNR Falls Road area and PUL Shankill Road area.³ Figure 2 provides a more detailed illustration of the ways in which the project joins together green spaces across this geography. Figure 3, meanwhile, illustrates why the project is particularly significant for the city, and politically complicated: as this map shows, the Greenway punches straight through the Mackies site, and therefore effectively through the city's longest and most famous peace wall. Explicitly aiming to create a shared space, it ultimately aims to facilitate the intermingling of the PUL and CNR communities not only by physically opening the space between them, but also by breaking down the imagined geography which still demarcates their boundaries.

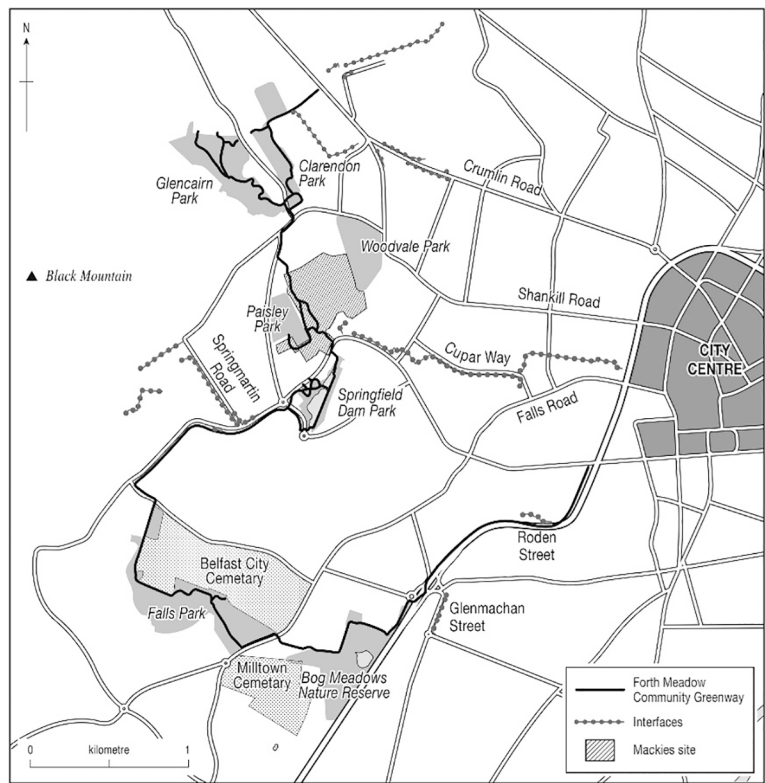
3 This chapter argues that it is an oversimplification to describe Belfast as a city of two homogenous communities, demarcated into two neatly bounded ethno-political territories. It would be distinctly hypocritical to make this argument in the text whilst using maps which demarcate the city along ethno-political lines. For this reason, the maps below do not display ethno-political information. I appreciate that this may slow the readers' progress a fraction, by forcing them to read the maps in parallel with the text, but I request the readers' forgiveness, on the basis that this avoids a mistake too many descriptions of Belfast make: arguing for the need to bring the city back together, whilst redescribing it in dualistic terms, thus reinscribing the idea that it is a city of two homogenous communities.

Figure 1: Context map of the Forth Meadow Community Greenway.



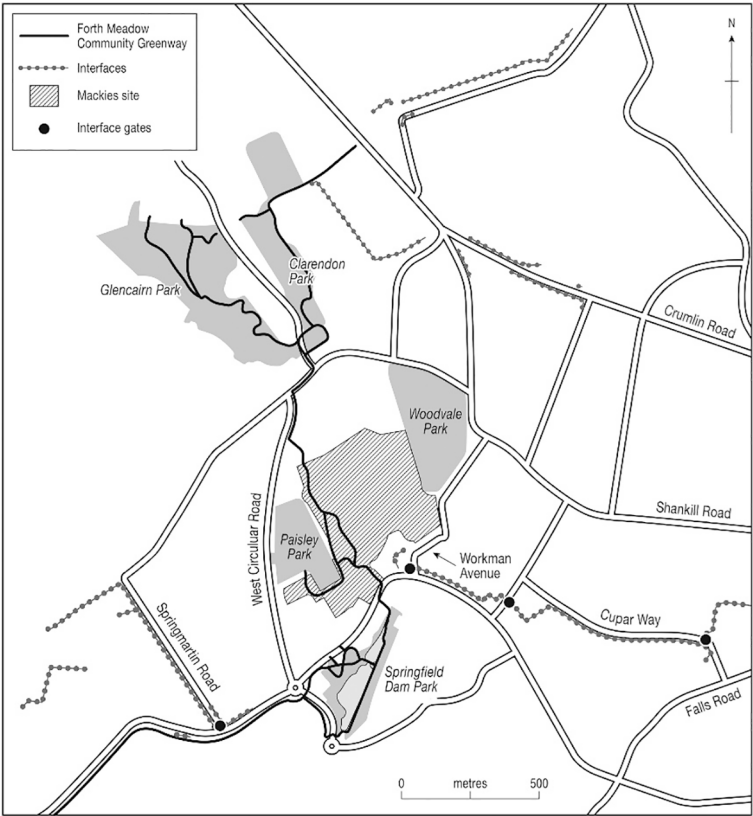
Source: Durham University Cartographic Unit.

Figure 2: Map of full extent of the Forth Meadow Community Greenway.



Source: Durham University Cartographic Unit.

Figure 3: Map of the Forth Meadow Community Greenway and key interface zones.



Source: Durham University Cartographic Unit.

Stitching together a fractured city

The following three subsections look at the Forth Meadow Community Greenway in three different ways, using three different aspects of Angelo's (2021) framework. The first examines how the Greenway has been constructed as a 'universal public good', and therefore something which can be shared; the second explores the cracks in this universality; and the third sets out an example of counter-greening, used by protesters against the Greenway. The latter two sections include descriptions of the interaction between the Greenway and a counter-campaign titled the Take Back the City coalition (from here, TBTC). This coalition has formed to argue for a different usage of the Mackies site – they argue that the site should be used, at least partially, for social housing, in order to try to help the city alleviate its homelessness crisis. Given the sectarian geography and the political history of housing struggles, this has become deeply controversial. Initially wholly against the Greenway, TBTC now support the Greenway, but only as part of a wider reimagination of what the Mackies site could become. TBTC argue that the Greenway should anchor a new community which reimagines how people should live together in Belfast.

As set out in the second section ('The meaning of greening'), I focus this chapter on the practices by which urban greening is ascribed particular meanings, rather than the channels through which prior meanings are transposed into this project. Methodologically, this means focusing on what the Greenway does, and how it achieves this, rather than focusing on the origins and dispersal of ideas about what greenness is. To explore this, a variety of methods have been used: ethnographic observation, document analysis, and 40 semi-structured interviews (many conducted whilst walking through the space). Interviews have included a range of actors, including members of the city council, local community volunteers, local activists, and local residents. Ethnographic work has included time spent on the Greenway, at local community events, and at activist-organized events. Document analysis has included policy documents, internal council documents provided by project managers, information provided by local historians, and local newspaper reports. Data collection commenced in September 2023, when the final section of the Greenway was completed and opened for use.

The construction of universality

Providing a greenway benefits everybody. It benefits all communities. It brings people together. It enriches an area. It regenerates the area. So, to create a greenway ... everybody benefits from it.

John Kyle, Belfast City Councillor (BBC, 2022)

On 24 June 2022, City Councillor John Kyle appeared on BBC Northern Ireland Newsline to make the above statement. This framing is common across much public messaging surrounding the Forth Meadow Community Greenway and is reflected privately in many of my interviews with Greenway project team members. Here I explore the ways this impression of universality is created, in particular by separating the Greenway from 'the social', as set out in Angelo's framework. Angelo emphasizes that because greening projects 'are physically and temporally separate from both work and home and their social relationships, it is generally possible to sustain an idea of these spaces as separate from social interests as well – as segregated from economic questions and forms of race, class, and gender inequality' (Angelo, 2021: 24). The key point here is that the splitting of the Greenway from these forms of social relationships isn't something incidental to the project, but is central to it, and is achieved through a variety of proactive if often mundane practices. Below, I set out how this is achieved, largely through the professional practices of those involved in planning and delivering the Greenway, including those working on behalf of the city council, and external contractors who helped deliver the project. I do this by exploring how the Greenway's creation is related to four key domains: first, by managing the relationship between the Greenway and the city's industrial history; second, by imaginatively relating the Greenway to an aspired-for future, where nature (and by implication, the Greenway) are separated from the city surrounding it; third, through an extensive 'animation' project, which aims to bring the Greenway to life in ways amenable to the city council; and fourth, by ensuring that the Greenway is a space of transit rather than dwelling.

Firstly, much of the Greenway was carefully separated from explicit references to past companies and businesses, mainly because employment in Belfast has often historically been associated with one's ethno-religious iden-

tity. The naming of a key bridge on the Greenway – which runs through an area immediately adjacent to the Mackies site, over a lake called the Springfield Dam – provides a good example, as one interviewee explained:

People were conscious that that is an interface at Springfield Road. And you were going to have a very distinct ... two communities, basically. Or even a territorial view that north of the road is PUL community and south of the road is CNR community. And it manifested itself in – I'll give you an example: We still haven't formally named it because of dispute about whether it will have two languages or not, but a name for the new bridge in the Springfield Dam. And it was interesting how some people reacted. [...] There was quite a strong reaction to anything that namechecked Mackies, because Mackies was perceived as being an employer that perhaps hadn't been an equality employer back in the day. But there was more understanding over something like, call it something related to the foundry, because ... do you see what I mean?

The interviewee went on to clarify that:

You also realize the nuances of what people will accept [...]. People were open, for example; everybody recognized that heavy engineering was a local thing. So historically, a name like 'Foundry': 'yeah that's okay', said the people on the south of the road. Or something to do with nature [...]. Somebody had 'Seven Cygnets Bridge'. So yeah, that was good. It's just that thing about what's neutral, and what's not, and that's a reason to do engagement as well.

If careful narration of the past laid the foundation for the Greenway's separation from the social, this was supplemented by a specific vision for what the Greenway might become – the second practice deployed by those developing it. Angelo describes this as 'aspirational' urban greening, in the sense that it means creating an aspired-to image for what the act of urban greening will achieve prior to physical action. One of the Greenway's key project managers from the city council describes how this was achieved:

We arranged study visits to other areas, you know, taking some of the residents to the likes of Half Moon Lake [...]. It was just, again, to demonstrate how this 'oasis' effectively – that's what I would like to think of

Springfield Dam – can sit within a very, you know, urban environment. And the two can sit side by side.

The project manager went on to explain why they thought this was important:

I think, you know, again, legacy of the conflict is people have an element of fear and mistrust and, you know, anxiousness. And it's just the unknown more than anything else. So, we were trying to demonstrate as to where space such as what we were trying to create could sit within that very dense urban environment.

The image of what the Greenway might be is, here, being created prior to spades entering the ground: It is a space that sits 'side by side' with the 'dense urban environment' of the city. Professionals working on the project tended to emphasize two main benefits of this for the project. One, it helped to smooth the process of project implementation. If key local stakeholders were brought on 'study visits' as described above, this meant they were more likely to get on board with the council's plans for the Greenway. Once they'd experienced a slice of this aspired-for future, in other words, it helped council workers to set about actually realizing it. Two, it helped to reinscribe the idea that the Greenway was somehow separate from the particular politics of the city which surrounds it. As is set out above, the Greenway here is construed as an 'oasis', where one can imaginatively escape the partisan and violent history of the city. The dense urban environment around it is, in turn, associated with the legacy of the conflict. Put more abstractly, the Greenway is separate from the social life of the city, not part of it, and certainly not a product of it. By planting this image in the minds of key stakeholders, the professionals employed to realize the Greenway were, thus, projecting their own aspirations for the future of the project onto those who would later inhabit it. In this sense, these visits not only helped to pave the way for the material reworking of the city, but also aimed to reshape the way this material reworking would come to be interpreted once complete.

This imaginative preparation dovetailed with an extensive 'animation' project delivered by the council, designed to bring the Greenway to life – the third way which the Greenway's relationship to the social life of the city was managed. The term 'animation' is a curious one – the spaces the Greenway now runs through were animated prior to the Greenway, but often in subversive ways. Drinking, drug use, bonfires, the riding of motorbikes, sectarian

fight, and riots are some of the many behaviours which have animated this space within the past decade. The type of animation promoted by the city council, by contrast, includes things like nature walks, bike riding, and litter picking. According to one project manager, the animation programme was akin to trying to coach key locals about how the Greenway should 'correctly' be used, and then hoping they would take these lessons and spread them more widely. Importantly, these are not only leisure activities but particular forms of leisure; they revolve around 'green' and largely individual behaviours – seen as neutral and accessible to all – but not around things like team sports, which both have historical connotations and require constructing more close-knit social affiliations.

More materially, the Greenway has been created as a space of transit, rather than a space of occupation – the fourth way which the Greenway is split from the social life of the city surrounding it. My walking interviewees often point out that there are no benches in the Mackies site; instead, the Greenway runs a relatively direct route through the site, with few spaces to pause apart from a railing where one can lean to feed ducks in a nearby pond. Rather like Mike Davis's famous description of 'bumproof' benches in Los Angeles (1990: 233), designed to allow someone to pause but neither sit nor sleep upon a bench, this lack of space for occupation channels people through the space, rather than encourages dwelling, or occupation. Aligned with this micro-geography which discourages dwelling, at a broader scale the Greenway has come to be framed in the public sphere as standing in opposition to efforts by TBTC to build social housing on the site, mainly because – as one local stakeholder described it to me – housing in this part of the city is 'capital-P Politics in bold' (in the sense of being about CNR–PUL relationships). A wide variety of interviewees, but particularly those who were involved with the Greenway's delivery, and local residents not involved in TBTC, describe the Greenway as the inverse of the housing campaign; it is about something different; it is about transit through space, rather than occupation of it; it is about sharing, as opposed to owning.

Here the spatial form of the Greenway begins to matter, and its material components – benches, or lack thereof – emerge as a means of carefully distinguishing from the territorialized housing which surrounds it. The public framing of the Greenway as something existing in opposition to TBTC isn't necessarily something those delivering the Greenway aimed for. But it can be considered an effect of a particular set of practices which shaped the Greenway as a space of transit rather than one of occupation. Once established, this dualism mapped neatly onto the struggles between TBTC and the city

council; this struggle then served to amplify the distinction between the ideas of dwelling and occupation.

To reiterate, the Greenway has been carefully created as a space separated from particular types of social relationships, building upon pre-existing understandings of nature as being separate from society, in order to generate the impression that the Greenway is a space somehow separated from the particularities of the city surrounding it. The Greenway's 'naturalness' provides the foundation for this process – it is an 'oasis' surrounded by a city of red bricks – but this doesn't determine the Greenway's separation from the social, much less realize it. Instead, as I've emphasized here, this results from a careful series of steps which divorce it from issues such as employment or housing and animate it with particular forms of leisure.

The idea, or impression, that green space is somewhat separate from the social life of the city is, of course, neither specific to Belfast nor specific to today. But in contemporary Belfast it is provided with particular inflections, given the city's legacy of sectarianism. More importantly perhaps, it marks this project as different to most of the other projects delivered by EU 'Peace' funding, in which specificity is more easily discernible: cross-community football teams, for example, are for football players from two communities rather than for everyone; entering a cross-community centre often involves stating your name and purpose before entering (or, sometimes, as I have discovered when entering such places to conduct interviews, setting off alarm systems). By contrast, the openness of the Greenway means that it provides benefits for a wide array of users.

However, there is an inconsistency in claiming that the Greenway is a universally beneficial project and one which aims to create a specific or particular form of shared space. As set out in the following section, this inconsistency has been recognized by several actors linked to the project, most notably TBTC (who see it as demonstration of the Greenway's failures) and professionals delivering the project (who have endeavoured to try to work around it, through a variety of practices). In different ways, each group of actors have critiqued this inconsistency and attempted to leverage it to reshape the project, as is set out in more detail in the following section.

Sharing for some?

The central rationale underpinning the Forth Meadow Community Greenway was summarized neatly by a Greenway project manager in an interview:

It was a very difficult first meeting. I always recall that it was 'so that's your side, and that's our side', you know? And you know [we were saying] 'we're trying to create a shared space here!' And when I think back to that very early meeting and where we are now, with those same community organizations ... That's not the language now.

The quote also highlights the success the Greenway has had delivering those aims: 'That's not the language now.' Those who regularly walk the Greenway have, similarly, described the physical space to me in effusive terms – one described it as a 'lifesaver'. Another told me a story about bumping into a famous ex-paramilitary from 'the other side', whose face he recognized as one he used to hate; the two had a conversation and a laugh about how transformed the space, the city, and the relationship between them now were. There is hope that these shared pockets will spread along the length of the Greenway, and early evidence suggests that this is possible; one elderly man told me that in the summer he was going to get 'a few old boys' he'd met in the shared parts of the Greenway and show them deeper into 'his side' where they were still too afraid to walk alone. This is a perfect example of the breakdown of territorial boundaries which the Greenway has aspired to achieve.

But, despite these successes, the Greenway isn't beloved by everyone. Councillor Kyle's words heading the previous section were a response to a protest by TBTC, who argue that, in fact, the Greenway doesn't benefit everyone and thus isn't a universal good. More specifically, TBTC argue that because the land is public it should be used to benefit the public as a whole, including homeless people, who arguably have a greater need for public space than their housed counterparts. Thus, TBTC argue that at least some of the site should be used to build public housing. Because the Greenway has been framed as a universally beneficial space, their argument threatens one of its central premises, hence drawing Councillor Kyle's response on the evening news.

The Greenway is what is known as a cross-community project, meaning a project which should benefit the city's different ethno-religious communities and bring them together. Such projects have done much vital peacebuilding work since the 1990s, when large injections of EU funding helped cement the ceasefire and peace agreements. According to some of my interviewees, however, the logic underlying such projects has remained stuck in the past: first, because such projects tend to see Belfast as a city of two communities, despite the city's rapid diversification thanks to the arrival of overseas migrants; second, because the projects often serve to dichotomize Belfast when

contemporary relationships between communities are much more mosaic-like (with fractures, for example, within PUL and CNR groups and everyday connections between them); and third, because they encourage identification along ethno-religious lines rather than any other basis. This, paired with a stagnant electoral politics which profits off division, has driven cynicism about official cross-community work; a local community worker bluntly told me that 'the whole system runs on division'.

I do not aim to discuss the pros and cons of this model here – an area of research thoroughly explored elsewhere (Graham and Nash, 2006; Coulter, 2019; Coulter and Shirlow, 2019; De Young, 2023) – but simply to point out that it is a *particular* model for understanding what Belfast is, and has embedded within it *particular* ideas about who should benefit from the city's development and why. TBTC have made this point through their activism; they've pointed out that just because the Greenway aspires towards equal ethno-religious benefits does not mean that everybody benefits, and certainly doesn't mean that the benefits can be considered universal. To make the claim that the Greenway benefits everyone is, they argue, to make a claim about who one considers 'everybody' to be (rather than to make a statement about what the Greenway is). Put differently, TBTC are arguing that this shines a light on which groups are really considered full citizens of Belfast today.

Many of those involved with planning the Greenway, arranging the project management team, and creating and animating the project 'on the ground' also hold reservations about the Greenway's underlying cross-community logic, albeit for different reasons to TBTC. One project manager involved with planning and developing the Greenway explained to me their feelings on the use of the term:

[C]ross-community isn't necessarily applicable now, because we are a much more diverse community, and we constantly feed that back to our funding body because they obviously set us targets, and it was always 'so many people from this community and so many people from that community' and you know, also, a BME [black and minority ethnic] mix, and you're sort of thinking: 'No, no, it has to be much broader than that!'

Other project workers involved with delivering project consultation and animation explained to me that this way of seeing the city actually undermines the benefits which the Greenway is supposed to achieve, in particular because it limits the basis of identification with, and connection through, non-ethno-

religious identities. For example, it encourages identification as either PUL or CNR rather than as cyclist or dog walker. In more academic language, one project worker involved with the consultation process explained using Robert Putnam's (1995) terminology that it limits the formation of bridging capital in lieu of bonding capital, encouraging intra-group bonding in lieu of its inter-group alternative. Some project workers from both the planning and delivery teams acted upon these reservations, challenging this logic subtly, for example, by writing evaluation reports which criticized it. Others more actively challenged the project's delivery, abandoning the identification of Greenway volunteers on an ethno-religious basis, instead selecting them on the basis of their skills and willingness to help maintain the space.

This dynamic is interesting, but more significant for this chapter is the fact that these members of the Greenway planning and delivery team remain confident that the Greenway is a project which aspires towards universal benefits, despite workers' awareness of and reservations about the logic underlying it. The reason why these actors remain convinced of the universality of the Greenway's benefits is often suggested at the end of my interviews; once reservations about project delivery are out of the way, project workers from both the planning and delivery teams encourage me to go down to the Greenway and see how good it is in practice. In one sense, this is simply a classic example of the ends justifying the means: Because the Greenway has, in parts, created a pleasant and shared space in the city, the logic underpinning it is retrospectively justified. Moreover, as set out in the previous section, now completed, the Greenway is a space which is open for anybody to go and use.

Here I'm less interested in the veracity of these claims (i.e. whether the Greenway really is a universally beneficial space or not) and more interested in the means by which these claims are made. When I asked one community worker why they thought the project worked, they replied that going down to the Greenway and experiencing the space was 'good for the soul'; another project worker from the management team told me that once the plants and grasses on the Greenway started to grow, then people would realize how good it really was; as aforementioned, another described it as an oasis in the depths of the city. As part of the development of the Greenway, a 'charter' was developed, whose final paragraph runs as follows:

Enjoy the Forth Meadow Community Greenway. Walk it, enjoy it, breathe in the best of this city. Proud of our past, looking forward with confidence

to the future. That is what the new Forth Meadow Greenway represents – as we all walk on common ground. (Belfast City Council, 2023: 1)

Here, Angelo's framework provides a means of interpreting what's happening. Through it, she argues that nature's easily accessible and broadly enjoyable phenomenological effects reinforce the idea that urban greening projects are investments in a universally beneficial public good rather than acts of managerialism (or, indeed, politics); most people can walk through this common ground, and everybody can breathe its atmosphere, so everybody must benefit from it. The directness and universality of such experiences are important here; my interviewees can send me out to experience the benefits of the Greenway, confident that I don't need specialized skills or technology to do so – confident that I will enjoy it because such enjoyment is quasi-universal. To a large degree (when I'm not subject to cold Belfast rain), they're correct. Important too, Angelo emphasizes that such experiential benefits are neither fictive nor imaginary but are 'real' in the sense of being supported by a wide and growing body of scientific evidence. Although such evidence isn't readily accessible in everyday life – it usually requires skills, money, and technology to realize – it provides corroboration for nature's more direct affective power, cementing belief in its universal goodness.

Crucially though, Angelo points out that green projects can be universally experientially enjoyable, and provide broad measurable biophysical benefits, *and* be acts of managerialism which inaugurate normative, non-universal ideas about what good cities and citizenship should be. The overall effect of this is that both urban greening protagonists and urban greening recipients can understand acts of urban greening as universally beneficial, whilst simultaneously being aware of the managerial aims embedded within these projects. In other words, urban greening protagonists come to genuinely believe in the universality of the good which they are delivering, obscuring their own understanding of its normative aims. In this specific example, Greenway protagonists come to understand the project as one which has universal aims and benefits, despite the project's aim of creating a space shared on an ethno-religious basis; the dissonance between these two things leads to the reservations about the Greenway's delivery described earlier.

Perhaps the best evidence as to the particularity of the Greenway's vision of what the city is, and what a good Belfast should be, is the fact that the EU funding guidelines for similar projects are now gently shifting, emphasizing inclusivity in addition to cross-community thinking; the logic underlying

the Greenway has thus already been, subtly, confined to a particular historical moment. That project planning and delivery workers have criticized and moved away from cross-community thinking demonstrates a degree of agency regarding what specifically this project, and the future of the city, should be. These actions might also best be considered attempts by those close to the ground to keep pace with the shifting reality of what the city is, despite the recalcitrance of funding structures and institutions.

But, of course, the Greenway remains as a physical entity which crosses the city; in this sense its physical form will gradually become an anachronism for a particular vision of Belfast, in much the same way that the peace walls are. Today the peculiarities of this vision are best emblemized by the Greenway's route: it wends its way through the city in a relatively nonsensical way if you want to get to work, school, or any other amenities, but perfectly sensible if you understand the city's sectarian fault lines (it transects them like a river transects contours). In this sense, as Angelo's framework helps to make clear, it is a project which has reconstructed the city as a social world by spatializing particular ideas about what the city is. Importantly, though, this particularity is obscured by the fact that the phenomenological benefits of being in this space make it seem to be universally beneficial. This allows the maintenance of, as Angelo puts it, 'a paradox' – the Greenway is a managerial project with particular aims but is viewed as universal both by those who are being managed and by those delivering the management.

Greening vs. greening

Angelo argues that once urban greening has been ascribed a particular meaning, this meaning can be appropriated: mobilized by a wide variety of actors, not simply those involved in creating the meaning in the first place. Here she builds upon Anderson's (1983/2006) point that social imaginaries, once developed, can be reflected back at their creators. For example, Anderson's work shows that historically the idea of nationhood was often a product of colonization, subsequently mobilized as a tool in counter-colonial struggles. Here a similar dynamic is at play, whereby those who are challenging the Greenway – the TBTC coalition – have used greening as a means of protesting against it. The most obvious example is provided by a seedbombing campaign. Ongoing, this campaign started in earnest in February 2020, when a large group of

seedbomb-wielding campaigners turned up at the Mackies site, lobbing their seedbombs into the site's most contaminated section.

This act is interesting in the context of this article for three central reasons. First, this method of protest was, in fact, a method also being used by the city council to develop the Greenway; they too have seedbombed sections of the greenway, using this as a means of engaging the local community with the project's development. In this sense the activists were redeploying the meaning which the council had ascribed to the act of urban greening – as something politically neutral and about the creation of a universally beneficial public good – and aiming it back at the council. Second, the location of this act is significant. This is one of Belfast's most sensitive interface zones, which has seen some of the city's worst rioting over the past decade, including the throwing of many petrol bombs. Lobbing projectiles over interfaces thus plays at the edges of conventional political acts in Belfast, but seedbombing remains playful, rather than violent. This isn't simply an act which is powerful and happens to occur within a given context. It is made powerful, and significant, through its relationship with a particular context. Third though, it also involved not only appropriating, but also subtly reshaping, the meaning of urban greening developed by the council. The seedbombs used by campaigners were made of sunflower seeds; the campaigners were consciously aware of the fact that planting sunflowers can help to 'detoxify' land. For the campaigners this had a practical purpose – they want the land detoxified so that housing can be built upon it – but it also stands as a metaphor for their wider efforts to subvert what they call the city council's 'toxic' planning system.

The planning system is a central target of the TBTC campaign: a system which is characterized, in TBTC's view, by mobilization of (rather than elimination of) sectarian differences, tokenistic forms of environmentalism, and ill use of public land. According to TBTC, each of these issues is emblemized by the Greenway. My aim here is not to adjudicate as to whether these campaigners are right or wrong. Important instead is simply to emphasize that, like the toxic legacy of industrial waste in soil, for these activists these issues are historic ones, now deeply embedded within the planning system, beneath the surface level available for public scrutiny.

Rather than engaging directly with this system, then, these activists argue that it needs complete reconfiguration. According to them, like toxic land, it is not possible to build the city's future upon a toxic system. However, rather than simply protesting against this system, these activists aim to demonstrate that it is possible to root out toxicity and start afresh. By transforming the Mackies

site through the use of seedbombs, the activists are both making a claim to this space (i.e. testing out what it means for this space to be 'public') and trying to demonstrate the possibility of its transformation. They have continued to conduct this seedbombing campaign on an annual basis, and their social media descriptions of this act provide a neat summary of how they frame it:⁴

Last year we sowed 6000 wildflowers at the Mackies site in west Belfast – vacant public land, sprayed with nasty chemicals. We can detoxify our future! Join us this Spring to watch them bloom and be part of building a sustainable, inclusive community. (PPR, 2022)

Seed-Bombs = Wildflower Meadow Biodiversity, inclusion, integration, sustainability, participation, human rights, equality, rights of nature. These are the seeds of the #TakeBackTheCity plan for this massive site in Belfast. (PPR, 2023)

Paired with pictures of flowers being blown in the wind, the meaning of this act is both material and symbolic. About literally claiming space, and literally detoxifying it, it is also about deploying symbolism broadly understood to be nonconfrontational (flowers) as a means of supporting a transgressive activist act, which involves detoxifying the future and laying the seeds for something new. The activists describe this as an act that is somewhat prefigurative, in that it involves incrementally working towards the future they desire, rather than simply waiting for institutional actors to adapt and change. In multiple ways, then, the seedbombing is a way of transmitting this subversive agenda. In particular, it mobilizes the idea that acts of urban greening are inherently benevolent, to stake a controversial claim in a contested piece of land in a way that is provocative yet playful, communicating a particular critique in a way which carefully avoids direct confrontation.

The seedbombing thus corroborates, and stretches, Angelo's framework. On the one hand, it clearly demonstrates that the meaning of urban greening can be appropriated by a variety of actors in the same setting, and thus turned to different ends. It thus gives credence to the idea that the meaning of urban greening is a social imaginary, which, once created, is not exclusively owned by already-powerful actors. On the other hand, the seedbombing was not simply

4 These social media posts come from an account associated with an organisation known as PPR, which stands for 'Participation and the Practice of Rights'. PPR is closely affiliated with TBTC, and most of TBTC's leading members are also members of PPR.

a direct appropriation of the tools and meanings the council ascribed to urban greening. Instead, it involved a slight reshaping of the meaning of greening: a shifting of this meaning to suit the campaigners' particular ends. It was also an act which deployed the flowers' form *and* content. In this case, the sunflower seed planting is about literal and metaphorical detoxification. Overall, this act serves as a means not only of articulating a position different to the council's, but also of serving – in a very minor way – to reshape what political action looks like in this part of Belfast. By playing at the edges of what is conventionally understood as political, the activists were stretching the boundaries of political action in a new direction.

Conclusion

Ultimately, this chapter explores three main topic areas. First, it explores the ways urban greening affects the possibilities open to particular actors aspiring to re-create the city. On the one hand, the process of urban greening may open up space – in both a literal and a more metaphorical sense – for actors to operate in areas with particularly contested, claustrophobic politics. By appearing to be about something else – about something which is not the politics of the city – urban greening can offer actors a means of remaking the city which might otherwise not be possible. This opens up the agency of particular actors, allowing them to operate more freely in otherwise constrained environments. In the case study above, this is currently true for both hegemonic and counter-hegemonic actors. On the other hand, actors delivering acts of urban greening are not immune to its effects. They too are subject to the social imaginary that 'green is good'. Thanks to this, even people working within projects, who are acutely aware of their particular aims, may come to believe in such projects' universality. As aspired-for futures must be imagined prior to their realization, this presents a set of invisible, imaginative barriers around the possibilities for cities set out by urban future-makers.

Second, this chapter takes Angelo's framework in directions underexplored in her work. It does this partly by looking closely and ethnographically at the mundane ways in which the social imaginary of urban greening is materially reproduced, but mainly by exploring the ways in which different groups with different relationships to established circulations of power can mobilize that power. The chapter finds – as Angelo posits – that urban greening is a kind of shared moral grammar, through which different urban actors can communi-

cate their claims. To stretch this metaphor further, one might suggest that it is a means through which different urban actors can open up dialogue with one another. For example, the seedbombing described here serves as a means through which counter-campaigners communicate their claims to the council, through indirect, material means. As debates continue to flourish about what it means to create more sustainable, greener urban futures, perhaps more attention should be brought to these more material forms of communication through the city.

Third, the chapter makes an empirical contribution to existing knowledge about Belfast. Much of the existing literature focuses squarely on the city's political conflicts; there is a notable paucity of literature examining what might best be termed the city's political ecology. This chapter makes an incremental contribution here. In doing so it also highlights something specific: that in creating a 'shared space' between the city's two most prominent communities, this project largely perpetuates the view that the city is composed of only two communities that need a third space to mediate between them. Like a nail holding together two pieces of wood, the Forth Meadow Community Greenway at the heart of this chapter ties together the city even as it perpetuates the view that the city remains divided. This belies the view voiced by almost all of my interviewees that this view is an antiquated one, which lives on in policy documents and funding structures much more than in the streets. It is thus a view perpetuated through the efforts of the Greenway delivery team, who were forced – to some extent – to work within these constraints in order to deliver the project, despite their own reflexive understanding that these constraints were problematic.

To draw these points together then, much of this chapter has been oriented around nature's tendency to obscure, a quality which can be used to hide the particularity of a project's vision within a blanket of universality. Using nature to obscure or naturalize social relations is, of course, nothing new (e.g. Loftus, 2012; Angelo, 2017). It is too easy, though, to say that this is simply the effect of a deeply rooted dualism in Western ontology which separates nature from culture (and thus also from society and politics). Here, instead, I've zoomed in on the specific ways in which this dualism is remade and thus serves as a means to abet the obfuscatory effects nature can have. More specifically, I've aimed to explore the ways in which the social imaginary that urbanized nature is of universal public benefit is remade through specific, often quite mundane, practices of built environment professionals as actors in the context of urban future-making.

It would be easy – with a critical sensibility – to view this tendency to obscure as a negative thing. In particular, it is certainly possible that, if they are presumed to be of universal benefit, urban greening projects might elude the kinds of debate and criticism so necessary for urban politics and democracy. But here I've pointed out that, in this specific project, these forms of debate are alive and well – both in the 'public' realm of contests between the Greenway and counterprotesters, and in the more 'private' (or 'backstage') realm of project decision-making and planning. Moreover, the ability of this project to elide certain forms of social and political relationships at certain moments (for example, through divorcing itself from the city's ethno-sectarian past) opens up space for its realization. In this sense, the project has been afforded more latitude to reshape the city than non-green projects might have been permitted. In this sense, the social imaginary that 'green is good' has expanded the range of options available for those aiming to enter the debate about what the city's future should be.

Rather than being a practice with a particular relationship to power, then, urban greening is a practice which develops and articulates the power of particular urban actors in particular ways. The better this is comprehended, and explored empirically, the more we will be able to unpick this practice, opening it up to the kinds of debate fundamental if we aspire towards both greener and more democratic forms of urban futures.

Acknowledgements

This research is funded by a Northern Ireland and North East (NINE) doctoral training partnership, funded by the ESRC. Thank you to Harriet Bulkeley, Joe Painter, Anouk Fransen, and the University of Durham WIP group for reading early drafts of this chapter. Any remaining errors are my own.

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13. Driving change?

'Doing' conflict in traffic experiments

Melis Günay

The mood and the public debate on all channels can be said to be very charged. It is as charged as if it were a question of to be or not to be.

Dietlind Grabe-Bolz, former mayor of Giessen¹ (Stadtverordnetenbüro Gießen, 2021: 3)

Reallocating street space: Changes prone to conflict

In the face of climate change, the German government has recognized the urgent need to reduce emissions from private motorized transport. Despite an agreement on statutory climate targets,² little progress has been made: Although CO₂ emissions per kilometre have fallen since 1995 as a result of improved technologies and fuels, these improvements have been offset by an increase in mileage of motorized transport and a trend towards purchasing larger and heavier vehicles, such as SUVs and off-road vehicles (Umweltbundesamt, 2023; 2024). These figures show that technological solutions alone are not enough. With the aim of reducing car traffic, German cities are increasingly introducing initiatives that redistribute street space. More specifically, space for cars is being reduced and reallocated to active forms of mobility such as walking or cycling. In some cases, the space freed up is also used for other activities, such as resting and playing, or is turned into green spaces.

1 Freely translated from German by the author.

2 Bundes-Klimaschutzgesetz, 2019. Bundesrepublik Deutschland.

Road reallocations are often designed as experiments. The German Road Traffic Regulations (Straßenverkehrs-Ordnung, StVO) provide the legal framework for such traffic interventions. These regulations are strict when it comes to introducing changes that affect car traffic. Yet in some cases, the experimental clause in the StVO³ allows more flexibility for introducing measures. In addition, political and scientific motives may also explain the growing number of traffic experiments: While urban experiments are limited in time and space, they hold the promise of catalysing more profound transformations (Sengers et al., 2021). As a result, urban experimentation is also gaining popularity outside the transport sector and has become a common tool for urban governance in times of uncertainty (Caprotti and Cowley, 2017).

Although street reallocation initiatives are often promoted by civil society actors and purport merely to ‘test’ changes, many of them are met with resistance (e.g. Jarras et al., 2021; Verlinghieri et al., 2023). The deep roots of the significance, including the emotional significance, of the automobile in German society might offer an explanation as to why changes in policies, prices, and road structures aimed at reducing automobility are prone to conflict: Historically, the car has become an object that embodies the modern narrative of a successful life in Western countries. The economic success associated with the German car industry in the 20th century is linked to this narrative. To this day, the car is perceived by many as a symbol of freedom and social status. Years of planning for car-oriented cities have shaped urban landscapes, policies, and regulations in ways that encourage the production and use of cars (Manderscheid, 2021). This anchoring of the car shapes the current social order and is constitutive of and reinforced by people’s practices and emotions (Manderscheid, 2022). As a result, changes in mobility can be particularly challenging and cause much conflict.

In urban planning, the role of conflict remains debated: Simply put, communicative planning theory views conflict as an impediment to decision-making; this deliberative approach instead promotes communication between all parties involved in order to mediate conflict and reach consensus on how to move forward (Healey, 1992). By contrast, agonistic planning theory perceives conflict and dissensus as key to negotiating urban change. However, both approaches show limitations when it comes to applying them in practice (e.g. Kühn and Sommer, 2023; Mäntysalo et al., 2023). A closer empirical examination of conflict can therefore help to unravel its role for transformation pro-

3 §45 Abs. 1 Satz 2 Nr. 6 Straßenverkehrs-Ordnung, 2013. Bundesrepublik Deutschland.

cesses and its relationship to deeper societal challenges. Therefore, this chapter follows calls for a better consideration of conflict in planning processes (Hesse and Kühn, 2023).

Thus far, a handful of publications have focused on conflict in mobility experiments conducted in European cities. Previous research has identified different types of conflict (Vitale Brovarone et al., 2023; Klaever et al., 2024) and discussed participatory processes and conflict in regard to their democratic character (Van Wymeersch et al., 2019; Verlinghieri et al., 2023). Rather than classifying conflicts or discussing the implications of different ontological perspectives on conflict, this chapter contributes a new perspective by asking *how conflict becomes productive and for whom*. It addresses these questions by foregrounding actions, looking at how conflict is ‘done’ in the case of the traffic experiment *Verkehrsversuch am Anlagenring* (traffic experiment on the Anlagenring) in the German city of Giessen. Here, two lanes of a four-lane ring road for cars were to be repurposed for cycling as part of a year-long traffic experiment. The project led to conflicts and was eventually cancelled prematurely.

The multiple and complex conflict dynamics of this Giessen traffic experiment make it a particularly relevant and exciting case for discussing the role of conflict for mobility transformations. The findings I present in this chapter are based on qualitative data and are part of a case study analysis embedded in a larger research project that started in 2022 and is still ongoing. I reconstructed the case development starting with newspaper articles and websites, which were reviewed using information from official press releases and the meeting minutes of political bodies and participatory forums. In addition to these sources, I conducted interviews with two activists, two critics from the retail sector, one politician from the opposition, one journalist reporting for a local newspaper, and three city employees. The interviews helped to clarify the actions taken and, in some cases, also the intentions behind those actions, and provided different perspectives on the development and outcomes of the conflicts observed in the case study.

From analysing the Giessen traffic experiment, I derive five ways of ‘doing’ conflict: identifying conflict, provoking conflict, avoiding conflict, resolving conflict, and ending conflict. The analysis infers that these different ways of ‘doing’ conflict follow different logics in struggles over power. How conflict is done is thus not only constituted by power relations but also constitutive of them. My focus on action in this chapter also implies a processual understanding of agency, which emerges through (inter)action. In this respect, I argue that the discussion of ‘professional’ agency should not be limited to planning

professionals but should be broadened to include other actors who also exhibit professional agency. Overall, the findings of the analysis contribute to the discourse on conflict in planning theory by shifting focus from normative ascriptions to conflict to the enactment of conflict, thereby helping to unravel the logics that shape conflicts and explain how certain patterns and dynamics of conflict emerge.

Drawing on existing research on conflict in traffic experiments and findings from mobilities research, the first section of this chapter establishes the relevance of conflict to ‘making’ mobility. With reference to existing debates on the role of conflict in planning theory, it argues that a focus on ‘doing’ conflicts can contribute to these debates and also outlines the theoretical implications that foregrounding action has for understanding power and agency. The second section presents the actors and actions involved in the main developments of the Giessen traffic experiment. The third section uses the case to illustrate five ways of ‘doing’ conflict and discusses their implications for emerging power relations and the agency of the actors involved. Finally, the conclusion reflects on the findings and their relevance to wider debates and future research.

The relevance of ‘doing’ conflict over (auto)mobility

Conflicts around (auto)mobility are particularly visible in urban areas, where traffic and its challenges are concentrated (Haas and Jürgens, 2020). In particular, urban experiments seem to be a focal point of conflict, as suggested by the growing number of publications specifically addressing conflicts in traffic experiments that reduce street space for cars (e.g. Klaever et al., 2024; Vitale Brovarone et al., 2023). The existing research also highlights the relevance of studying conflicts around mobility changes, for example, in order to better understand their governance (Verlinghieri et al., 2023; Vitale Brovarone et al., 2023). Moreover, linking mobilities studies to practice theories suggests that conflict is relevant to introducing changes in mobility habits: Proponents of the ‘new mobilities paradigm’ (Sheller and Urry, 2006) challenge the ways in which people’s choices are often conceptualized as rational in transport research. They argue that mobilities, used in the plural to point out the interconnectedness of different forms of physical and virtual movements of people, goods, ideas, data, etc., affect the routines of people’s everyday lives (e.g. Freudendal-Pedersen, 2022; Manderscheid, 2022). Means of transport

therefore move people not only physically but also emotionally: 'Car cultures have social, material and above all affective dimensions that are overlooked in current strategies to influence car-driving decisions' (Sheller, 2004: 222). This makes an integration of everyday practice, policies, and planning crucial when it comes to introducing more sustainable mobility changes (Freudenthal-Pedersen, 2022). As conflicts are not only a result of routinized practices but also shape these practices (Nicolini, 2012), they should be made central to research on mobility transformation.

The role of conflict in urban change is discussed by proponents both of communicative and of agonistic approaches to planning. The idea of communicative planning draws on Habermas's theories of deliberative democracy and communicative action. These theories suggest that rational consensus can be reached in a debate among free equals if all participants affected by the decision at hand can present their arguments without coercion. This would imply that, in planning processes, 'the transformative potential of communicative action lies in the power embodied in the "better argument"' (Healey, 1992: 155). In contrast to communicative approaches, proponents of agonistic planning theory see conflict as the very essence of democracy and do not believe that power relations can be challenged through deliberation. They build on Mouffe's theory of 'agonistic pluralism' that views consensus 'as a temporary result of provisional hegemony, as a stabilization of power' that 'always entails some form of exclusion' (Mouffe, 2000: 17). Rather than seeking to eliminate power and emotion, agonistic planning approaches see conflict as an integral part of pluralist societies and key to negotiating urban change (Kühn, 2021).

Despite irreconcilable ontological differences, agonistic and communicative theories share some common ground (Bond, 2011). For example, proponents of each of the two approaches pursue similar goals in understanding politics and democracy and apply similar ethical values in doing so (ibid.). Moreover, they discuss the role of conflict and how to reach agreement, which is crucial to planning processes (Kühn, 2021). Interestingly, both planning approaches are also found to have limitations with regard to how they address democratic institutions: Communicative planning approaches mostly disregard this institutional dimension and perceive it as an impediment to conflict resolution (Mäntysalo et al., 2023). Agonistic planning theory, on the other hand, considers the role of democratic institutions but 'does so in an overly critical manner' (ibid.: 445) and without offering suggestions on how institutions can work with conflict productively and in ways that allow for democratically legitimate decisions (ibid.). Because of the practical limita-

tions of both approaches, Kühn and Sommer (2023) call for contributions that bring theory and practice closer together. More generally, 'the role of public planning for conflict regulation is limited' in practice (Kühn, 2021: 154). This implies that actors other than planners have more agency in dealing with planning conflicts, which has so far been underexplored.

Adding to these debates, existing research on conflict in traffic experiments shows that neither conflict nor consensus is productive per se: Verlinghieri et al. (2023) analyse an experiment in Turin, Italy, which reallocated street space by introducing pedestrianized streets, a new cycle lane, and speed reduction zones. Using the framework of agonistic theory, the authors classify the conflicts that arose in this case as a consequence of post-political planning, which limits public debate in order to accommodate a consensus-oriented agenda. Such experiments, they argue, 'are, at best, likely to achieve a localised change in the dominant automobility regime' (ibid.: 17). Van Wymeersch et al. (2019) examine the case of a 'living street' experiment in Ghent, Belgium, which followed a deliberative approach. In their study of the conflictual participation process, the authors observe that different actors demonstrate 'different understandings of democratic politics' (ibid.: 377). While the experiment produced some collaborative results, it also led to 'unexpected and unwanted polarisation around the issue of car usage' (ibid.: 376).

Both challenging and contributing to the outlined debates on the role of conflict in planning theory, as well as elaborating on existing research on conflict around (auto)mobility, this contribution introduces a different angle on conflict by examining *how* conflict is 'done'. Understanding conflict as a process, conflict does not 'just' exist. Rather, it emerges and develops, and therefore 'doing' conflict goes beyond reacting to or dealing with conflict. An approach that focuses on actions⁴ and takes actors' justifications into account is in line with considerations of pragmatic sociology (e.g. Barthe et al., 2013). Serving as inspiration for this contribution, pragmatic sociology presumes that it is not actors' 'arguments, justifications, and critiques [...], as such, [that are] able to transform the state of social relations', but 'the *actions* consisting in arguing, justifying, and criticizing' (ibid.: xi; emphasis in original). Even

4 By referring to 'actions' or "'doing" conflict' rather than 'conflict practices', this analysis privileges intentional over routinized practices. Nevertheless, it is recognized that these actions are informed by and shape social practices (Nicolini, 2012). As such, focusing on action allows for conclusions to be drawn about the agency of the various actors who 'do' conflict.

though this chapter does not primarily employ the framework of pragmatist sociology, acknowledging it has relevant implications for understanding power relations: The chapter ‘focuses on actions themselves, observable as they *produce* power relations. [...] Power structures are no longer considered as causes, but as resulting from what is observed’ (ibid.: xviii; emphasis in original). In the same way, agency, conceived here as an actor’s ability ‘to “act otherwise”’ (Giddens, 1984: 14), is understood as enacted, relational, and situational, meaning that agency emerges through and is shaped by (inter)actions in a given situation.

In summary, foregrounding actions can help to unravel the logics behind conflict and explain how certain conflict dynamics and patterns emerge. Looking at how and for whom conflict is productive provides insights into how existing power relations emerge and enable, lead to, or hinder certain actions, and the extent to which actions can challenge power relations. From this, conclusions can be drawn about actors’ agency and its enactment through and in conflict. In order to understand how conflict is done, this contribution analyses the case of the Giessen traffic experiment.

The Giessen traffic experiment: Actors, actions, and outcomes

Giessen⁵ is a city in the German federal state of Hesse, with a growing population of around 93,500 (Stadt Gießen, 2023). Due to its two major universities, it is the city with the youngest population in the federal state (ibid.). Moreover, Giessen is one of three regional centres in central Hesse, which means that the city provides key infrastructures and functions for its surrounding area. In 2019, Giessen’s city council⁶ resolved to achieve climate neutrality by 2035. In accordance with this goal, the city aims to reduce the modal share of motorized individual transport from 40% (2018) to 25% by 2035 (Bexen et al., 2021). In order to follow the complex development of the Giessen traffic experiment, this section provides a chronological overview of the most relevant

5 The name ‘Giessen’ refers not only to the city itself but also to the eponymous administrative district (*Landkreis*) comprising several municipalities around the city. At the state level, the district of Giessen includes two constituencies for the state parliament of Hesse. In the following, ‘Giessen’ refers to the city of Giessen unless otherwise stated.

6 The city of Giessen is governed by the city council, which is elected by the citizens of Giessen.

actions, outcomes, actors, and political and legal instruments associated with it. The reconstructed actions and interviews serve as the basis for deducting and discussing the five ways of 'doing' conflict presented in the next section.

The Giessen traffic experiment originated from ideas of the *Verkehrswende* (traffic transition) initiatives, a loose group of activists who are either part of one or more civil society organizations or who are individually committed to a *Verkehrswende* in Giessen. The activists campaign for a *Verkehrswende* to reduce car use and promote more sustainable forms of transport. They drafted a car-reducing plan for Giessen's transport system, which they have been advocating for since 2018 with organized activities, mainly demonstrations, to build public pressure for its implementation. The plan includes a number of measures, ranging from the implementation of new cycle lanes to free public transport. In September 2020, the initiatives then decided to move forward with the project by launching a citizens' petition that demanded an implementation of cycle lanes. The petition called for converting two lanes of a four-lane ring road for cars around Giessen's city centre into cycle lanes, and for two additional cycle lanes to run through the city centre. The citizens' petition is an instrument of direct democracy at the local (here: city) level in Hesse. If a quorum of at least 1% of the population is reached, the city council is obliged to discuss the matter at a council meeting in order to approve or reject the petition. In January 2021, the petition to repurpose two lanes of the ring road had reached this quorum.

When the petition was issued in 2021, a coalition of the Social Democratic Party (SPD), the Green Party, and the Christian Democratic Union (CDU) governed the city. The petition was presented by its initiators and discussed by the participants of a public online town hall meeting. The SPD and the Greens, who were generally in favour of the petition, argued that the measures should be introduced as an experiment. CDU representatives warned against quick fixes that could pre-empt the new transport development plan that was being drawn up at the time. These arguments were taken up in the relevant parliamentary committee. With the support of the SPD, the Greens, and the Left Party, the committee approved the proposal to convert two lanes of the ring road as part of a one-year experiment. The original citizens' petition and the amendment tabled by the Greens and the SPD were discussed at the city council meeting in March 2021, a few days before the council elections. Politicians from the SPD, the Greens, the Left Party, and the Pirate Party voted in favour of the amended petition, outnumbering the negative votes of the CDU, the Free Democratic Party, the Free Voters, and the Alternative for Germany party. In the city council elections that same month, the Greens won a majority of the votes on Giessen's

council for the first time. The Greens eventually formed a coalition with the SPD and the Left Party.

While the *Verkehrswende* initiatives organized demonstrations to accompany the debates before the election, representatives of the retail sector began to mobilize against the proposed changes. Much of Giessen's inner-city retail sector is organized into four business improvement districts (BIDs), which are legally defined registered associations that organize all property owners in a defined area of the city. In their appeals, the BIDs and some other retail associations argued in favour of a *Verkehrswende* that reduces car traffic but against the rapid conversion of the ring road. They explained that their refusal was due to the expected loss of customers, especially from the surrounding area of Giessen, as well as the traffic chaos and congestion they expected to result from the experiment. In opposition to the resolution, representatives of the retail sector then launched another citizens' petition, which reached the required quorum by June 2021. Giessen's local chamber of skilled crafts, local chamber of commerce and industry, and local medical association officially supported the petition. It called for the rapid implementation of the new transport development plan, the improvement of public transport, and clear evaluation criteria that would determine when the traffic experiment should end. When the petition was discussed at the city council meeting, the coalition parties made amendments to it which accepted the request for an accelerated implementation of the transport development plan but did not include the request for criteria to evaluate or end the traffic experiment. The amended motion was adopted by the coalition.

Although the experiment was due to start within six months of March 2021, in mid-September, the city only presented an update to the public. In this update, a number of officials and city staff showed the results of a review of a scenario that introduced one cycle lane in each direction of the ring road. The *Verkehrswende* initiatives, which had proposed two cycle lanes on the inner ring road, criticized the city's scenario as being dangerous for cyclists. Therefore, the initiatives presented what they considered to be the better scenario in an online meeting of the Local Agenda 21 group Sustainable Mobility (Nachhaltige Mobilität). The group is one of eight thematic Agenda 21 participatory groups in which interested citizens come together to discuss ideas for sustainable urban development in Giessen. Following the presentation of the initiatives' scenario, the Sustainable Mobility group drafted a motion for the city council, calling for the examination of various alternative scenarios for the redesign of the ring road by the spring of 2022. The motion was passed by consensus and sub-

sequently submitted to the Agenda Council, a forum in which the spokespersons of all eight Agenda 21 groups meet with representatives of the city council and the city administration to vote on motions. The Agenda Council also adopted the motion proposed by the Sustainable Mobility group by consensus. As a consequence, it was forwarded to the city council as a draft resolution and led the city to commission two planning offices to study various scenarios.

As the city had not communicated any progress on the plans to the public by the beginning of 2022, the *Verkehrswende* initiatives organized several demonstrations and issued an 'ultimatum' to the city, announcing a large demonstration on the ring road for mid-May. A few days after the demonstration, the transport planners commissioned to study the different scenarios presented their report to a meeting of the parliamentary committee, recommending one of five scenarios studied. Although the review concluded that it was possible to convert the two inner lanes of the ring road without causing traffic chaos, the plans and cost of the complex conversion remained controversial. Critics from the retail sector continued to call for clear criteria for evaluating and possibly ending the experiment. In parallel, background discussions on the plans were held over the following months with various stakeholders, including the police, fire and ambulance services, city and regional bus operators, advocates from two large pro-cycling NGOs, and representatives from the retail sector.

In April 2023, the city finally took the first steps towards implementation: It launched a public communication campaign including online participation, several residents' meetings, and a digital information event about the planned experiment. Moreover, the city provided information through its website, flyers, and an app. Just before the street conversion was about to start, the city notified the regional authority in June 2023, as required by law. The city of Giessen ordered the experiment on the basis of a so-called 'basic risk situation', which is one of the grounds for approving a traffic experiment under the German Road Traffic Regulations (StVO). The ring road was to be converted in four phases, starting in June 2023. The experiment was to start at the end of September 2023 and last for a year. As the conversion began, two representatives of the CDU launched an online petition that gathered more than 13,500 signatures within a month. The CDU also demanded clear evaluation criteria for the experiment. The governing parties argued that such criteria existed, but that the criteria did not allow for an objective measurement of the experiment's failure.

In June 2023, the same month that the conversion for the experiment had started, two residents affected by some of the street changes filed an urgent appeal. As part of the redevelopment for the experiment, the city turned a one-

way street into a two-way street, which also meant removing some parking spaces, changing the access to the local garages, and creating a temporary sidewalk. Around the corner, the city had simultaneously changed a two-way street into a one-way street and changed the direction of another one-way street. The changes to these three streets prompted the two affected residents to appeal against the new signage. In July 2023, the Giessen administrative court upheld the appeal and supported the plaintiffs' argument that the three traffic regulations introduced by the city were part of the planned traffic experiment, and for that experiment the city of Giessen had failed to provide plausible data to demonstrate a basic risk situation. Despite the appeal, the city went ahead with the redesign of the ring road and, after consulting lawyers, filed an objection to the appeal.

Just before the ring road conversion was due to be completed at the end of August 2023, the Hessian administrative court rejected the objection and declared the experiment unlawful. As a result, the city announced the end of the traffic experiment and the reconversion of the ring road back to its original state. In response, the *Verkehrswende* initiatives launched a new citizens' petition in favour of continuing the conversion. The petition reached the required quorum within hours and was brought to but rejected by the city council. The initiatives set up a protest camp for a few weeks. At the same time, the head of the transport department⁷ was sued for misappropriation of taxpayers' money. The plaintiff accused the department head of having continued construction work, thereby having increased the costs for the (re)conversion, even though the Giessen administrative court had upheld the urgent appeal in the first instance. Despite opposition from campaigners, the ring road was almost completely restored to its original state by March 2024. However, the city has announced new plans to improve safety measures for cyclists, with a particular focus on overhauling the junctions along the ring road.

Understanding conflict actions as a means to (em)power

In reconstructing the case of the Giessen traffic experiment and its conflicts, it becomes clear that conflict is not just a state to which actors react, but a complex process. As such, commonly used terms, such as conflict regulation

7 The city administration (*Magistrat*) is divided into five departments (*Dezernate*), which are headed by political representatives, the department heads.

or management, describe only parts of conflict-related actions. Based on the analysis of the case presented, five ways of 'doing' conflict were derived from the qualitative data: *identifying*, *provoking*, *avoiding*, *resolving*, and *ending* conflict. In what follows, each action is defined, illustrated with empirical examples from the case study, and assessed for its relevance to the actors doing the action. As will be shown, 'doing' conflict allows for specific conclusions to be drawn about the agency of different actors and can be related to a 'conflict over power', i.e. the struggle of actors to increase their sphere of influence in order to assert their interests (Bornemann and Saretzki, 2018). It should be noted that the conflict actions outlined are not always clearly distinguishable and may be subject to more ambiguous interpretations of the observed actions, their outcomes, and their underlying intentions.

First, *identifying* conflict refers to the recognition and expression of one or more conflicts by an actor. In the case of the Giessen traffic experiment, different actors identified conflicts throughout the development. Two moments of conflict identification can serve to illustrate this: Against the backdrop of climate change and the city of Giessen's climate targets, the *Verkehrswende* initiatives found that policies did not give sufficient priority to more sustainable modes of transport. This 'conflict of values' (Bornemann and Saretzki, 2018) led to the drafting of the activists' *Verkehrswende* plan, campaigns, a citizens' petition, and, ultimately, the planning of the ring road traffic experiment. As one activist explained, the size and importance of the ring road made its transformation the key to wider change: 'We will focus on the most important street in Giessen. It has to fall. If it falls, then so will the other small roads, that's kind of logical then' (interview, 9 January 2023).⁸ The importance of the ring road to Giessen's city centre was also the reason why retail representatives opposed its conversion. They feared that the conversion would lead to a loss of customers, especially from the surrounding area: 'One narrative has taken hold [in the surrounding communities], whether it is correct or not: You can't even get to Giessen anymore' (interview, retail representative, 21 July 2023). As a consequence, Giessen would then no longer fulfil the function of a regional centre (*ibid.*). Some retailers therefore identified a conflict between the conversion of the ring road and their economic interests, which they articulated in dialogues, through the press, and also by means of a citizens' petition.

8 All interviews were conducted in German; non-English quotations freely translated by the author.

The examples illustrate that identifying conflicts is an important means of channelling resources, building networks, and developing visions with which others can identify. This can open up new scope for action: Instruments such as the citizens' petitions or motions passed in Agenda 21 groups are embedded in the democratic and legal structure of Giessen and subject to certain conditions, i.e. a quorum to be achieved or a consensus to be reached. By channelling resources, identifying a conflict can help to fulfil these conditions, in order to open up these 'invited spaces of citizenship' (Miraftab, 2004: 3) and refer the conflict directly to the political arena. In the case of Giessen, it becomes clear that such tools of direct democracy have the potential to shape actors' agency, i.e. by providing the initiating actors with tools that promise those mobilized by the identified conflict a way forward in asserting their interests. However, even in cases where these tools do not exist, the identification of a conflict can provide the basis to mobilizing and channelling people and resources. Social movements such as Fridays for Future are examples of how identifying conflict with the status quo has led to the mobilization of people and, by extension, to the building of public pressure and influence on policy.

Second, in the case of the Giessen traffic experiment, conflict is not only identified but also provoked. *Provoking* conflict goes beyond identifying conflict; instead, it exacerbates conflict in order to evoke a strong reaction. To initiate the traffic experiment, for instance, activists deliberately provoked conflict through protests. In an interview, one activist said that their bargaining chip was knowing how to implement 'campaigning that really hurts' (interview, 9 January 2023). For example, after issuing the 'ultimatum', some activists roped themselves down from traffic lights on the ring road, causing traffic jams and 'quite a lot of trouble with the city council. That's a good thing. The worst thing is always when they just stand by indifferently' (ibid.). In addition, the activists registered the big demonstration for mid-May. According to the interviewee, the city then contacted the initiatives. The timing of the CDU's online petition before the state elections may also be understood as a strategic provocation: The politicians deliberately chose the timing of launching the petition to coincide with the beginning of reconstruction work for the experiment – 'to attract maximum attention, so to speak' (interview, CDU politician, 13 September 2023). Moreover, the relevance of conflicts over automobility for election campaigns becomes evident in the hackneyed slogans of various parties. Before the city council elections in 2021, a Facebook post by the Alternative for Deutschland party read 'Free rides for free citizens' (Freie Fahrt für freie Bürger). During the Hesse-wide party campaigns two years later, a CDU poster

read 'Banning cars prohibited' (Auto verbieten verboten) and the Free Democratic Party announced 'Freedom rides FDP' (Freiheit fährt FDP).

The two examples illustrate that provoking conflict can prove to be a powerful tool to negotiate interests. Provoking conflict, e.g. through protests or careful timing, can generate (public) pressure that can lead to a gain in political capital. Furthermore, provoking conflict has the potential to intensify conflict and polarize both parties and citizens. Strategically, parties can benefit from polarization by gaining votes (Roose and Steinhilper, 2022). Thus, provoking conflict has the potential to shift power relations through asserting political power, either through generating public pressure or by fostering polarization, which can be employed to both promote and resist change. The examples also show that time (or timing) influences the agency of the actors involved: In addition to conflicts over time (over delays or the sequence of changes applied), there are times of conflict (around elections, or the start of conversion) when conflict is provoked to increase the chances of asserting one's own interests.

Third, throughout the development of the Giessen traffic experiment, some actors also anticipated conflict and took measures to avoid it. Accordingly, *avoiding* conflict describes taking preventive measures: If conflicts are avoided, they will not arise in the first place. For example, critical retail representatives changed their public narrative once the experiment was set in stone. They assumed that 'if you complain about a grievance, you might just make it worse in terms of consequences' (interview, retail representative, 21 July 2023). They therefore concealed their concerns so that customers would continue to come to Giessen's city centre (ibid.). In this way, they tried to avoid conflicts associated with the loss of customers from the surrounding area. The city also adjusted planning details to avoid conflicts in road use, e.g. by consulting with pro-cycling NGOs: 'The VCD [Verkehrsclub Deutschland e.V. (Traffic Club Germany)] and the ADFC [Allgemeine Deutsche Fahrrad-Club e.V. (German Cyclist's Association)] were also involved, simply because there is a lot of expertise involved. [...] And what if we plan something for one mode of transport and they can't use it at all, because it is maybe totally well thought out but ultimately does nothing for the cyclist' (interview, city employee, 23 January 2023).

The examples given here show that rather than seeking political or decision-making power, avoiding conflict can maintain an actor's position by anticipating and mitigating conflict. In the implementation of a traffic experiment, avoiding conflict could also lead to the experiment becoming a 'success' so that the political power of the governing parties is maintained for a longer

period, perhaps with the possibility of introducing further changes. One retail representative described conflict avoidance as a result of powerlessness: 'This means that we are currently, to some extent, forced to put a good face on the bad game' (interview, 21 July 2023). However, it also reflects the retailers' agency in mitigating conflict with their business interests. Although this is not illustrated by the examples, avoiding conflict may also imply sustaining the status quo or allowing incremental changes to go 'unnoticed'.

Fourth, the city of Giessen, and more specifically its transport department, resolved various conflicts. *Resolving* conflict describes a response to an existing conflict and requires one or both conflict parties to acknowledge the interests or concerns of the other party. This distinguishes resolving conflict from avoiding conflict: Avoiding conflict is a response to anticipated conflict and does not require both parties to be involved in the action. In practice, however, it is not always easy to distinguish between the two, because conflict is often anticipated as a response to an existing conflict, and resolving conflict may also prevent an anticipated conflict. In Giessen, conflicts were resolved through communication and by the city adjusting planning details. For example, according to one activist, city officials engaged with the *Verkehrswende* initiatives after their protests, which defused the conflict over delays and has had a positive effect on their relationship: 'That actually led to a bit of a rapprochement' (interview, 9 January 2023). In response to the retailers' opposition, the city contacted them to discuss if there were details in the plan that could be made to accommodate their interests. The city incorporated some of the retailers' suggestions, such as the introduction of road markers to make car parks easier for drivers to locate, into the plans. While this resolved minor usage conflicts, the extent to which these adjustments resolved broader lines of conflict between the two parties is perceived differently. One representative felt it was too little too late: 'A few very tiny, tiny little things have been achieved' (interview, 21 July 2023). Another representative, speaking of the city and the retail representatives, was more positive: 'Yes, of course you had an additional channel of dialogue, and I think that one has moved on from that initial confrontation to actually working well together' (interview, 28 September 2023). One city employee also confirmed that regular dialogue has led to rapprochement: 'In the beginning, we were also rather insulted. But then we met up regularly, which resulted in a trusting working relationship' (interview, 12 October 2023).

Resolving conflict may lead to a rapprochement between the actors, but as the examples show, this is not necessarily the case. At the same time, rapprochement (e.g. through dialogue) is a sign of resolving affective conflict, al-

though this may be interpreted subjectively by the actors affected. In this case, resolving conflict between the city and retail representatives could be a means to avoid critical press and support the city's retail economy, also securing political power for the governing parties and allowing for change to occur. More generally, the conflict parties involved can benefit from conflict resolution if their respective interests are met at least to some extent. In order to resolve a conflict, the actors must have some decision-making power, which is why in this case study some conflicts were resolved by the city. In parallel, some of this power is transferred to the dissenters when their ideas are integrated into the development. Resolving conflict can therefore influence power relations in all sorts of ways, depending on which conflict is resolved and between whom.

Fifth, in Giessen, conflict is also ended. Here, *ending* a conflict means that a third party ends one or more conflicts. Although it is a form of conflict regulation (Bornemann and Saretzki, 2018), it is not the same as, for example, exiting a conflict, where one party leaves, or resolving a conflict, as explained above. In judicial conflict termination, a judge usually interprets the law to make final decisions. In the case of Giessen, the court ruled that the traffic experiment was unlawful, leading to a stalemate between the conflicting parties that came as a surprise to most of the interviewees. While some actors saw the ruling as more ambiguous and suggested continuing the conversion, the Giessen government regarded the court's decision as absolute. Even though the court has in this way ended one conflict, it has caused much disappointment and some new conflicts: The initiatives lost the project they had fought for, leading to a new petition and protests. Retailers faced months more of street conversions that could potentially damage their business. Finally, the coalition parties, especially the Greens, failed in their flagship project. According to media reports, the plaintiffs even received personal threats after the ruling (Pfeiffer, 2023). It is therefore likely that ultimately only the opposition parties benefited from the court's decision.

Looking at how conflict ends in the case of Giessen reflects the power of various actors. To a certain extent, the court ruling overpowered all attempts of the other actors involved and maintained the status quo. In fact, courts are often seen as 'an independent power' (Kühn, 2021: 153) and in many cases become 'a main actor for the resolution of planning conflict' (ibid.). Other examples in Germany, such as traffic experiments in Hamburg (Ottensen macht Platz) and Augsburg (Verkehrsversuch Maximilianstraße), confirm that Giessen is no exception. The end of the conflict also reflects the role of the plaintiffs. It shows that they had knowledge of the law and its procedures, and that they had the

necessary resources to file the appeal. This also highlights the tool of the urgent appeal: The plaintiffs' agency was influenced by the legal instrument of the official complaint, as it allowed them to transfer power to the court. This, in turn, took power over the traffic intervention away from the city government. Moreover, it is likely to cost the governing parties votes, and thus political power, in the next election, and it could also affect their political capital in negotiating other traffic changes in the city. Some actors reported that they had lost confidence in the government and administration as a result of the court ruling. Considering how conflict was ended also points to an interesting peculiarity of the Giessen case: Ultimately, it was not the front lines of the public contestations between experiment critics (retail representatives, opposition parties) and proponents (*Verkehrswende* initiatives, governing parties) that brought the traffic experiment to an end. Instead, the interests of two local residents, who were able to identify a conflict between the planned redesign and the law, led to the experiment's termination.

The discussion shows that the five ways of 'doing' conflict have different characteristics, which are summarized in the table below (Table 1). In addition to these descriptions, the table also summarizes the implication of each way of 'doing' conflict. First, each way relates to conflict differently: 'Doing' conflict can respond to conflict, but it can also generate or prevent conflict (conflict reference). Second, each conflict action can lead to specific outcomes (associated outcomes). Third, each action has implications for the power of the actors and those affected by the conflict. Thus, an underlying power intent is associated with the different types of conflict.

Table 1: Five ways of ‘doing’ conflict.

Way of ‘doing’ conflict	Description	Conflict reference	Associated outcome	Associated power intent
Identifying conflict	Actor recognizes and expresses conflict	Generating conflict	Mobilize people, channel resources	Gain power over sb./to do sth.
Provoking conflict	Actor exacerbates conflict to evoke strong reaction	Generating conflict	Build public pressure, shape/polarize public opinion	Gain power over sb./to do sth.
Avoiding conflict	Actor anticipates and circumvents or mitigates conflict	Preventing conflict	Avoid tensions, avoid attention	Maintain or gain power over sb./to do sth.
Resolving conflict	Actor solves conflict	Reacting to conflict	Dissolve tension, improve relationships	Maintain or gain power over sb./to do sth.
Ending conflict	Third-party actor terminates conflict	Reacting to conflict	Realize mandate, restore legal order	Enforce (judicial) power over sb./to do sth.

Source: Author.

Conclusion: Negotiating mobility through conflict

As the case of the Giessen traffic experiment has confirmed, changes in mobility, and traffic experiments in particular, are prone to conflict. Contrary to what the label ‘experiment’ suggests (i.e. ‘this is just a test’), the accelerated procedures, the evaluation, and the decisions required regarding the perpetuation of such projects have the potential to generate conflict. These insights reinforce and add to existing research on conflict in mobility experimentation (e.g. Klaever et al., 2024). Even though they are often announced as temporary measures, the case of Giessen illustrates that experiments are rarely com-

pletely reversible: The changes experienced and the conflicts negotiated leave their mark.

The relevance of conflict is reflected in debates in planning theory about how and to what extent conflicts should be resolved. In particular, communicative and agonistic approaches to planning have come to the fore and are weighted against each other (Kühn, 2021). However, these debates are somewhat deadlocked because their applicability to practice in current democratic structures is limited (*ibid.*; Mäntysalo et al., 2023). Therefore, this analysis did not investigate whether and how conflict can become productive *per se*, but rather how, and for whom, conflict is productive. To this end, this chapter has derived five ways of 'doing' conflict from the analysis of the Giessen traffic experiment: identifying, provoking, avoiding, resolving, and ending conflict. Looking at how conflict is done shows that conflict can indeed be beneficial or detrimental to different actors at different moments.

The findings of this contribution add to the debate on the role of conflict in two ways: First, they stress that change requires the identification of conflict with the status quo. This is in line with agonistic planning approaches, which see conflict as the basis for negotiating change (e.g. Kühn, 2021). In turn, ideas about how to change the status quo may lead to the legitimate identification of new conflicts, which, however, may perpetuate the status quo. Second, the results on provoking and ending conflict in particular suggest that it is indeed how conflict is done that matters: The emotional disposition of automobility indicates that conflicts over mobility changes have great potential to fuel polarization dynamics (see also Van Wymeersch et al., 2019). At the same time, strong opinions about automobility could also be interpreted as a consequence of the increasing polarization of political views on climate change (see also Haas and Jürgens, 2020). While proponents of agonistic theory would argue that divisions in societies can be interpreted as a symptom of a system that places 'too much emphasis on consensus and the refusal of confrontation' (Mouffe, 2000: 16), the results suggest that confrontation, if provocatively sought, can lead to antagonism. More worryingly, developments since the end of the experiment suggest that the gap between the government and those governed is widening. This indicates that not all actors perceive ending a conflict through the law as a legitimate way to 'resolve' conflicts.

Analysing how conflict is 'done' allows conclusions to be drawn about the agency and roles of different actors: The findings point to the need to reflect and broaden our understanding of 'professional agency' – moving away from reducing it to traditional planning professionals to include a wider range of ac-

tors: As already pointed out in debates on the role of conflict in planning theory (e.g. Kühn, 2021), it is often not planners who have the mandate to make decisions regarding conflict navigation. Instead, key decisions are often shaped by civil society, influenced by private actors, lobbyists, and media, then finalized by political elites or courts. Indeed, in the case presented, planners were mainly involved in avoiding and resolving minor conflicts of use by adjusting planning details, whereas most other actors 'did' conflict, often more strategically, to assert their interests. Specifically, political and legal instruments, and timing of conflict actions, prove to be protentional for redistributing and shaping agency, re-emphasizing that agency should be understood as situational. This expanded understanding of who and what constitutes urban planning has the potential to bring planning theory and practice closer together and to provide new insights into how conflict shapes current and future urban mobility.

In addition to the five ways of 'doing' conflict presented, many more, and more subtle, ways of 'doing' conflict were not explored in this study. Further research could therefore direct attention to practices that often go unnoticed. Possible practices include enduring conflict, where the actor sees no room for manoeuvre; silencing conflict, where conflict is muted before it surfaces; or inviting conflict, where arenas of conflict are opened and dissent is welcomed. Since bottom-up movements have historically been powerful in challenging existing hegemonic orders, comparing the case of Giessen with a traffic experiment that was not only initiated but also implemented from the bottom up can therefore shed further light on the agency of civil society in relation to 'making' mobility.

Ultimately, conflicts over mobility are embedded in wider societal trends. Research on conflicts is therefore relevant to broader societal fault lines. Studying how conflict is done also gives insight into how future mobilities are negotiated. Power and struggles for influence shape conflict-related actions and practices. As this contribution has shown, actors can maintain, gain, or lose power by 'doing' conflict. Conflicts thus have the potential to challenge existing power relations. However, current structures, such as German traffic regulations and their enforcement through the power of the courts, limit this potential and can even reinforce existing hegemonies.

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14. Spotting tensions in urban greening experiments

Insights from Barcelona

Alessandra Manganelli

Introduction

Widely renowned for being a vibrant, pleasant city and a popular tourist destination, Barcelona also faces some of the major socioecological urgencies of contemporary urban areas. With a population density between approximately 400 and 1,000 inhabitants per hectare in the metropolitan core (per the Municipality of Barcelona) and an average of 350,000 vehicles crossing key portions of the urban centre every day (per the city's *Barcelona Metròpolis* publication), air pollution levels in Barcelona have frequently breached the standards established by EU air quality directives. Moreover, due to traffic and other factors, the city has also exceeded the noise thresholds established by the World Health Organization (WHO) (Council of the EU, 2024; per the Municipality of Barcelona). Generating tangible repercussions on the health and well-being of urban inhabitants, these problems are exacerbated by further ecological challenges, in particular those related to droughts, high temperatures, and scarcity of green areas in the city. In fact, as urban authorities point out, at present, Barcelona's metropolitan core – called the *Eixample* in Catalan, or *Ensanche* in Castilian – has an average of 2.01 square metres of green space per person, far below the 6.6 square metres recommended by the WHO (Ajuntament de Barcelona and Barcelona Regional, 2023). Recognizing these problems and linking local urgencies with global challenges, the administration has recently acknowledged the reality of a climate emergency that 'gives us little margin of time to act', and emphasised the need for urgent, drastic, and effective measures to be implemented (Ajuntament de Barcelona, 2020: 4).

Clearly, the above issues raise important urban future-making challenges shared by many other cities in Europe and elsewhere. These challenges relate to how actors – including built environment professionals – take the initiative in tackling key emergencies; what experimental strategies and tactics can be explored, and which turn out to be effective; and, ultimately, what model of the city is desirable and should be pursued (Guy and Marvin, 1999). We can argue that the city of Barcelona, and especially its past administration run by the progressive (socio)political movement *Barcelona en Comú*, has taken these challenges seriously (Blanco et al., 2020; Sareen and Waagsaether, 2023). In fact, led by the social activist Ada Colau, who served as mayor of Barcelona from 2015 to 2023, *Barcelona en Comú* has put the socioecological emergency on the political agenda not only discursively but also through concrete interventions implemented in the city in an experimental way. These experiments aim to effect eco-socialist policies of reappropriation of the commons, reconquering of public space, and provisioning of fair access to green spaces by marginalized citizens (Ajuntament de Barcelona and Barcelona Regional, 2023; Pradel-Miquel, 2024).

It is precisely in this context that the recent reawakening of Superblock and green axis implementations in Barcelona should be situated. In general, Superblocks and green axes are public space interventions in urban neighbourhoods aiming to limit the circulation of private vehicles and to enhance public space and green infrastructures for pedestrians and other users (Magrinyà et al., 2023). The idea of implementing Superblocks (*Superilles* in Catalan) is not an invention of *Barcelona en Comú*; it has been part of the urban planning history of Barcelona since the development of the Ildefons Cerdà plan for the Eixample in the 19th century. Yet, it is only recently that this idea has been experimented with in a vigorous way, through a program that aims to accelerate and expand Superblocks and green axes systematically into the city, particularly addressing the highly polluted and severely congested metropolitan core.

Framing Superblock and green axis initiatives as urban greening experiments, this chapter seeks to unravel what happens when translating a transformative idea into a concrete and potentially disruptive urban intervention. In particular, the chapter focuses on contradictions and tensions experienced by actors when testing these experiments on the ground and aiming to expand them into the urban fabric (Honey-Rosés, 2023). While revealing underlying dynamics and structural challenges that go beyond the particular experiment (Sengers et al., 2021), tensions can also open up opportunities to exercise transformative agency. To theoretically conceptualize these aspects, the following

section outlines literature on urban experimentation and experimental governance, particularly focusing on scholarly contributions that highlight conflictual dynamics in urban experiments (Savini and Bertolini, 2019; Torrens and von Wirth, 2021; Sierhuis et al., 2024). The subsequent section then shows how conflicts can be productively conceptualized as tensions that can lead actors not necessarily to failures and dead ends, but also to possibilities to work out adaptive solutions and envision alternative courses of action. After characterizing the Superblock and green axis initiatives as urban greening experiments, the three empirical sections of this chapter identify and illustrate three distinct triggers of tensions and ways of dealing with such tensions through precise examples of Superblock and green axis implementations in Barcelona. The concluding section highlights lessons learned and reflects on key conditions that contribute to making such experiments either more or less transformative.

Urban (greening) experiments: From collaborations to conflicts

Urban experiments can be defined as temporally and spatially bounded initiatives testing new projects, policies, or practices in and for the built environment while engaging with forms of experimental governance (Castán Broto and Bulkeley, 2013a; Monstadt et al., 2022). Greening experiments, ranging from bottom-up actions such as guerrilla gardening, to transition niches in various fields (Feola and Nunes, 2014), to horizontal frameworks such as Urban Living Laboratories (Bulkeley et al., 2018), up to top-down initiatives like urban climate plans (Bulkeley et al., 2013), seek to address major socioecological urgencies. Particularly when performing specific interventions in urban areas, experimental initiatives often hold the promise of engendering more systemic and impactful transformations beyond specific projects (Sengers et al., 2021).

Several studies on urban experimentation tend to associate experiments with the idea of collaboration or co-production. This perspective considers experiments as safe spaces where actors as diverse as administrative officials, private agents, research institutions, grassroots initiatives, and citizen-users come together to co-design and co-test urban greening solutions (Karvonen and van Heur, 2014; Nesti, 2018). Recalling some key principles of communicative planning (Innes, 1995; Healey, 2012), this perspective conveys an incremental approach to change, based on dialogue and consensus-building. According to this view, as collaborative dynamics unfold, open-experimentation platforms become capable of reducing power imbalances among actors and allow-

ing for shared-knowledge generation (Puerari et al., 2018). Such a horizontal and collaborative approach would constitute the basis for co-shaping new knowledge, values, and practices that can, potentially, affect wider policy systems or institutional structures, leading to socio-institutional change.

Counteracting the idea of an incremental path towards change based on collaborative practices, however, are critical strands of literature that highlight how experimental initiatives are, in fact, not free from conflicts (Savini and Bertolini, 2019; Sierhuis et al., 2024). In particular, connecting experiments with issues of power and politics, some scholarly contributions recognize how potentially progressive initiatives are often doomed to failure as they can be assimilated and co-opted by hegemonic power structures, thus losing their innovative charge and radically diminishing their transformative potential (Karvonen et al., 2014; Savini and Bertolini, 2019). Savini and Bertolini provide a clear example of these dynamics by describing experiments of temporary housing occupations in Amsterdam. The authors show how, failing to generate radically transformative outcomes, squatting experiments in Amsterdam resulted in processes of marginalization of these alternatives by dominant power structures (Savini and Bertolini, 2019: 841). After all, several studies show that, when it comes to real-life testing and scaling, experiments in critical policy fields such as alternative mobility or urban greening are inherently conflictual (Anguelovski et al., 2018; Bertolini, 2020). Particularly mobility experiments aiming to implement radical alternatives such as low-emission zones, congestion charges, new tramways, or slow mobility systems can lead to harsh conflicts and unproductive polarization dynamics among actors (see Günay in this volume). These hurdles occur because experiments counteract established values, habits, and ways of 'doing' that are typical of car-friendly urban users. Furthermore, experiments create antagonism because many power structures are deeply rooted in the dominance of private vehicle use. Acknowledging these dynamics, some authors observe that, when it comes to assessing the actual impact of experimental initiatives, there is little evidence suggesting that 'experiments create institutional change outside their area of authority' (Madsen and Hansen, 2018: 293).

In synthesis, the manifestation of conflicts demonstrates how power imbalances and agonistic logics do exist, as actors, organizations, and institutions hold divergent values and conflictive interests (Savini and Bertolini, 2019; Sierhuis et al., 2024). We could then conclude that although performing experiments helps to align actors towards shared purposes, when it comes to ground-

ing projects in concrete physical or political arenas, conflictual dynamics can occur that leave the transformative stance of these initiatives deeply uncertain.

Reframing conflicts in urban greening experiments as ‘tensions’

To shed light on how conflicts are experienced, addressed, and variably negotiated by actors, including built environment professionals, in this chapter I propose a conceptualization of conflictual interactions as ‘tensions’ occurring between opposing or contradictory dynamics in place. Here the basic assumption is that, on the one hand, the intention to implement a socioecologically transformative experiment pushes actors to unite towards a common objective, building networks and mobilizing resources accordingly (Van den Broeck et al., 2019). Yet, on the other hand, tensions are likely to pop up, revealing (sometimes deep) frictions between diverse actors’ logics, underlying power dynamics, and structural challenges of the city. These dynamics and challenges lie behind and go beyond a given experiment.

When looking at particular types of greening experiments, tensions between contradictory logics strikingly emerge. In many of these cases, the key contradiction generating tensions lies between the ecological and social dimensions of urban sustainability (Agyeman et al., 2016; Kotsila et al., 2023). Illuminating those aspects, literature on urban greening and green gentrification has shown how, without addressing more systemic and structural problems, ecologically driven initiatives can reproduce or further exacerbate socially unjust dynamics (Anguelovski et al., 2019). These dynamics relate to factors such as unequal access to green amenities across socio-economic groups, the generation of areas of privilege and exclusivity, the socio-economic and spatial marginalization of disadvantaged citizens, and similar. Thus constituting a source of tensions, the socioecological contradiction in question takes place as the greening project, or experiment, inevitably intertwines with wider economic processes and gentrification dynamics going on in the city (Anguelovski et al., 2018). Beyond this particular example, as experiments unfold in place-based realities, different and often contradictory values, logics, and dynamics hybridize with one another, generating tensions that can lead to diverse outcomes.

Taking the above elements into account, the aim of this study is not only to spot sources of tensions, but also to observe how actors, either more or less effectively, relate to such tensions in specific initiatives. Indeed, as tensions

become manifest in place-based experiments, actors are summoned to devise adapted modalities to tackle them. We could argue that, while tensions can lead to blockages, failures or suboptimal outcomes, identifying sources of tension can also invite actors to devise alternative strategies, of governance or otherwise, to either bypass or try to remedy key contradictions. Among other authors providing illustrative case studies, Moloney and Horne (2015) demonstrate this point through examining alternative energy experiments in Melbourne. In particular, the authors highlight key organizational strategies devised by actors to adapt to an unstable policy context. Those strategies include building local coalitions with supportive players and, thus, enlarging networks; improving skills and capacities of actors to develop alternative energy initiatives; and securing ongoing funding to pursue innovative and potentially disruptive projects (*ibid.*: 2445). Yet, the authors also highlight an unsolved contradiction between the proliferation of local experiments aiming at transforming energy use and generation on the one hand, and the dominance of land-use planning systems and wider-level policy frameworks that continue to support the coal-based fossil fuel industry on the other. Hence, given this challenge, ‘the extent to which these place-based and regional scale initiatives can or will drive broad scale urban regime change remains to be seen’ (*ibid.*).

Undoubtedly, the political environment can exert considerable influence upon the ability of actors to navigate emerging tensions. An uncertain or hostile political climate can, for instance, destabilize experiments or put innovative practices on hold, especially those initiatives that are most reliant on institutional support (Madsen and Hansen, 2018). Often fomented by media and communication campaigns, political strategies can easily shift from being facilitative and supportive to being constraining and repressive towards innovative experiments (Savini and Bertolini, 2019). More profoundly, experiments face a fundamental contradiction between exercising a disruptive action in established institutional orders, on the one hand, and building the necessary political consensus so that projects can endure, on the other hand (Battisti et al., 2024). Certainly, the political environment can substantially affect the opportunity to turn tensions into enabling (institutional) frameworks rather than into political opposition and blockages (see later in this chapter, concerning the Barcelona case). Thus, it is critical to understand how experiments can become grounded in the city, and embedded in administrative and institutional cultures, to ensure that progressive initiatives do not fade away with changing political colours.

To summarize, reframing conflicts as tensions among diverging and contradictory elements brings to the fore new and interesting angles of inquiry. In particular, a first element concerns how actors confront tensions and, potentially, learn from them, working out productive solutions. Thus, there is a reflexive aspect to the tensions (how tensions are lived and what we learn from them), which points back to agency (how agency and practices can, or cannot, be improved in light of tensions). A second analytical angle is that the idea of tension allows for a relational lens on the city, which connects the empirical manifestation of a 'conflict' to the underlying dynamics, including politico-economic climates, that interact with a place-based experiment. Thus, the important question is what an experiment reveals about contrasting claims on the city or divergent perspectives on how urban futures should look.

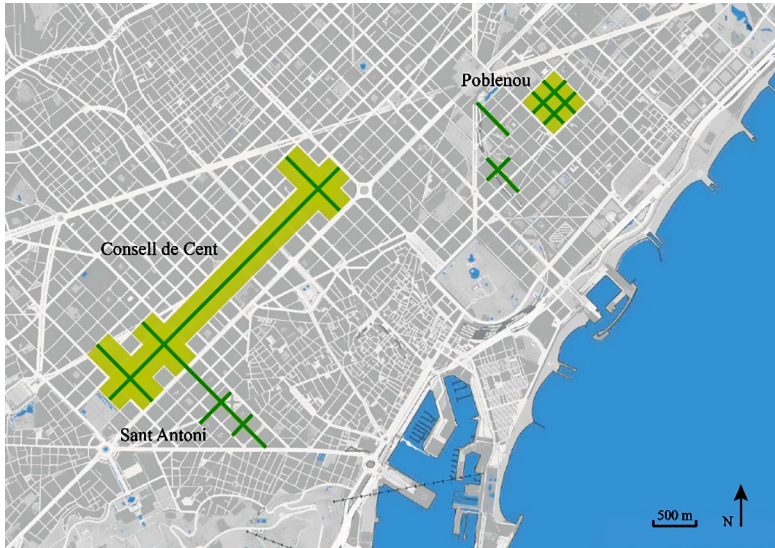
An exploration of Barcelona Superblocks and their tensions

During fieldwork carried out in Barcelona from September 2023 to March 2024, I investigated some of the city's Superblock and green axis projects with the intention to interpret these initiatives as 'experiments' aiming to test a transformative idea in the urban structure (see the following section for more detail). At its core, the idea of the Superblock involves bundling multiple city blocks together – specifically, 9 blocks in a 3 x 3 pattern – in order to shift private vehicular mobility to the perimeters of the enlarged block and liberate public space for pedestrian and community uses, leisure, and green infrastructures at the centre (Rueda, 2020). To observe how tensions emerged from place-based initiatives, I closely examined three Superblock and green axis 'experiments' implemented in the city under the Barcelona en Comú (2015–2023) administration (see Figure 1 for the general location of these initiatives and Figures 2–5 for images of the sites).

I have explored these experiments in their conception, implementation, and current dynamics with the intention to identify the most striking areas of tension but also the lessons learned through these implementations. I therefore engaged in semi-structured interviews with 32 actors, including experts, relevant professionals within and outside the city administration, political leaders of Barcelona en Comú as well as of the current administration, members of grassroots organizations active in the different neighbourhoods, local inhabitants, and a private commerce and tourism lobbyist. Formal interviews were complemented with on-site observations and informal dialogues with

local inhabitants and grassroots groups, and with intermediary presentations of my work in progress to fellow researchers in Barcelona. This was combined with a review of reports, policy briefs, website documentation, press releases, and secondary literature on the Superblock and its developments.

Figure 1: Location of the three Superblock and green axis implementations.



Source: 2024 mapz.com – Map Data: OpenStreetMap (ODbL).

Though all were a product of the political will to accelerate and expand Superblocks and green axes, the three investigated experiments are situated in different parts of the city and have been implemented through different time frames and modalities of intervention. Consequently, these initiatives display diverse types of tensions at play. The first case, the Poblenou Superblock, was initiated in 2016 through tactical urbanism interventions, leading to strong conflictual dynamics. It is situated in the district of Sant Martí, a working-class neighbourhood that has been the site of (green) redevelopment processes and strong gentrification dynamics. Less conflictual but still instructive for the ways in which tensions were resolved, the second experiment, the Sant Antoni Superblock, started around 2017 and is located in the Sant Antoni neighbour-

hood, a dense district comprised of commerce, housing, and related uses. The third case is the Consell de Cent green axis, which was implemented in 2020 as a long pedestrian axis crossing the congested Eixample district. This upscaled project also marks an upscaling of tensions between divergent claims on the city.

Characterizing Superblocks as urban greening experiments

Over time, the concept of the Superblock has been labelled in different ways in scientific and public discourses, being framed as a project, an urban model, a transformative strategy, and a new urban imaginary (Ajuntament de Barcelona and Barcelona Regional, 2023), or we could name it a 'utopia of change'. Referring to key conceptual lenses adopted in this chapter, here I frame Superblocks and green axes as urban greening experiments. In particular, we can observe how, since its conception and first implementations in Barcelona, the Superblock 'experiment' has had a transformative charge (Rueda, 2020). In fact, around the beginning of the 2000s, a newly formed public agency, the Agència d'Ecologia Urbana de Barcelona (Barcelona Urban Ecology Agency), with its lead architect Salvador Rueda, developed the Superblock model as an innovative mechanism to transform the mobility network of Barcelona and foster holistic changes in the city's urban structure and its socioecological functions, including environmental and health objectives (Ajuntament de Barcelona and Barcelona Regional, 2023). Thus, since their beginning, the Superblocks and green axes have aimed to test and bring into being a transformative idea in a specific urban setting (Evans, 2016). As such, the first experimentations of this idea were carried out in historic parts of the city, such as the Gràcia neighbourhood, El Born, and Ciutat Vella (the old town), mostly in the form of street pedestrianizations (per administrative officials in the Municipality of Barcelona). The Superblock idea occasionally re-emerged in the municipal agenda, and *Convergència i Unió* – the conservative government between 2011 and 2015 – also embraced the idea, foreseeing interventions in five pilot areas that, however, mostly remained theoretical testing cases, not leading to tangible implementations (interview, administrative officials, Municipality of Barcelona). It is in that period that the *Superilla* concept percolated into the Urban Mobility Plan of Barcelona (2013–2018) for the first time, further demonstrating how this idea was at the centre of discussions and debates about urban change, although not in the form of radical experimentations.

Yet, it was with the political leadership of Barcelona en Comú (2015–2023) that a further turn happened in the development of the Superblock experiment. Specifically, the real shifts introduced by Barcelona en Comú include, first, the decision to implement Superblocks in the busy metropolitan core of Barcelona, i.e. in the Eixample, and second, the attempt to scale up the Superblock idea into a veritable strategy for the whole city, namely the Barcelona Superblock Program (*Superilla Barcelona* in Catalan). This program aims to expand *Superilles* across the city through the implementation of green axes. Indeed, there was the recognition that Superblocks could not be implemented as originally conceived by the pioneering actors who first developed the model (Evans, 2016; Bulkeley et al., 2018). In addition, also prodded by social and political movements clamouring for street-calming measures, key administrative and political actors acknowledged how *Superilles* could be more effectively realized by means of green axes (interview, administrative officials; on the evolution of the Superblocks concept, see also Magrinyà et al., 2023).

Moreover, a further element that makes Superblocks and green axes align with the idea of an urban greening experiment is the adoption of tactical urbanism as a key means through which to implement and further expand this intervention in the city. Tactical urbanism is a rather common experimental approach in spatial planning and mobility experiments. It encompasses the idea of testing and implementing changes through incremental and adaptive solutions (Silva, 2016; Barata and Fontes, 2017). By means of tactical and then structural interventions, the Superblock and green axis experiment aims to address mobility, public space, and green infrastructures as intersecting domains through which urban sustainability is improved (interview, municipal experts). As such, framed by discourses on health and the ecological emergency (Pradel-Miquel, 2024), especially in the most recent stage of implementation, Superblocks and green axes have been linked to urban sustainability strategies such as the Urban Mobility Plan, but also to the Barcelona Nature Plan, aiming to enhance green infrastructures and nature-based solutions in the city, as well to as the Climate Emergency Action Plan 2030.

My empirical inquiry into the different Superblock and green axis experiments led to the identification of three key sources of tensions. A first source of tension relates to procedural elements; we might also frame this as 'how things are done'. This point refers to modalities of engagement and processual dynamics of governance, inclusivity, and participation. A second area of tension instead concerns substantive aspects of justice, related to whether and to what extent the greening experiments in question contribute to socially unjust dy-

namics and, in particular, to (green) gentrification outcomes. Finally, a third trigger of tension refers to structural aspects of politics and power; this concerns how powerful political and economic interests collide with the intention to implement and further propagate progressive socioecological transformations. Examples from the three investigated experiments will be used in the following sections, based on their explanatory relevance for each area of tension.

Tensions between divergent approaches to participation and implementation

The first case to be examined, the Poblenou Superblock, was implemented in September 2016 through tactical urbanism operations aiming to experiment with traffic calming in order to regain portions of public space (Ajuntament de Barcelona and Barcelona Regional, 2023). Among the key actors initiating the process was the architect Salvador Rueda, willing to experiment with his pioneering concept of the Superblock in a part of the city (per Barcelona administration interviewees). In agreement with the town planning counsellor of the city district of Sant Martí, Rueda involved architecture students in implementing what can be deemed a real-life design laboratory (Honey-Rosés, 2023). Thus, a suitable portion of the neighbourhood was chosen and, very quickly, streets were closed in order to block or divert traffic and to allow different uses to percolate through the urban space. Moreover, tactical interventions including street furniture and plants were installed and activities and workshops in the streets were carried out in order to test and to suggest what a regained portion of public space would look like (Edwards and Bulkeley, 2018).

Far from being a tame public space experiment, this tactical intervention – which in the eyes of the initiators was meant to become permanent – generated strong opposition from some of the affected actors and groups (O’Sullivan, 2017). In particular, this resistance led to clear polarization dynamics between organized groups that stood emphatically against the Superblock and groups that, on the contrary, were in favour of the implementation (per local interviewees). A citizen-activist involved in the process clearly stated that ‘although we were in favour of the *Superilla* model, we could not defend this intervention that was decided in such a short time, without properly informing and

doing prior outreach with residents.¹ Thus, in a way, the implementation was perceived by many as an imposition coming from the top, obliging local residents and, in particular, car users to suddenly change their habits (per local residents). We could partially infer that, to a considerable extent, these dynamics reveal tensions between seemingly contrasting approaches to how processes are sparked, namely, tensions between top-led approaches on the one hand, versus more collaborative modalities on the other.

Moreover, it is also important to underline the media-driven and political aspects of these tensions. The conflictive Poblenou Superblock rapidly became an example in the press, and various political parties – more or less close to Barcelona en Comú – respectively allied themselves with the group in favour of the project or with the group against it, contributing to the escalation of tensions (interviews, local actors in Poblenou). Thus, these dynamics reveal how procedural aspects intersect with deeper political fractures that would later explode (see the case of Consell de Cent, below). Those tensions surely infused dilemmas and produced discouragement across actors. Yet, the political and media escalation of tensions also ushered in key administrative actors to respond to and work out productive ways forward. In particular, despite the fierce opposition from some corners to the Superblock implementation, ‘the Barcelona City Council remained firm in its intention of neither fully nor partially dismantling the Superblock’ (Ajuntament de Barcelona and Barcelona Regional, 2023). Thus, the mediating action of motivated civil servants and administrative officials was pivotal to ensuring the resilience of this initiative over time. As a result of these dynamics, after several years the Poblenou Superblock is still in place, being nowadays relatively welcome in the neighbourhood and considered to be a success in reworking public space.

Whereas the Poblenou Superblock is located in a rather peripheral area of the wider district of Sant Martí, mostly occupied by offices, a museum, a school, and some areas with social housing, the second case examined here, the Sant Antoni Superblock, is situated in a different urban setting. Being in the left side of the Eixample district, Sant Antoni has the character of a neighbourhood, dense in housing, commercial activities, and local services. The Superblock and green axis implementation in Sant Antoni was initiated in 2017. That same year, the inauguration of the Mercat de Sant Antoni – a large central grocery market also constituting a neighbourhood landmark – provided

1 Interviews were conducted in Castilian Spanish; interviews and non-English quotations have been translated by the author.

the right occasion to combine that process with the reworking of public space (interview, administrative officials). In the case of the Sant Antoni Superblock, involved actors were relatively strategic in channelling possible tensions into collaborative opportunities to implement the experiment. In particular, while the Sant Antoni Superblock was an initiative of the municipality, the experiment linked to a local history of bottom-up claims advanced by grassroots associations, proposing actions to pedestrianize streets and to improve the quality of public spaces in the neighbourhood. One association member describes:

Already in 2001, when I joined the neighbourhood association and I was in charge of urban planning issues, one of our first claims was the ‘pacification’ of Comte Borrell Street and also Tamarit Street in the proximity of the market. And we kept on proposing that up until 2017, when the *Superilla* project finally started. (Interview, co-leader of the Sant Antoni neighbourhood association)

Further bottom-up dynamics linked to those processes have already been emerging from the surrounding area. Here, actors such as professionals, activists, parents, and schoolteachers set up the ‘Camí Escolar’ (school path), later turned into the ‘Camí Amic’ (friendly path), movement, advancing bottom-up projects to shape healthier and safer paths for children going to school. Thus, at the time of implementing the Sant Antoni Superblock, bottom-up initiatives arguing for street pedestrianization encountered the political support of municipal officials, who ‘believed in this theme of calming streets, and gave it [the Superblock] the decisive impulse’ (interview, co-leader of the Sant Antoni neighbourhood association).

Literature on social innovation and multilevel governance adopts the notion of *bottom-linked* governance to signify the positive encounter between grassroots mobilizations and the enabling role of municipal authorities (Cano-Hila et al., 2020; Galego et al., 2022). In the case of Sant Antoni, bottom-linked governance has taken place thanks to a past trajectory of bottom-up movements synergizing with administrative and political support, leading to collaborative modalities of conducting the implementation of the Superblock. Even though several interviewees report that these processes have not reached the level of substantial co-creation of ideas and solutions by all affected actors, it remains the fact that in Sant Antoni, unlike the Poblenou experience, there was greater engagement in curating participative processes, which led to a comparatively smooth implementation of the Superblock experiment.

Tensions between ecological and social justice

The issue of whether the Superblocks and green axes experiment constitutes a threat to social justice, in the sense of contributing to housing price increases, changes in traditional uses, and even more severe green gentrification effects (Anguelovski and Connolly, 2024), emerges as an area of tension that runs through all three implementations. Yet, it is also true that this area of concern does not affect these initiatives equally. More precisely, in the Poblenou Superblock case, the gentrification threat features less prominently as a source of discussions, or tensions, among concerned actors such as residents, local retailers, or administrative officials. Indeed, although some local interviewees show awareness about dynamics of change in commercial activities and the arrival of new offices in the surrounding area, this particular experiment is located in a rather peripheral area of the neighbourhood, close to social housing units (interview, local residents). Due to these contextual factors, therefore, this particular experiment has little traction as a cause of gentrification.

Differently, in the Sant Antoni Superblock case, the renovation and reopening of the large market had already triggered revalorization processes in the neighbourhood (interviews, administrative officials). Thus, although not being a primary trigger, the Superblock and green axis intervention links to these wider changes affecting both commerce and housing (interviews, grassroots actors in Sant Antoni, administrative officials).

Located in the core of the Eixample district, the third case, the Consell de Cent green axis, is in one of the most attractive areas of the city, with a heated and tight housing market. As such, key interviewees underlined how this green implementation contributes to generate an area of increased economic value and greater attractivity, which risks favouring certain types of users more than others. In broad terms, when looking at urban transformation processes in Barcelona more generally, the insertion of green interventions such as green axes in urban redevelopment dynamics, attracting offices, luxury uses, and, not least, global investment funds, has become a widespread practice in the city, not least in the Sant Martí district (interviews, researchers and local activists in Sant Martí; see also Anguelovski et al., 2018).

With respect to gentrification threats, two distinct positions of actors can be distinguished as arising from across the three implementations. One radical standpoint stresses how

putting this as the core part of a public policy of the city – the act of intervening in the public space, improving it without being able to compensate for the effects that generates – is very dangerous, especially in a city where the housing market is already quite tight. (Interview, social justice activist in Poblenou)

While this gentrification critique is mostly embraced by social justice activists and professionals, curiously, the same critique has been also used by conservative voices or private players as an element to argue against the expansion of Superblocks and green axes; yet this expansion is criticized for reasons that go beyond the gentrification topic itself (see the following section). A second, more moderate, standpoint, embraced by the majority of interviewed actors, including administrative officials and actors affiliated with Barcelona en Comú, argues that

we cannot stop improving public space because of the argument that it contributes to gentrification processes. We should keep on doing *Superilles*, and, at the same time, have policies that tackle the problem of gentrification, which is a more general issue in Barcelona. (Interview, party member of Barcelona en Comú)

To a certain extent, these two positionalities on the (eco)gentrification problem reflect diverse modalities through which actors have responded to socio-ecological justice tensions, either by fostering a radical critique about key weaknesses of the Superblock implementations, or by adopting a constructive approach that attempts to foster pragmatic solutions. With respect to the latter, one way in which administrative officials and other built environment professionals have acted is through the elaboration of use plans (*plan de usos* in Castilian), which work towards protecting local commerce and limiting the proliferation of bars, restaurants, or large retail or corporate activities taking over traditional uses (interviews, former town planning manager, former chief architect, Municipality of Barcelona). During the Sant Antoni and Consell de Cent implementations, the municipality adopted use plans as a way to regulate the modification of uses in those areas. Overall, the efficacy of these measures has varied across areas and it is subject to continued assessment and refinement (interviews, administrative officials).

Other actions, with perhaps less impact, have been carried out either in the form of municipal purchasing policies that allow some housing units to

be taken off the market, or in the shape of policies that attempt to limit rental or sales prices. Yet, these measures are currently more at a developmental than practical stage (interview, former town planning manager, Municipality of Barcelona). At best they are 'surgical' interventions within the dominant dynamic of a wild housing market. One key issue is that, while there is some room for manoeuvre, actors also recognize the structural limits of the municipal apparatus. In fact, acting more structurally against the gentrification problem would require mobilizing legal and policy regulatory instruments regarding property rights and housing markets, which are set by higher levels of government (interviews, association of Barcelona's neighbourhoods and other experts). Furthermore, these structural interventions would require interfering with other policy sectors and global power structures that relate to touristification, privatization, and the huge impact of investment funds in the city.

In synthesis, observing socioecological justice tensions through the Superblock and green axis interventions allows us to untangle how a specific green experiment can interact with more structural questions around economic forces dominating the city (read housing, commerce, tourism, investment funds) and how actors, and especially actors in the built environment professions, seek to respond to those dynamics while being inevitably embedded in them. More profoundly, besides the need to mitigate socially unjust effects of implementations, it is important to recognize the clashes between a 'progressive' green movement which argues for socioecological transitions, and a whole other sector of the economy and society which claims its own space in the city (Zografos et al., 2020; Pradel-Miquel, 2024). Key tensions reflecting similar contradictions will blow up even further in the story of Consell de Cent, illustrated below.

Tensions between contrasting claims on the city and its future

The flagship project of Barcelona en Comú's last term in government, the third case, the Consell de Cent green axis, is the result of the political will to push urban green transformations to the next level. Within revamped discourses on the health and climate emergency, this greening experiment involved converting three car lanes into a pedestrianized, green, and walkable street running through the middle of the Barcelona Eixample district. Initiated in 2020, this intervention was implemented in about 1.5 years through accelerated

procedures involving public competitions to select architecture and engineering teams that would help to reinvent streets and squares as walkable 'green hubs' (per the Municipality of Barcelona). As a result, together with three minor streets that cross Consell de Cent and create public squares at their intersections, the whole intervention has allowed the recapture of 5.8 hectares of public space and 1.2 hectares of new green infrastructure (per the Municipality of Barcelona). As previously mentioned, this implementation was part of a wider green axis strategy aiming to create a network of pedestrianized streets across the Eixample district. This strategy would have led to a total of 33.4 hectares of new public space and 6.6 hectares of green infrastructure in a radically reformed metropolitan core. Yet, the strategy was blocked by the change in municipal leadership following the elections that took place in May 2023.

Overall, there are different perceptions concerning the transformative character of the Consell de Cent implementation. Significantly, radical 'slow mobility' groups highlight how this particular experiment should not overlook the need for more 'structural policies for the city and its metropolitan area that would allow a reduction in the number of vehicles that circulate in town' (interview, slow mobility association Eixample Respira representative). Yet, this actor and others also recognize how cutting space away from cars, and doing so through an intervention located in the middle of the congested metropolitan core, is in fact a courageous action that nobody has dared to accomplish before (per several interviewees). And despite divergences in perceptions about the radical character of this experiment, what is undeniable is that the Consell de Cent green axis has received radical opposition and been heavily contested by certain powerful groups in the city (interview, Barcelona en Comú). Such groups largely consist of private transport lobbies, major commerce and tourism interests benefiting from the flow of urban consumers in the city, affiliated political groups, and managerial staff within the Municipality of Barcelona who hold a divergent political agenda from that of Barcelona en Comú. Fuelled by media campaigns and communication, the opposition reached a very aggressive level, up to the point of bringing the case to both the administrative and criminal courts. Because court cases are still ongoing, in principle, the Consell de Cent green axis still faces threats of being completely reverted. As one of the involved actors reports:

We presented an administrative appeal, based on the fact that these works were done without the needed legal framework [...]. We criticized

how they [Barcelona en Comú] carried out the work without respecting the requirements of the Barcelona Metropolitan Plan. Other organizations presented a criminal appeal, condemning the misuse of public finances. As New Generation EU funds were deployed without having a proper consensus from actors in the territory, this can be interpreted as a misappropriation of funds, and can lead to a penal sentence. (Interview, commerce lobbyist in Barcelona)

On a surface level, these events further show the relevance of procedural and also legal mechanisms of implementation, as these mechanisms can be used by actors as strategies to instigate tensions and to manoeuvre experiments. Yet, on a deeper level, we could argue that beyond the surface of legal accusations there are more profound tensions between underlying power structures and divergent agendas regarding the city. Particularly, incumbent economic and power structures related to private mobility, commerce, and tourism perceived their interests as being threatened by these transformations. Moreover, specific political groups, allied with those economic forces, used the battle against this greening intervention as a strategy to erode governmental leadership. One interviewee announces:

What these pressure groups were really concerned about was the control of the tourist activity, the regulation of tourist accommodations and so on [...]. So, there was an economic type of discussion that translated into a discussion on public space. And these entities have used the public space project in order to keep on attacking the governmental team. (Interview, former chief architect, Municipality of Barcelona)

Undoubtedly, the story of Consell de Cent displays the challenge of countervailing or putting into question the established powers and vested interests that touch upon major social, economic, and ecological challenges of the city (Pradel-Miquel, 2024). As a greening experiment jumps in scale and accelerates in pace, tensions between conflicting interests for the city escalate and manifest with greater strength. The capacity of actors from the built environment professions to remedy these tensions is, in a way, limited by the lack of a strong politico-economic consensus around such greening policies. In fact, despite the Consell de Cent green axis becoming implemented and receiving positive feedback by appreciative citizens and users, with the change of city adminis-

tration in spring 2023, Superblock and green axis interventions are currently paralyzed, and their wider strategy has been put on hold.

Figure 2: View on the Poblenou Superblock.



Source: Author.

Figure 3: A section of the Sant Antoni Superblock.



Source: Author.

Figure 4: Street view along Consell de Cent.



Source: Author.

Figure 5: Plaça Consell de Cent and Comte Borrell on a Saturday morning.



Source: Author.

Conclusions: What we learn from the tensions

By redefining Superblocks and green axes as urban greening experiments, this chapter has narrated what it means to engender socioecological transformations that aim at exercising a real impact on the city. In particular, the focus on key sources of tension has allowed us to put our finger on underlying contradictions and structural challenges that underpin transformative processes. Yet, tensions can be recognized, solved or overcome in different ways, not necessarily leading to failures or further obstacles, but also to lessons learned and opportunities for transformative agency and collaborative practices (Van den Broeck et al., 2019).

Specifically, tensions connected to procedural aspects display the importance of ensuring transparency in processes and of grasping the perspectives of all actors at stake. To quote the words of key administrative officials reflecting on the first case: 'Lessons learned from Poblenou? Never do this without involving the most affected people, without being transparent'. In the second case, of the Sant Antoni Superblock, tensions resolved through bottom-linked dynamics involving enabling interactions between public officials and community groups. In the third case, of the Consell de Cent green axis, however, tensions around procedural and substantive aspects amplified as the experiment scaled up, interacting with structural issues and underlying dynamics of politics and power affecting the city (Savini and Bertolini, 2019). In particular, the accusations raised by key powerful groups towards that greening experiment testify how administrative, planning, and legal instruments can create barriers, with these instruments being impugned by powerful actors opposing key transformations.

Overall, observing modalities for navigating those and other tensions allows us to shed light on the day-to-day politics of implementing and negotiating experiments in real-life urban contexts (Raven et al., 2019). In fact, dealing with procedural tensions entails factors such as addressing questions of inclusivity and representation, preventing potential opposition, forging alliances in order to build social and political consensus, and so on. While there is no 'one size fits all' approach to inducing change processes, built environment professionals and other relevant actors should be mindful about those dynamics in order to form contextually adapted modes of action.

Certainly, as we learn from the investigated experiments, a considerable degree of administrative leadership is key in helping experiments eventually succeed and last over time (Battisti et al., 2024; Pera and Bussu, 2024). Yet, a

solid and continued political support is also crucial to ensure the longevity of a project and to allow actors to surmount relevant tensions. In fact, the story of the Consell de Cent green axis reveals the uncertainty associated with scaling up an experiment, an intervention, or a policy if not supported by a shared, or at least a negotiated, vision for the city. The words of the urban strategy manager of the City of Barcelona explain this point well by stressing how

there is a contradiction here because in order to make these changes, a strong political will is needed. A political actor should be there embracing this project. Yet, political actors should have been able to sufficiently frame this as a project of the city, and not as a project of a political party.

How to produce an impact that goes beyond the limit of a specific experiment and overcomes the time frame of a political cycle is perhaps one of the biggest challenges to be surmounted. The reality of Barcelona Superblocks and green axes reveals a nuanced picture of positive achievements, but also of contradictions and challenges. While all the investigated experiments have met the objective of bringing a diversity of people to the streets and instigating new ways of planning and living public space, the future of Superblock and green axis policies amidst the current political climate is rather uncertain. In addition, the implementation and further upscaling of place-based experiments requires continued monitoring and critical assessment of their (counter)effects in specific socio-spatial settings. After all, while the future of this specific experiment is hardly predictable, it is certainly part of the nature of (urban) experimentation: the fact of instigating change through the continuous readjustment of modes of action and aspired objectives.

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Appendix

List of contributors

Alessandro Arlati is an urban planner and researcher with four years of experience in projects funded by the EU's Horizon 2020 programme. After a bachelor's degree in architecture at the Polytechnic University of Milan (Polimi), Italy, he studied urban planning in a double-degree master's programme between Polimi and the HafenCity University Hamburg. His interests range from multilevel governance to sociological network analysis. He worked in the CLEVER Cities project, which focused on the co-creation of nature-based solutions in deprived urban areas.

Per Carlborg is an associate professor in business administration at Örebro University School of Business, Sweden. He teaches research methodology and business & society interactions. His research focuses on societal and organizational transitions towards climate neutrality, and he is the leader of the INTERORG Marketing Research Center in Örebro.

Emilie D'Amico is a research associate and PhD candidate at the Center for Earth System Research and Sustainability (CEN) at Universität Hamburg. Her research focuses on the intersection of urban governance and international climate policy, particularly within the UN Framework Convention on Climate Change. As a member of the Climate, Climatic Change, and Society (CLICCS) Cluster of Excellence, she has contributed to interdisciplinary research on international climate negotiations, transnational city networks, and climate litigation.

Sophie-Marie Ertelt is an innovation studies scholar from Örebro University School of Business, Sweden. Her doctoral thesis at the Center for Sustainable Business has focused on exploring low-carbon transition acceleration chal-

allenges in hard-to-abate industry sectors, specifically road freight transport in Europe. As a part of the JUST Positive Energy Planning Processes (JUST PEPP) project, she will dedicate her research in the upcoming years to developing strategies and frameworks of how Positive Energy Districts can be planned with and by disadvantaged citizens to mitigate existing structural inequalities in urban contexts.

Malene Freudendal-Pedersen is a professor in urban planning at Aalborg University and has an interdisciplinary background linking sociology, geography, urban planning, and the sociology of technology. Her research focuses on mobilities practices and the interrelation between everyday life, planning, and policy and its impacts on sustainable urban planning. She is the co-founder of the journal *Applied Mobilities* and of the book series *Networked Urban Mobilities*, both from Routledge.

Robbie Gilmore is a geographer from Belfast, currently studying towards a PhD at Durham University. His research explores the relationship between urban greening, urban democracy, and climate governance in divided contexts recovering from political conflicts. He is currently supported by the Northern Ireland and North East (NINE) doctoral training partnership, with funding provided by the ESRC.

Monika Grubbauer is a professor in history and theory of the city at the HafenCity University Hamburg. She teaches historical and theoretical foundations in urban planning and urban design. Her research focuses on urban development politics, housing and urban policy, and knowledge practices in architecture and planning. She is the spokesperson of the DFG-funded research training group Urban Future-Making, established in 2022 and jointly organized by the three Hamburg universities.

Melis Günay is a doctoral researcher in the DFG research training group Urban Future-Making. She holds two bachelor's degrees, one in business administration and one in metropolitan culture, and is a graduate of the 4Cities Erasmus Mundus Master in Urban Studies programme, which was taught in Brussels, Vienna, Copenhagen, and Madrid. After her studies, she worked as a project manager for a pro-European youth organization in Berlin.

Tom Hawxwell is an interdisciplinary researcher at the HafenCity University Hamburg, working on topics around environmental governance and transformations towards sustainability. His research focuses on socio-technical change in urban mobility systems, with a particular focus on the role of temporalities in supporting or inhibiting transformative change.

Sven Kesselring is a professor in sustainable mobilities at Nürtingen-Geislingen University, (HfWU), Germany. His research focuses on mobilities theory, sustainable mobility, climate policy, social innovation, and participatory research. He is the co-founder of the journal *Applied Mobilities* and the book series *Networked Urban Mobilities*, both from Routledge. Since 2022, he has been an appointed member of the Climate Expert Council of the state government of Baden-Württemberg.

Hannes Langguth is a doctoral researcher in the DFG-funded research training group Urban Future-Making at the HafenCity University Hamburg. His current research addresses the (trans)local urban effects of Chinese investments in the EU's green transition. Prior to this, he worked as a researcher and project coordinator at the Technical University of Berlin and has held visiting research fellowships at international research institutions, such as the National University of Singapore, University of Amsterdam, and Tongji University Shanghai.

Katharina Manderscheid is a professor of sociology, in particular conduct of life and sustainability, at Universität Hamburg. She teaches everyday life-sociology and social science research methods. Her research focuses on mobilities, especially automobility and its transformation, social and spatial inequalities, and changes of everyday life-practices. She is a PI and currently co-speaker of the DFG-funded research training group Urban Future-Making.

Alessandra Manganeli is an urban studies scholar working on socioecological transformations in contemporary cities. Her doctoral research (KU Leuven, Vrije Universiteit Brussel, Toronto Metropolitan University) has focused on the hybrid governance of urban food movements in Europe and North America. As a postdoctoral researcher at the HafenCity University Hamburg, her research agenda deals with urban experimentation, urban environmental governance, and socioecological justice.

Fabian Namberger is a postdoctoral researcher at the HafenCity University Hamburg and member of the DFG-funded research training group Urban Future-Making. His research is situated at the interface of critical urban theory and digital technology and media, exploring themes such as smart and platform urbanism, ride-hailing, AI, and autonomous driving. Before joining the HafenCity University, Fabian completed his PhD at Goldsmiths College, University of London.

Lucas Pohl is a human geographer whose research focuses on social and spatial theories, built environments, and urban political ecologies. He currently works as a postdoctoral researcher in the Department of Geography at Humboldt-Universität zu Berlin and he is an associated member of the DFG-funded research training group Urban Future-Making.

Joachim Thiel is a senior lecturer with a habilitation in social-economic urban and regional research. He works at the Research Group of Urban and Regional Economics at the HafenCity University Hamburg. His current research focuses on large-scale urban development projects, urban smart city strategies, and urban testbeds in technological innovation trajectories. He is one of the deputy spokespersons of the DFG research training group Urban Future-Making.

Louis Volont explores the modern metropolis through a cultural-sociological lens. He was previously a Fulbright Fellow at MIT's Program in Art, Culture, and Technology, where he collaborated on the Choreographing the City project. At present he is a postdoctoral researcher in sociology at the HafenCity University Hamburg. His work looks at the cultural, temporal, and moral dimensions of urban life.