Handbook of Transportation and Public Policy

The empirical study of urban transport governance

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1 Introduction

A better comprehension of existing governance arrangements, potential reforms and modernisation pathways is often presented as a fundamental part of statecraft (Fukuyama 2013; Grin 2006; Clarke and Newman 2004; Goldsmith 2007; J. Newman 2005). It is also the primary focus of an entire discipline, administrative studies, and a popular topic within universities' public policy departments. Given the limitations of simulating or modelling governance, related inquiry has a strong theoretical tradition increasingly supported by empirical research. This research often focuses on those spheres of governance that are more amenable to change, have inbuilt flexibility and are open for reinterpretation. Local government and the governance of cities belong to that category. The attention given to governance arrangements is equally prominent when recognising major challenges alongside those policy domains that stand out as being most directly affected. In the context of a global climate emergency as well as deeply rooted urban inequalities, commentators have pointed again and again at the transport sector as requiring fundamental change.

Whether governance is broadly considered as "all processes of governing, whether undertaken by a government, market, or network" (Bevir 2012, p1) or as "government's ability to make and enforce rules, and to deliver services" (Fukuyama 2013, p350) it represents a precondition and institutional environment for policy making and implementation. Governance may not involve any normative considerations on desired policy outcomes and not even desired processes such as inclusive or democratic practices. As part of urban-focussed debate, this has led to references to a 'tyranny of governance', critiquing the lack of a normative base of what is being analysed and achieved (Parnell 2014). Recognising such views, the UN's Habitat III process combined 'politically neutral' and normative dimensions of governance and referred to new urban governance as "democratic, inclusive, multiscale and multilevel" (Rode, Saiz, and (eds.) 2016, p3/38). Still, in a broader sense, governance is about processes and structures that guide and control any social organisation, a given territory, or a policy domain. In addition to the points above, the urban transport sector is a particularly insightful arena for governance studies, as a relatively clearly bounded and professionalised field which at the same attracts high levels of engagement by the public and multiple stakeholders.

The main objective of this chapter is to present and discuss different approaches to empirically capture urban transport governance. This goal is addressed by documenting relevant examples and to also discuss how such research may inform policy-oriented insights. The chapter is structured in five substantive sections. The first will focus on learnings from the broader field of urban governance as part of academic inquiry which may be helpful for the case of understanding urban transport governance. The three sections that follow are dedicated to three different approaches to the empirical study of urban transport governance. The first approach introduces more descriptive mapping approaches which position the transport domain within urban governance. The second approach focuses on integrated governance and joined-up policy making while the third engages with the socio-structural futures of transport governance networks in cities. The final section is dedicated to reflecting on how these approaches may inform policy-oriented research.

2 Learning from urban governance as a field of academic inquiry

The inexistence of a grand theory of urban governance that "defines the key concepts and identifies dependent and independent variables (…) and stipulates causal relations and the direction of that causality among those concepts" (Jon Pierre 2014, p870) has led to some frustration. Many influential authors therefore conclude that urban governance approaches should be regarded as comparative analytical frameworks rather than theories. The feeling of 'incomplete' knowledge, at least in a traditional sense, is voiced by Storper when he states that: "the urban condition generates sustained efforts at coordination and governance, much of which works, one way or another" (2014, p116).

Zooming into the various arenas that frame transport governance in cities remains an important academic exercise (Buehler and Pucher 2011; Low and Astle 2009; Akyelken, Banister, and Givoni 2018; Mu and de Jong 2016; Rode 2018; N.F. da Cruz et al. 2022). Unsurprisingly, certain disciplines tend to emphasise certain aspects. For example: public administration, law and management science is often concerned with organisational and regulatory issues; economics and finance with human resources and the availability and access to resources; political science with the place-based politics and voters' attitudes; sociology and anthropology with the relationships and traditions underpinning the interactions of stakeholders. Governance sits at a higher level of analysis, where all these arenas come together in a complex way to create the 'enabling environment' (UN 2016). Therefore, urban governance is upstream to challenging policy and operational requirements. To raise the necessary capital, develop the necessary skills, along with all other necessary conditions, a common view is that cities will first have to 'get governance right'.

2.1 Comparison and context

The struggle to identify wide-ranging explanations and extract learnings from particular local contexts (that may help us understand and intervene in other cities and countries) has led to a focus on measuring outcomes and hoping this will send signals down the feedback loop back to governance arrangements (Kitchin, Lauriault, and McArdle 2015). More generally, this is manifested through the not-so-recent calls for measuring happiness or wellbeing, and using these, instead of GDP, to assess the success of nations, cities or policies (Waldrop 2021). When it comes to specific policy sectors like urban transport, a typical 'shortcut' is focusing on *what works* (best practices, role models) rather than on *why does it work*. Time and time again, this leads to theoretical confusion and practical disappointment by failing to consider and adapt to local contexts.

Currently, there are two main types of approaches in the urban governance literature regarding the role of context, contingency, and complexity: 1) context-specific analysis and 2) systematic comparison. The context-specific approaches focus on the complex and dynamic nature of urban governance, its multiple lines of authority and forms of power, and the socio-material assemblages through which urban governance works (McGuirk and Dowling 2021; Stripple and Bulkeley 2019). Researchers have deployed Foucault's concept of 'dispositif' or apparatus, and/or assemblage theory to identify and analyse the socio-materialities, processes and devices that compose the dispositif/assemblage, and how these cohere to generate governance capacity to deal with a particular challenge (Braun 2014; Bissell 2018). For example, McGuirk and Dowling (2019) utilise this approach to reveal emergent rather than predetermined governance capacities for governing Sydney's office energy alongside a form of distributed and multifaceted form of urban governance. Usually drawn from highly "contextualised, situated practice, always achieved through the gathering of heterogeneous elements in particular arrangements and through particular interventions, around

particular and situated problems" (McGuirk and Dowling 2021, p762), this approach has the advantage of embracing emergence, contingency and complexity. Its explanatory value and ability to generate transferable knowledge, however, is limited, and sometimes exacerbates rather than helps the problem of knowledge reification (Richardson, Durose, and Perry 2019).

The systematic approaches to urban governance use analytical lenses and/or methodologies that can be replicated in different contexts (van Popering-Verkerk et al. 2022; McGuirk et al. 2022). Researchers identify and analyse "configurations which represent multiple attributes leading or not leading to outcomes" (Byrne 2011, p134f). Some of this literature seeks to take a step towards expectations or hypothesis concerning the links between urban governance arrangements, collective action and outcomes, so that learnings may be relevant to cities in different contexts (Neal, Derudder, and Liu 2021). The clarity, replicability and explanatory power of these approaches are key advantages. At the same time, it can be overly mechanistic, conceptually underdeveloped, and naive for failing to recognize the complexity of local contexts (Richardson, Durose, and Perry 2019).

2.2 A complex spectrum: from institutional arrangements to policy outcomes (and vice versa)

Urban governance arrangements, for the transport sector or beyond, does not determine public policy outcomes or the quality and nature of public services and investments. In any given context, these are also informed by a complex combination of individual decisions and actual behaviour of people; specific policies, laws and market signals; wealth levels and the (un)availability of resources; politics and power structures; cultural norms, ideologies and world views. In fact, many of these factors may not only determine policy outcomes but the governance structures employed in a given context themselves. As a result, there is also considerable leeway for governance actors to influence strategic public decisions in different directions regardless of specific governance arrangements (Fukuyama 2013). The interplay between all these governance conditions, however, does impact on the policymaking and delivery processes and therefore defines the set of feasible outcomes. In other words, the governance within a city makes certain kinds of interests and choices easier to adopt than others (J. Pierre 2011). As for other policy sectors, this also applies to the case of urban transport strategies.

To illustrate the wider spectrum characterising the relationships between institutions and policy outcomes, Figure 1 presents the case of a research interest in integrated governance and compact city development. The research focus in this case is on integration mechanisms, how they are embedded as part of urban governance systems and how they impact on policy capacity. While also consider several relationships across the broader spectrum, directly addressing the long and complex causal chain between institutions and policy outcomes may well be impossible. That does not imply that these links between institutions and outcomes do not exist but that it would be too difficult for existing research techniques to understand how these links operate in detail. It is also important to note, that the influence between institutional arrangements and policy outcomes travels in both directions, from 'meta to matter' (the structuralist perspective) as well as from 'matter to meta' (the functionalist perspective) (Scharpf 1986; Rode 2018).

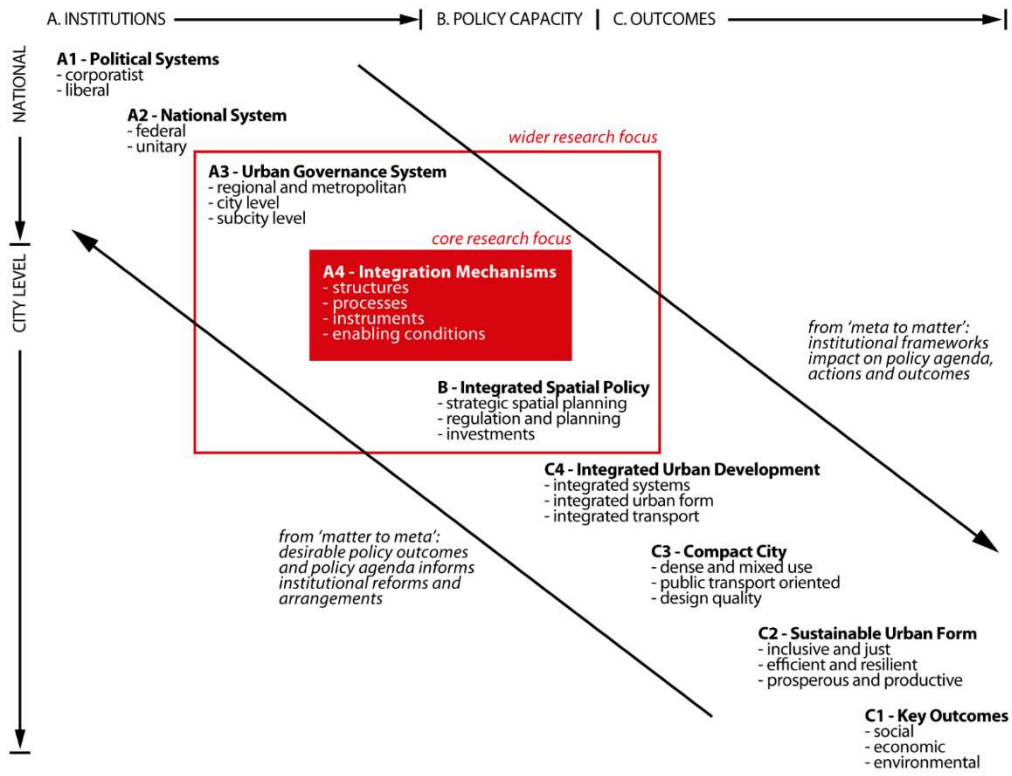

Figure 1: The spectrum from institutions to policy outcomes for the case of compact city development. Source: Rode (2016)

The following studies of coordination for metropolitan, transport and land use concerns illustrate attempts to operate at different ranges on the institutions to outcomes spectrum. For the top left to centre level, Sager (2006) advances a meta-analysis of 17 European metropolitan areas. He finds that a progressive reform model (direct public service production by centralised and professionalised bureaucracies within consolidated municipalities) offers better institutional approaches to coordination in urban areas than the public choice model (decentralised, non-professional, and politically dependent administration in fragmented urban areas). For the centre level to bottom right, Hirschhorn et al. (2019) identify a close link between a higher public transport modal split and the integration between land-use and transport as well as the integration of planning responsibilities. By contrast, Kwadwo (2022) utilises a dataset of over 200 metropolitan regions in 16 OECD countries to conclude that both fragmented and consolidated metropolitan governance structures are "equally inefficient in delivering a reduction in CO2 transport emissions" (p771).

2.3 Analytical generalisation

Recognising the challenges of operating across the full spectrum ranging from institutional arrangements to policy outcomes, the research approaches below are narrower in scope and primarily aim to a better understanding of existing arrangements. Most of these empirical research projects on urban transport governance consider issues that had not been thoroughly investigated before. This puts a particular emphasis on the definition and systematisation of analytical concepts or approaches. The key questions that this type of research is tackling are for example: How are transport infrastructure interfaces, the 'touching points' of different transport systems, technical characteristics and governance arrangements, governed? What are the key integration mechanisms for urban planning and transport policy? How can urban and transport governance and institutions

be mapped and understood as concepts, categories and variables while recognising the power of context?

In these cases, rather than either targeting pure description or aiming for ambitious theory building, the goal of urban transport governance research is the ordering of concepts emerging from empirical study to generate suggestive generalisations. Overall, the goal of such research comes closest to 'analytic/theoretical generalisation' where "the researcher arranges the categories according to their internal relations" and "the empirically generalized findings are framed by a theoretically inspired perspective" (Meuser and Nagel 2009, p36).

Furthermore, it is helpful to position these research approaches presented below across the currently emerging strands on sustainable transport governance. For the governance of low carbon mobility, Haarstad (2016) differentiates three prominent governance perspectives: "(1) the vertical perspective, which emphasizes the governance processes that flow between formal jurisdictions and a hierarchical set of governance institutions. The key reference is the multilevel governance literature, … (Marks and Hooghe 2005). (2) the horizontal perspective, stressing city-to-city and inter-city circuits of policy circulation and learning. Primary literature sources are growing policy mobility literature (McCann 2011; Peck 2011; Wood 2015). (3) the infrastructural perspective, which places politics in the local and seemingly minute construction of the built environment … (McFarlane and Rutherford 2008; Winner 1980)" (p6). The cases below mainly belong to the first and third category.

3 Approach 01: New urban governance and the transport domain

Who gets to decide what the city should be and how to get there? To answer this question, we need to understand how cities are governed. But since global and comparative research on urban governance is confronted with an absence of systematically collected, comparable data (N. da Cruz, Rode, and McQuarrie 2018), a key ambition for scholars in this field is experimenting with approaches and methodologies that can generate new empirical insights. Below we summarise two initiatives that sought to map key governance features pragmatically – one based on survey data, and another on secondary data.

3.1 Perception-based mapping of governance responsibilities

Despite ever-increasing availability of information on institutional arrangements in individual cities, knowledge and methodologies that are able to capture and compare the wide spectrum of different urban governance systems are limited. In the run-up to the Habitat III conference in Quito in 2016, LSE Cities, UN-Habitat and United Cities and Local Governments (UCLG) partnered up to address this challenge and develop a global survey on urban governance (LSE Cities, UN Habitat and UCLG, 2016). As part of LSE Cities' New Urban Governance project (LSE Cities 2017), a key objective of this initiative was exploring new ways of communicating and mapping urban governance for public dissemination, comparative policy and research analysis.

Based on a sample of 78 city governments, supported by key informants within local government, that took part in the survey (including data from all continents and 53 countries) substantial differences were identified with regards to the distribution of political power and responsibilities across different sectors. City level governments take on greater responsibility for spatial planning, culture, utilities and transport – and are far less involved with other policy sectors, such as health and education, which are concentrated at the level of state or national governments. Some cities are

under additional influence from regional bodies. The local policies of European cities, for example, are also strongly influenced by supranational bodies such as the European Union. A few of the cities surveyed noted the influence of non-government organisations. The ability to lead on specific policy sectors also directly relates to questions of budget and revenue sources. Cities which do not have the funds to administer certain policy sectors tend to also lack executive powers in these areas.

The survey also illustrated the urban transport sector's substantial exposure to multi-level governance. Once the different components of urban transport are unpacked the sheer variation of relative power across tiers of government is remarkable. While city governments tend to lead on small and medium-scale public infrastructure initiatives – such as public space improvements, cycle paths, footpaths and smaller roads – large-scale infrastructure tends to be controlled by state and national governments, often requiring substantial capital investments. Both highway infrastructure and operations and rail-based transport were perceived as being the most centralised transport sub-sectors.

3.2 Desktop-based mapping of governance context

As argued above, the successful implementation of technocratically developed or 'imported' policy instruments hinges on whether or not the existing governance systems have been considered as part of the policy process. For the case of analysing the usefulness, appropriateness and political feasibility of implementing mobility budgets as part of the UrbanEurope research collaboration MyFairShare, the following approach was identified. The MyFairShare project seeks to explore the applicability of sufficiency principles to change mobility habits through the fair allocation of individual mobility budgets (MyFairShare 2022).

For this application case, the project team developed a pragmatic protocol to map the key features of the governance contexts of the various proposed Living Lab cities. This included four key elements. First, the existing legal frameworks and administrative procedures that regulate the various authorities, institutions and other societal actors, as well as the powers held by them (Schragger 2016). At the highest level, this dimension of the urban governance context encompasses issues such as:

- Characterisation of democracy (electoral system, rule of law, freedom of press…)
- Multilevel hierarchies, (de)centralisation, local government autonomy
- Regulatory and enforcement powers of local governments
- Urban policies and public administration rules
- Administrative boundaries

Second, the availability of governance resources – not just public finance but also other assets that are critical for governing, such as knowledge and skills, or the commitment to place of non-government actors (Schaller 2021) – will likely impact on the success of individual mobility budgets. Overall, the following substantive issues should be considered regarding governance resources:

- (Public) finances
- Data
- Expertise, administrative/technical capacity, knowledge and skills
- Local economy (vitality, commitment to place, informality)
- Urban morphology and natural resources

Third, the place-based politics, ideologies and perceptions that emerge throughout history are also a key dimension of urban governance (Davies and Imbroscio 2009). The public appetite for climate action and the acceptability of related policy measures, for example, will be directly related to the political environment of the targeted territory and the overall sentiment of the population towards this global challenge. These issues are also closely related to the 'Overton window' concept, which represents the range of ideas the public is willing to consider and accept. "In short it dictates what is politically acceptable and therefore possible at a given moment" (Lancet 2020, , e751, e751). This dimension of the urban governance context is shaped by the following types of dynamics:

- Place-based history, identity, practices
- Legitimacy, political narratives, public opinion, engagement and trust in government
- Partisanship, opposition, political jostling, pluralism
- De-politicisation, technocratic/rational stance
- Populism, radicalism

Fourth, the network of governance actors and the traditions regulating their interactions represent another axis through which strategic decisions are shaped (Neal, Derudder, and Liu 2021). Public bureaucracies (captured through the first and second points) and their political masters (captured through the third point) do not operate in a vacuum. Ideas, manifestos or agendas become strategies, which become policies, which guide or inform decisions, which have real impacts on the ground (N.F. da Cruz et al. 2022). In cities, local governments navigate through this process while submitting to the authority of other levels of government, coordinating with other agencies, negotiating with funders, dealing with lobbying pressures, and worrying about popularity and citizen satisfaction (Brenner 1999; Cars et al. 2017; Stoker 2011).

Distilling these high-level issues into more operational questions enables us to characterise, in a systematic and comparative way, the governance context framing the design and implementation of individual mobility budgets across the various Living Labs.

4 Approach 02: Integrated governance and joined-up policy making

A fundamental and crosscutting governance concern has always been a better understanding of how institutional arrangements can enable more integrated and joined-up policy making. Transport policy is no exception and in an urban context is among those policy domains that is characterised by fundamental synergies with other domains in co-producing urban accessibility (Rode et al. 2017). Since the 1990s, the integration of transport policy and land-use planning has been a particularly prominent focus of scholars interested in sustainable urban development and mobility (Westerman 1998; Topp 1994; P. Newman 1996; Gertz 1997). Furthermore, the turn from government to governance also directly implies a renewed focus on coordination between an ever-increasing number of key stakeholders and urban actors.

Counteracting fragmentation, identifying blind spots due to a division of labour and addressing insufficient policy coherence as a result of silo-isation is a central ambition of urban governance motivated by the territorial integration of a city or metropolitan region. Highlighting conflicts and synergies earlier in the process is among the fundamental promises of more joined-up urban practices and policy making (Hansen 2006). This section considers the experience with two empirical studies. First, a comparative case study analysis on integrating urban planning, city design and transport policies in London and Berlin. Second, the governance of transport infrastructure

interfaces which are part of Ethiopia's new rail systems and experiences in two cities, the capital Addis Ababa and the second largest city, Dire Dawa.

4.1 The institutional connection between urban planning and transport policy in London and Berlin

This study by Rode (2018) investigates how integrating urban planning, city design and transport policies was pursued in London and Berlin as part of a compact city agenda since the early 1990s. Focusing on the underlying institutional arrangements, it examines how urban policymakers, professionals and stakeholders have worked across disciplinary silos, geographic scales and different time horizons to facilitate more compact and connected urban development. The research draws on empirical evidence established through a mixed method approach of expert interviews, examination of policy and planning documents, and review of key literature. Four main groups of integration mechanisms were identified and analysed: those related to (1) governance structures, (2) processes of planning and policymaking, (3) more specific instruments, and (4) enabling conditions.

The experience in the two case study cities may to suggest that the sectoral integration of urban planning, city design and transport policy is best achieved at the level of a citywide government. Considering all governance levels, the integration structures that have emerged in the two cities may be characterised by an 'x-shape' of governance and integration: Horizontal integration is strongest at the city level (the centre of the x). Higher up, towards national government and further down, towards the borough level, a stronger sectoral approach has been evident (Figure 4).

Based on having identified converging trends as part of the institutional changes that facilitated planning and policy integration in the case study cities, the three main findings are: First, rather than building on either more hierarchical or networked forms of integration, integrative outcomes are linked to a hybrid model of integration that combines hierarchy and networks. The case of reforming London transport governance as part of setting-up Transport for London as integrated transport authority is an exemplary case of this hybridity of clear hierarchies alongside cross-cutting teamwork.

Second, while institutional change itself can lead to greater integration, continuous adjustment of related mechanisms is more effective in achieving this than disruptive, one-off 'integration fixes'. Third, integrated governance facilitating compact urban growth represents a form of privileged integration, which centrally involves and even relies on the prioritisation of certain links between sectoral policy and geographic scales over others. Integrating urban planning, city design and transport policy at the city and metropolitan level is essentially a prioritisation of the transport and urban form relationship over other policy nexuses (e.g. industrial and transport policy), which the compact city model implies and helps to justify.

4.2 The governance of transport interfaces in Addis Ababa and Dire Dawa

This research by Rode, Terrefe and da Cruz (2020) explores the governance of transport infrastructure interfaces which are part of Ethiopia's new rail systems and documents experiences in two cities, the capital Addis Ababa and the second largest city Dire Dawa. The investigated interfaces, the Leghar light rail station (Addis Ababa) and the Dire Dawa railway station, are 'touching points' where different city systems, technical characteristics and governance regimes meet. These hotspots of urban governance generate numerous critical questions for cities. Yet, across disciplines, dedicated research on these interfaces and their techno-spatial and organisational

boundaries are scars. Utilising a multiple case study approach, the researchers connected a socio-spatial analysis of the interfaces with an institutional analysis of their governance.

A simple taxonomy of transport infrastructure interfaces helps to conceptualise infrastructure interfaces and their governance as part of the broader city system. The broader interest framing this research is the governance of the sphere of transport infrastructure interfaces connected to the wider social systems of urban governance (see 'A'). Three interfaces part of the technical transport system are the main focus: First, active interfaces ('#1') enabling the provision of access between system components dedicated to facilitating mobility (streets, railways, etc.) and those characterised by their stationary/place function (buildings, green space, etc.). Second, mobility interfaces ('#2') connecting different modes of travel (e.g. changing from bus to train or from walking to taking a taxi). Third inter-sector interfaces ('#3') that are not part of the core accessibility function while linking transport to other technical city systems and functions (e.g. transport and electricity systems or transport and drainage systems).

Through interviews, archival records and direct observations, the research identified various components of the infrastructure systems (nodes) and the interaction between them (ties) for both case-studies. A qualitative assessment of their hierarchy – in terms of their relevance for or association with each interface – allowed placing more prominent elements at the centre and those with a more indirect relationship with the overall infrastructure interface at the periphery. Cases where the various elements are connected through active transport interfaces (type #1 or #2) or inter-sector interfaces (type #3) are both included. Figure 5 also groups the various elements into eight infrastructure systems and illustrates the perceived strength of their interaction (the smoother and more frequent the interaction, the thicker the tie between elements; if there is no interaction, there is no tie).

The research found a dominating role of highly centralised and hierarchical governance and coordination dynamics and identified a critical role of a new bureaucracy (the Ethiopian Railway Corporation). These roles were structured around core railway engineering competence rather than urban transport and development expertise. Furthermore, the research allowed to associate a techno-political alliance in Ethiopia with shaping urban development and rolling-out of infrastructure at an unprecedented speed and scale.

Indicative findings pointed to city-level governance as potentially better suited for addressing planning dynamics, better integration and delivering more responsive transport operations. But would perhaps result in lengthier implementation periods. Essentially, centralised, top-down coordination via the Prime Minister's Office and the Ethiopian Railway Corporation provided a shield for key technical actors from wider stakeholder involvement and co-production which in turn accelerated implementation.

In summary, approaching urban governance research through an empirical lens either focusing on city-wide planning and transport policy integration over several decades or on transport infrastructure interfaces proved to be an insightful entry point to broader findings linked to multi-level urban governance, coordination approaches, institutional arrangements and its politics. For the case of research on infrastructure interfaces, extracting information on the design, implementation and operations phase of governing urban infrastructure based on the specificity of technical design requirements as well as broader urban integration concerns at specific material infrastructure interfaces allowed for clear communication with key interviewees/stakeholders, a visual illustration of challenges and, ultimately, effective generalisation via empirical induction.

5 Approach 03: The socio-structural features of urban transport governance

Alongside the characterisation of urban transport governance above, the composition and structure of urban governance networks may help explain differences in urban transport policy priorities and outcomes. Private-sector participation in strategic public projects (Cook 2009), the existence of multilevel relationships and transactions (J. Pierre 2019), the emergence of new non-governmental actors claiming power in the 'governance network' (Lee, McQuarrie, and Walker 2014), are all palpable and constantly (re)shaping urban policies and strategies. However, because the 'soft power' imparted by these connections is difficult to grasp, the scale, scope and relevance of these exchanges have seldom been formalised and mapped out through empirical research (N. da Cruz, Rode, and McQuarrie 2019).

To tackle this empirical gap, the two studies described below looked into the informal relationships that help shape urban transport strategies in London and New York, and the governance of strategic spatial planning in Addis Ababa. The research questions guiding this research include: 'What are the actors and social institutions framing urban governance in these cities?', 'What are the structural features of these governance networks?', and 'How may these features impact policymaking, investment decisions, information flows and public perceptions/support?' The analysis relied on social network analysis (SNA) methods.

The data was collected via structured interviews with key individuals from different types of organisations relevant to the urban governance networks. We conducted a total of 55 interviews for the case of London, 40 for NYC, and 31 and Addis Ababa. For both studies, to identify who the key actors are and define the network boundary, a snowball sampling approach was employed. The initial group of respondents, selected through desk research, nominated other individuals (and organisations) in their replies to the 'name generator questions' (Prell 2011) of the interview scripts (for the scope and specific wording of the questions, see da Cruz et al., (2022) and da Cruz and Rode, (2023)). The underlying governance patterns were then operationalised by mapping the ways the various actors relate to each other (i.e., the interview notes were used to produce network data). For each question of the interview script, we produced a table that identifies which individuals/organisations were mentioned in the responses to that question, and by whom. All the data from the various questions was then aggregated to conduct the analysis. The quantitative parameters of the governance network – e.g., relating to centrality or cohesion – were calculated through the UCINET software package (Borgatti, Everett, and Freeman 2002). The visualisations were produced with the open-source software Gephi (Bastian, Heymann, and Jacomy 2009).

5.1 Transport in London and New York

Looking at organisational data[1], there are 190 entities in London and 163 in NYC that are particularly relevant for the governance of urban transport. These organisations and how they are interconnected can be illustrated by the complexity of transport governance networks. Although larger networks tend to have lower densities, the values are similar for both cities. This is explained by the higher centralisation of London's transport governance network. Indeed, London has fewer 'highly powerful' actors than NYC. In other words, fewer actors are controlling transport governance in the British capital, whilst a broader range of actors are shaping transport strategies in New York.

[1] For the analysis of the networks of organisations, interviewed individuals and/or individuals mentioned during the interviews were coded as their parent organisation or institutional role.

The diameter and the average path length of each network also support this assertion. London's higher cohesion is explained by the hyper centrality and relationality of TfL. NYC's governance network appears to be less cohesive but more interconnected due to the presence of more cohesive subgroups with less connections between them.

By analysing actor level parameters, namely the results of various centrality measures, helps us shed more light on the structural differences of these governance networks. TfL and the Mayor of London have similar indegree centrality scores (an indicator of prestige or popularity) and then there is a gap between these two and the remaining network actors. The top indegree centrality scores for NYC are much closer together, meaning that there are more actors sharing the power/attempting to influence. Another interesting finding is the nature of the most central actors in both cities. In London, the four most central actors according to indegree centrality scores are all local government entities. The first national government entity (Department for Transport) appears in the seventh position of the ranking of indegree centrality. In NYC, the first local government entity (NYC Department of Transportation) appears in the fourth position. According to this measure of centrality, the Governor of NY is clearly the most central actor in NYC's transport governance network followed by the MTA, which is also controlled by the State.

Some interesting shifts in the rankings of centrality occur when we consider other parameters such as eigenvector (connection to high status actors), betweenness (capacity to play a brokerage role), and closeness (independence, information level, and/or capacity to mobilise a network) centralities. In London, the Mayor drops from the top, particularly for betweenness and closeness centrality. Whereas the GLA displays higher relevance. Through these network analytics, TfL's dominance becomes even more apparent as the transport authority emerges as the key network broker, connecting otherwise disconnected actors in the city. In NYC, the Governor also appears less central according to these measures, while other entities suddenly boast important governance capabilities: the Regional Plan Association (privately funded), more visibly, but also NYC DoT (city government), Bloomberg Associates (private consultancy) and Move NY (grassroots). The fact that different types of actors have similar betweenness centrality supports the notion that NYC's network may have more cohesive subgroups with less connections across them.

In sum, the empirical evidence suggests that transport governance in London is more centralised (and, arguably, more technocratic and integrated) whereas, in New York, the institutional environment is typified by many checks and balances (and, arguably, more democratic and fragmented).

5.2 Strategic planning in Addis Ababa

Following the approach of section 4.1, analysing the governance of city-wide planning is also important for a more comprehensive and integrated understanding of transport-specific policies and outcomes. With this study, we explored the social structures that underpin the governance of strategic planning for spatial development in a major city of sub-Saharan Africa. Replicating the SNA approach adopted in the study of transport governance in London and NYC, the objective here was also to test whether it can be useful for analysing governance empirically in fast-growing cities of the Global South characterised by complex political situations.

The most central nodes of the strategic planning network in Addis Ababa are largely city government actors (Figure 2). The indegree centrality scores confirmed this: out of the 12 nodes with highest indegree centrality, eight were city administration entities. Not only are they numerous, but the ties linking these entities are also strong. The few non-government actors displaying high centrality

scores seem to be interconnected with weaker ties. The governance of strategic planning and spatial development in Addis Ababa is very much focused on government – more specifically, local government. The Prime Minister is the only national-level government actor featured in the top central nodes (no supranational or sub-city level government stakeholders are featured at all). Governance in this city, therefore, does not appear to be significantly 'multilevel' (Klijn 2016).

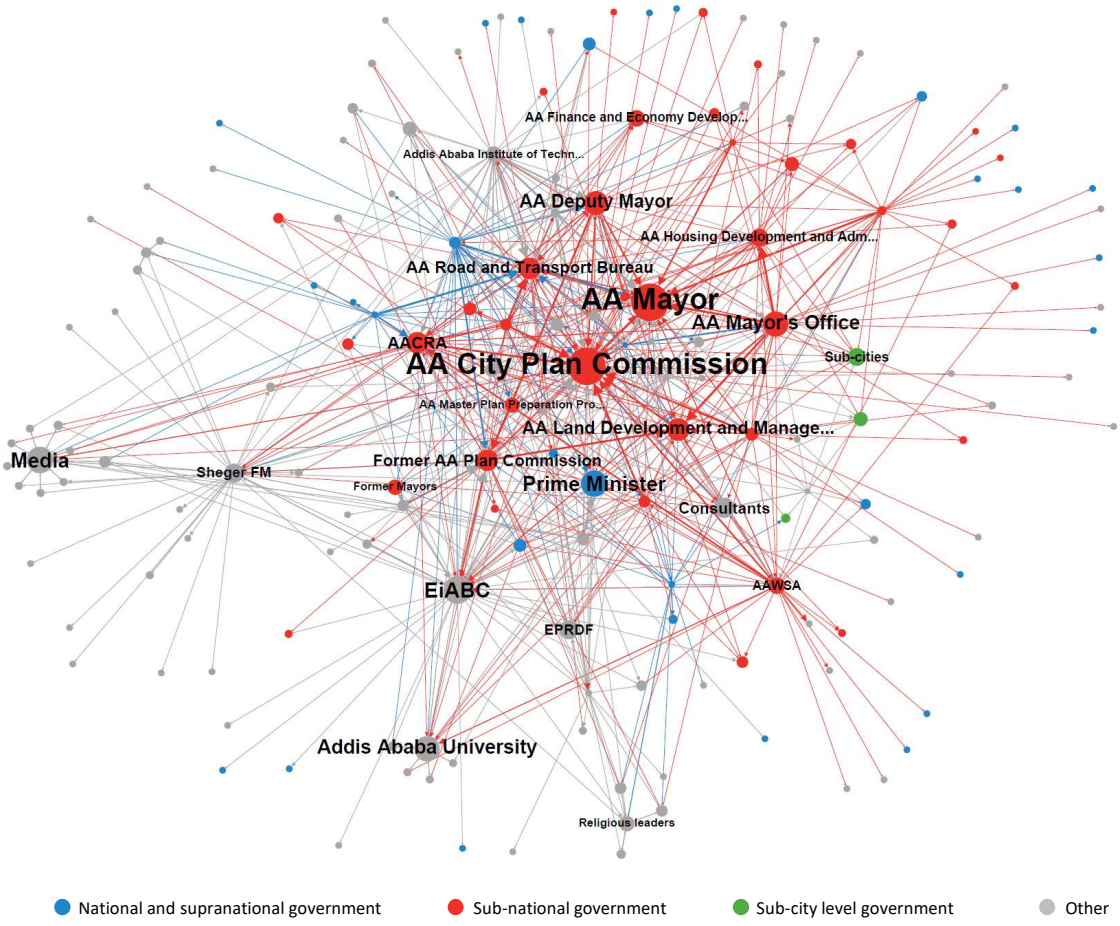

Figure 2. Addis Ababa's strategic planning governance network.

The prominence of the City Plan Commission and the Mayor of Addis in relation to other actors was reflected in other measures of centrality as well. For example, the only two non-city government actors in the top 10 nodes in terms of eigenvector centrality were academic institutions. Some of the actors that we had expected to be influential in Addis Ababa's spatial development were not very ingrained in the governance network. Indeed, recent empirical research in Addis Ababa has highlighted the authority of federal-level entities such as the Ethiopian Railway Corporation (Rode, Terrefe, and da Cruz 2020) and of the ruling party itself in the development of urban infrastructure, real-estate, and other megaprojects (Terrefe 2020). Still, the peripherality of other seemingly powerful actors echoes the findings of some studies. For example, (Brown and Fisher 2020) have described the frustration of the World Bank and UN agencies trying to influence policy in Ethiopia, and Goodfellow and Huang (2021) concluded that the perceived influence of Chinese actors may be overestimated.

Since some seemingly peripheral actors nevertheless control important governance resources – such as Chinese investors (Goodfellow and Huang 2021), the ruling coalition (Terrefe 2020), or federal institutions (Rode, Terrefe, and da Cruz 2020) – more than resource dependence theory, this

network structure may be explained by a network-level preferential attachment process (Whetsell et al. 2020). The network core is very homogeneous and has an overrepresentation of certain sectors and types of technical expertise (the case of road and traffic management, with the Addis Ababa City Roads Authority and the Road and Transport Bureau). This imbalance may threaten governance stability and coherence in the city going forward.

The Plan Commission likely holds the best information, connects the various policy sectors in the city, and has access to powerful actors. But the true policymaking power resides with the Mayor, who simultaneously has a high centrality and a strong legal mandate. However, looking back since the Ethiopian revolution of 1974, we find that the position of the Mayor is actually quite precarious, with an average tenure of 3.6 years. Given the structural features of the governance network, by being able to dismiss/appoint the Mayor, the Prime Minister is able to control the whole urban governance apparatus. The current governance regime in Addis Ababa seems to privilege the effectiveness of the developmental agenda over the inclusiveness of the governing process.

6 Operationalising frameworks for applied research

How can the approaches above inform praxis-oriented research? What use may they have as part of policy-oriented engagement? In which circumstances may they contribute to informing governance reforms? While a broader understanding, conceptualisation and even theorising of transport governance will naturally benefit from empirical insights, it is less clear what type of value can be generated for policy practice in the absence of clear evidence on how governance arrangements lead to policy outcomes. Here, we want to briefly touch upon the barriers and constraints for directly transferring between academic insights and practical application, the main opportunities for building bridges between the two and several implications for operationalising urban transport governance research frameworks for practical engagement. These reflections are based on past and ongoing advisory work for United Cities and Local Governments (UCLG), Metropolis, the German Development Corporation (GIZ), the World Bank, the World Resources Institute, the C40 Cities Climate Leadership Group, the European Environment Agency, the Coalition for Urban Transitions and various city governments.

A fundamental constraint of most of the presented work for direct employment in policy practice is the limited capacity to produce evidence on how different governance arrangements may or may not influence policy outcomes. The complex causality across the governance to outcome spectrum, as discussed earlier, establishes barriers that the methods above cannot fully overcome. The focus on policy capacity may help here but would also require complementary research approaches. Furthermore, each of the approaches above required considerable resources and dedicated research teams external to the institutions investigated. In terms of transferability across cities and countries of different wealth levels and institutional maturity, any approaches that relied on the documentation of formal governance arrangements may risk falling short of fully capturing how governing the transport domain is actually done. But even if all these shortcomings could be appropriately addressed, a more fundamental question on whether such research could and should inform governance reform remains highly uncertain.

While acknowledging barriers and constraints, there are at least three main opportunities for utilising the presented urban governance research approaches for policy and governance oriented engagement. First, there are several research methodologies which could inform such work. Having tested various survey formats provided helpful insights on the type of governance questions that were relatively easy to get answers to while generating valuable insights. These include, for example,

prioritisation questions of the most powerful or influential actors for specific governance remits. For both surveys and interviews, key informants that are well positioned to respond to generic and comparative perspectives included local academics, journalists and other informed 'outsiders', as well as urban transport leaders that have recently retired from key transport governance positions. The latter group is particularly well positioned to openly share insider knowledge. While surveys and stakeholder interviews can be easily conducted as part of policy-oriented engagements, social network analysis can certainly complement this work while best commissioned to experienced researchers or academics to present an adequate representation of social ties, their strengths and the centrality of different actors.

Second, various conceptual frameworks can easily be utilised to advance policy practice. For example, in our own policy-oriented work, the categorisation of integration mechanisms introduced above has proved a useful entry point for analysing existing arrangements and identifying opportunities for better vertical and horizontal coordination. Similarly, standardising domains and sub-domains of urban transport governance and complementing these by taxonomies for urban transport systems assist relating context specific accounts of transport governance to a comparative understanding, also informing potential peer learning and benchmarking. Such opportunities also existing for standardising governance geographies or governance scales (e.g., sub-city, city, metropolitan, state and national level) as well as standardising organisational types relevant to describe the key institutions. Mainstreaming such categories in policy practices is similarly helpful as the common differentiation between type 1 organisation, responsible for a policy sector among other policy domains, and type 2 organisations, exclusively governing specific policy domains such as urban transport or sub-sector tasks.

Third, the above research approaches have established lessons for communicating and mapping governance that are also relevant for policy-oriented work. Presenting survey results based on perception-based mapping of urban governance leadership has proved an effective entry point for positioning specific urban transport governance cases and testing one's own assessment of which actor at what level of governance is taking the lead. Organigrams and organisational charts have long been the repertoire of communicating governance structures of a given organisation. More generously introducing them as part of discussions on governance reforms to a wider pool of stakeholders – and even the public – helps to overcome the black-box perception of large complex urban transport organisations. The visualisation of social networks that underpin urban transport governance, including the weak and informal ties, additionally adds to appreciating the mostly highly contextual and unique arrangements that exist in specific settings. These visualisations may also allow mainstreaming some of the terms of social network analysis into a policy-oriented understanding of governance arrangements: eigenvector (connection to high status actors), betweenness (capacity to play a brokerage role), and closeness (independence, information level, and/or capacity to mobilise a network) centralities.

Building on these opportunities, operationalising policy-oriented urban transport governance research will have to centrally consider the purpose of documenting and analysing urban transport governance, and the level of granularity of this research – defined by the purpose while considering available resources. Our recent work for the World Bank has also indicated that it is helpful to operate with several lenses when mapping urban transport governance: (1) a transport systems lens which is useful, for example, for analysing the technical delivery capacity of transport projects; (2) an urban governance lens, for a better understanding, for example, of strategic transport planning; and, for policy-oriented research, (3) a policy agenda lens to capture the normative context of governing urban transport which is particularly critical for investigating interventions targeting behaviour

change. The latter can often be neglected as part of a more technical documentation of governance which more narrowly follows the 'neutral' interpretation of governance as opposed to policy making.

7 Conclusion

This chapter aimed to summarise some of the authors' more recent experiences with the empirical study of urban transport governance. The presented approaches all share a humble attitude towards researching the complexity of governance systems and their relationship across the institutions to policy outcome spectrum. According to our experience, even the basic description of existing governance arrangements in the transport sector remains under-practiced and under-utilised. Introducing clear approaches, standards and taxonomies for that description surely is the basis for more ambitious comparative and analytical research. Ideally, this should then allow to better operate across critical segments of the institutions to outcomes spectrum. For that, future research can take advantage of more advanced policy output and outcome descriptors but must be vigilant when shifting to testing for causation with governance indicators. Instead, our research to date remains within attempts to push towards analytical generalisations. This may well require more research on the definition and systematisation of analytical concepts or approaches in urban transport governance.

8 Bibliography

Akyelken, Nihan, David Banister, and Moshe Givoni. 2018. "The sustainability of shared mobility in London: The dilemma for governance." *Sustainability* 10 (2): 420.

Bastian, Mathieu, Sebastien Heymann, and Mathieu Jacomy. 2009. "Gephi: an open source software for exploring and manipulating networks." Proceedings of the international AAAI conference on web and social media.

Bevir, M. 2012. *Governance: A Very Short Introduction*. OUP Oxford.

Bissell, D. 2018. "Automation interrupted: How autonomous vehicle accidents transform the material politics of automation." *Political Geography* 65: 57-66. https://doi.org/10.1016/j.polgeo.2018.05.003. <Go to ISI>://WOS:000455289300007.

Borgatti, Stephen P, Martin G Everett, and Linton C Freeman. 2002. "Ucinet for Windows: Software for social network analysis." *Harvard, MA: analytic technologies* 6: 12-15.

Braun, Bruce P. 2014. "A new urban dispositif? Governing life in an age of climate change." *Environment and Planning D: Society and Space* 32 (1): 49-64.

Brenner, N. 1999. "Globalisation as reterritorialisation: The re-scaling of urban governance in the European union." *Urban Studies* 36 (3): 431-451. https://doi.org/Doi 10.1080/0042098993466. <Go to ISI>://WOS:000079522200001.

Brown, Stephen, and Jonathan Fisher. 2020. "Aid donors, democracy and the developmental state in Ethiopia." *Democratization* 27 (2): 185-203.

Buehler, Ralph, and John Pucher. 2011. "Making public transport financially sustainable." *Transport Policy* 18 (1): 126-138.

Byrne, D. 2011. "Exploring organisational effectiveness." In *The SAGE Handbook of Complexity and Management*, edited by Peter Allen, Bill McKelvey and Steve Maguire, 1-672.

Cars, Goran, Patsy Healey, Ali Madanipour, and Claudio De Magalhaes. 2017. *Urban governance, institutional capacity and social milieux*. Routledge.

Clarke, John, and Jane Newman. 2004. "Governing in the modern world." *Blairism and the war of persuasion: labour's passive revolution*: 53-65.

Cook, I. R. 2009. "Private sector involvement in urban governance: The case of Business Improvement Districts and Town Centre Management partnerships in England." *Geoforum* 40 (5): 930-940. https://doi.org/10.1016/j.geoforum.2009.07.003. <Go to ISI>://WOS:000272789600025.

Cruz, Nuno da, and Philipp Rode. 2023. Social structures of urban governance: strategic spatial development in Addis Ababa. unpublished manuscript.
da Cruz, Nuno F., Philipp Rode, Michael McQuarrie, Nicole Badstuber, and Enora Robin. 2022. "Networked Urban Governance: A Socio-Structural Analysis of Transport Strategies in London and New York." *Urban Affairs Review* 0 (0): 10780874221117463. https://doi.org/10.1177/10780874221117463. https://doi.org/10.1177/10780874221117463.
da Cruz, Nuno, Philipp Rode, and Michael McQuarrie. 2018. "New urban governance: A review of current themes and future priorities " *Journal of Urban Affairs* 41 (1): 1-19. https://doi.org/10.1080/07352166.2018.1499416. https://doi.org/10.1080/07352166.2018.1499416.
---, eds. 2019. *New Urban Governance*. Vol. 41, *Journal of Urban Affairs. Special Issue.* : Routledge.
Davies, J.S., and D.L. Imbroscio. 2009. *Theories Of Urban Politics*. Sage.
Fukuyama, Francis. 2013. "What Is Governance?" *Governance* 26 (3): 347-368. https://doi.org/https://doi.org/10.1111/gove.12035. https://onlinelibrary.wiley.com/doi/abs/10.1111/gove.12035.
Gertz, Carsten. 1997. "Umsetzungsprozesse in der Stadt- und Verkehrsplanung: Die Strategie der kurzen Wege." Technischen Universität Berlin.
Goldsmith, Arthur A. 2007. "Is governance reform a catalyst for development?" *Governance* 20 (2): 165-186.
Goodfellow, T., and Z. L. Huang. 2021. "Contingent infrastructure and the dilution of 'Chineseness': Reframing roads and rail in Kampala and Addis Ababa." *Environment and Planning a-Economy and Space* 53 (4): 655-674. https://doi.org/Artn 0308518x20967962

10.1177/0308518x20967962. <Go to ISI>://WOS:000630810500001.
Grin, John. 2006. "Reflexive modernisation as a governance issue, or: designing and shaping re-structuration." *Reflexive governance for sustainable development* 57.
Haarstad, Håvard. 2016. "Where are urban energy transitions governed? Conceptualizing the complex governance arrangements for low-carbon mobility in Europe." *Cities* 54: 4-10. https://doi.org/https://doi.org/10.1016/j.cities.2015.10.013. https://www.sciencedirect.com/science/article/pii/S0264275115001663.
Hansen, Carsten Jahn. 2006. "Urban transport, the environment and deliberative governance: the role of interdependence and trust." *Journal of Environmental Policy & Planning* 8 (2): 159-179. https://doi.org/10.1080/15239080600772191. http://dx.doi.org/10.1080/15239080600772191.
Hirschhorn, Fabio, Wijnand Veeneman, and Didier van de Velde. 2019. "Organisation and performance of public transport: A systematic cross-case comparison of metropolitan areas in Europe, Australia, and Canada." *Transportation Research Part A: Policy and Practice* 124: 419-432.
Kitchin, Rob, Tracey P. Lauriault, and Gavin McArdle. 2015. "Knowing and governing cities through urban indicators, city benchmarking and real-time dashboards." *Regional Studies, Regional Science* 2 (1): 6-28. https://doi.org/10.1080/21681376.2014.983149. https://doi.org/10.1080/21681376.2014.983149.
Klijn, E. H.; Koppenjan, J. 2016. *Governance Networks in the Public Sector*. Abingdon: Routledge.
Lancet, The. 2020. "Moving the Overton window." *Lancet Planetary Health* 5 (11): E751-E751. https://doi.org/10.1016/S0140-6736(21)01787-6. <Go to ISI>://WOS:000719220800001.
Lee, Caroline W., Michael McQuarrie, and Edward T. Walker. 2014. *Democratizing inequalities: the promise and pitfalls of the new public participation*. NYU Press.
Low, Nicholas, and Rachel Astle. 2009. "Path dependence in urban transport: an institutional analysis of urban passenger transport in Melbourne, Australia, 1956–2006." *Transport policy* 16 (2): 47-58.
LSE Cities. 2017. "New Urban Governance: urban complexity and institutional capacities of cities. ." https://www.lse.ac.uk/Cities/research/urban-governance/New-Urban-Governance.
Marks, Gary, and Liesbet Hooghe. 2005. "Contrasting Visions of Multi-level Governance." In *Multi-level Governance*, edited by Ian Bache and Matthew Flinders, 0. Oxford University Press.
McCann, Eugene. 2011. "Urban Policy Mobilities and Global Circuits of Knowledge: Toward a Research Agenda." *Annals of the Association of American Geographers* 101 (1): 107-130. https://doi.org/10.1080/00045608.2010.520219. https://doi.org/10.1080/00045608.2010.520219.
McFarlane, Colin, and Jonathan Rutherford. 2008. "Political Infrastructures: Governing and Experiencing the Fabric of the City." *International Journal of Urban and Regional Research* 32 (2): 363-374. https://doi.org/https://doi.org/10.1111/j.1468-2427.2008.00792.x. https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1468-2427.2008.00792.x.
McGuirk, P., T. Baker, A. Sisson, R. Dowling, and S. Maalsen. 2022. "Innovating urban governance: A research agenda." *Progress in Human Geography* 46 (6): 1391-1412. https://doi.org/10.1177/03091325221127298. <Go to ISI>://WOS:000859261300001.

McGuirk, P., and R. Dowling. 2021. "Urban governance dispositifs: cohering diverse ecologies of urban energy governance." *Environment and Planning C-Politics and Space* 39 (4): 759-780. https://doi.org/Artn 2399654420957329

10.1177/2399654420957329. <Go to ISI>://WOS:000570692300001.
Meuser, Michael, and Ulrike Nagel. 2009. "The Expert Interview and Changes in Knowledge Production." In *Interviewing experts*, edited by Alexander Bogner, Beate Littig and Wolfgang Menz. Springer.
Mu, Rui, and Martin de Jong. 2016. "A network governance approach to transit-oriented development: Integrating urban transport and land use policies in Urumqi, China." *Transport Policy* 52: 55-63.
MyFairShare. 2022. "MyFairShare – Individual Mobility Budgets as a Foundation for Social and Ethical Carbon Reduction.". https://www.myfairshare.eu/
Neal, Z., B. Derudder, and X. J. Liu. 2021. "Using urban networks to gain new insight into old questions: Community, economy, bureaucracy." *Journal of Urban Affairs* 43 (1): 2-15. https://doi.org/10.1080/07352166.2020.1770606. <Go to ISI>://WOS:000611596200002.
Newman, Janet. 2005. *Remaking governance: Peoples, politics and the public sphere*. Policy Press.
Newman, P. 1996. "Mixed use and Exclusion in the International City." *Reclaiming the City: Mixed Use Development, edited by Andy Coupland*: 249-273.
Osei Kwadwo, Victor, and Tatiana Skripka. 2022. "Metropolitan governance and environmental outcomes: does inter-municipal cooperation make a difference?" *Local Government Studies* 48 (4): 771-791.
Parnell, Sue. 2014. "The Tyranny of Governance." Urban Age Governing Urban Futures Conference, Delhi.
Peck, Jamie. 2011. "Geographies of policy: From transfer-diffusion to mobility-mutation." *Progress in Human Geography* 35 (6): 773-797. https://doi.org/10.1177/0309132510394010. https://journals.sagepub.com/doi/abs/10.1177/0309132510394010.
Pierre, J. 2011. *The Politics of Urban Governance*. Basingstoke: Palgrave.
---. 2019. "Multilevel governance as a strategy to build capacity in cities: Evidence from Sweden." *Journal of Urban Affairs* 41 (1): 103-116. https://doi.org/10.1080/07352166.2017.1310532. <Go to ISI>://WOS:000454896700006.
Pierre, Jon. 2014. "Can Urban Regimes Travel in Time and Space? Urban Regime Theory, Urban Governance Theory, and Comparative Urban Politics." *Urban Affairs Review* 50 (6): 864-889. https://doi.org/10.1177/1078087413518175. https://journals.sagepub.com/doi/abs/10.1177/1078087413518175.
Prell, Christina. 2011. "Social network analysis: History, theory and methodology." *Social Network Analysis*: 1-272.
Richardson, L., C. Durose, and B. Perry. 2019. "Moving towards hybridity in causal explanation: The example of citizen participation." *Social Policy & Administration* 53 (2): 265-278. https://doi.org/10.1111/spol.12481. <Go to ISI>://WOS:000457714500006.
Rode, Philipp. 2016. "The Integrated Ideal in Urban Governance: Compact City Strategies and the case of integrating urban planning, city design and transport policy in London and Berlin." PhD, Sociology Department, London School of Economics and Political Science.
---. 2018. *Governing Compact Cities: How to connect planning, design and transport*. Cheltenham: Edward Elgar.
Rode, Philipp, Graham Floater, Nikolas Thomopoulos, James Docherty, Peter Schwinger, Anjali Mahendra, and Wanli Fang. 2017. "Accessibility in Cities: Transport and Urban Form." In *Disrupting Mobility: Impacts of Sharing Economy and Innovative Transportation on Cities*, edited by Gereon Meyer and Susan Shaheen, 239-273. Cham: Springer International Publishing.
Rode, Philipp, Emilia Saiz, and et al (eds.). 2016. Urban Governance, Capacity and Institutional Development, Habitat III Policy Unit 4 Paper.
Rode, Philipp, Biruk Terrefe, and Nuno F. da Cruz. 2020. "Cities and the governance of transport interfaces: Ethiopia's new rail systems." *Transport Policy* 91: 76-94. https://doi.org/https://doi.org/10.1016/j.tranpol.2020.03.004. http://www.sciencedirect.com/science/article/pii/S0967070X19305669.
Sager, Fritz. 2006. "Policy coordination in the European metropolis: A meta-analysis." *West European Politics* 29 (3): 433-460.
Schaller, S. F. 2021. "Public-private synergies: Reconceiving urban redevelopment in Tubingen, Germany." *Journal of Urban Affairs* 43 (2): 288-307. https://doi.org/10.1080/07352166.2018.1465345. <Go to ISI>://WOS:000620363300005.
Scharpf, Fritz W. 1986. "Policy failure and institutional reform: why should form follow function?" *International Social Science Journal* 38 (108): 179-189.
Schragger, Richard C. 2016. *City power: Urban governance in a global age*. Oxford University Press.

Stoker, Gerry. 2011. "Was local governance such a good idea? A global comparative perspective." *Public Administration* 89 (1): 15-31. https://doi.org/https://doi.org/10.1111/j.1467-9299.2011.01900.x. https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1467-9299.2011.01900.x.

Storper, Michael. 2014. "Governing the Large Metropolis." *Territory, Politics, Governance* 2 (2): 115-134. https://doi.org/10.1080/21622671.2014.919874. https://doi.org/10.1080/21622671.2014.919874.

Stripple, J., and H. Bulkeley. 2019. "Towards a material politics of socio-technical transitions: Navigating decarbonisation pathways in Malmo." *Political Geography* 72: 52-63. https://doi.org/10.1016/j.polgeo.2019.04.001. <Go to ISI>://WOS:000470947100006.

Terrefe, B. 2020. "Urban layers of political rupture: the 'new' politics of Addis Ababa's megaprojects." *Journal of Eastern African Studies* 14 (3): 375-395. https://doi.org/10.1080/17531055.2020.1774705. <Go to ISI>://WOS:000542886800001.

Topp, Hartmut. 1994. "Weniger Verkehr bei gleicher Mobilität? Ansatz zur Reduktion des Verkehrsaufwandes." *Internationales Verkehrswesen* 49 (9): 486-493. http://www.baufachinformation.de/zeitschriftenartikel.jsp?z=1994039005195.

UN. 2016. New Urban Agenda.

van Popering-Verkerk, Jitske, Astrid Molenveld, Michael Duijn, Corniel van Leeuwen, and Arwin van Buuren. 2022. "A Framework for governance Capacity: A broad perspective on steering efforts in society." *Administration & Society* 54 (9): 1767-1794.

Waldrop, M. 2021. "It's time for a government reset – and the ideas are flourishing ".

Westerman, Hans. 1998. *Cities for Tomorrow Resource Document: Integrating Land Use, Transport and the Enviroment Ap-58/98*. Sydney, Australia: Austroads Incorporated.

Whetsell, T. A., M. D. Siciliano, K. G. K. Witkowski, and M. J. Leiblein. 2020. "Government as Network Catalyst: Accelerating Self-Organization in a Strategic Industry." *Journal of Public Administration Research and Theory* 30 (3): 448-464. https://doi.org/10.1093/jopart/muaa002. <Go to ISI>://WOS:000544170200007.

Winner, Langdon. 1980. "Do artifacts have politics?" *Daedalus*: 121-136.

Wood, Astrid. 2015. "The Politics of Policy Circulation: Unpacking the Relationship Between South African and South American Cities in the Adoption of Bus Rapid Transit." *Antipode* 47 (4): 1062-1079. https://doi.org/https://doi.org/10.1111/anti.12135. https://onlinelibrary.wiley.com/doi/abs/10.1111/anti.12135.