

RESEARCH ARTICLE

Governance challenges for urban logistics: Lessons from three Norwegian cities

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Abstract

Achieving more sustainable urban freight transport is a key challenge for cities, especially with the rise of diverse urban delivery services. However, the governance of urban freight transport and urban logistics has typically been seen as the domain of the private sector. In this paper we argue for a reframing of urban logistics as a matter of concern for public authorities, and subsequently, we examine logistics as an urban governance challenge: how is urban logistics addressed by urban level authorities? The empirical basis for the paper is a study of three Norwegian cities—Bergen, Trondheim, and Stavanger—currently working to integrate logistics into their governance processes. These cities are currently piloting solutions, sharing experiences, and attempting to establish effective regulations and measures. Nonetheless, various institutional barriers are preventing the implementation of public governance processes for urban logistics. We emphasise the need for clarified responsibilities in the public sector and for reconciliation between different users of public space, including urban logistics actors. In conclusion, we point to key issues to be addressed by an emerging research literature on the governance of urban logistics for sustainability.

KEYWORDS

Norway, urban freight, urban governance, urban logistics

1 | INTRODUCTION

Cities across the world have adopted ambitious targets and strategies towards energy sustainability and reduced CO₂ emissions, and transport is widely recognized as key to achieving these. Transitioning towards a more energy-efficient urban transport sector requires the consideration of all aspects of transport, meaning both transport of people and urban freight transport. Both policy and research have mainly been aimed at transport of people, whilst transport of goods, services, and waste has

received less attention by both policymakers and researchers outside of the fields of economics and logistics operations. This seems to have changed in recent years, in part due to the growth of urban deliveries and a focus on how to solve the congestion, emissions, and planning conflicts that uncontrolled freight into cities can present (Lindholm & Blinge, 2014; Patier & Routhier, 2020). In Europe, for example, a range of cities are applying the framework of Sustainable Urban Logistics Plans (SULPs) as a mechanism that contributes to the creation of relevant measures and interventions. SULPs and other similar frameworks are part of a growing body of policy innovation surrounding urban logistics that goes beyond business-based solutions.

This paper addresses the governance challenges that urban-level authorities face as they attempt to make urban logistics more

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sustainable. Logistics in cities has long been regarded as a matter for the private sector to resolve, understood as a relationship between freight operators and their customers (Ambrosino, 2015; Cui et al., 2015; Fossheim & Andersen, 2017; Lindholm & Blinge, 2014). Whilst the public sector has typically been made responsible for transport of people, the private sector has been left in charge of goods and services (Patier & Routhier, 2020). We know from existing research that cities face various types of challenges, barriers, and trade-offs when pursuing sustainability goals (May, 2015; May et al., 2006; Sørensen et al., 2014). Cities face various barriers towards policy implementation that have been considered both in terms of sustainable transport policy generally (Banister, 2004) and in terms of urban logistics policy specifically (Lindholm & Blinge, 2014; Morel et al., 2020; Nordtømme et al., 2015), and such studies often provide catalogues of possible types of barriers to implementation, such as institutional, social, cultural, and legal barriers.

Unlike most existing research, this paper examines logistics as an urban governance challenge. Our question is: what does urban logistics look like from the perspective of urban-level authorities? Urban logistics is challenging to integrate into existing institutional frameworks, plans and sustainability strategies for cities, as it does not fall neatly into existing sectors, planning streams, or competence areas. Research on urban governance highlights several common governance problems relevant to this issue. One such problem is the presence of institutional “silos” (Oseland, 2019), where responsibilities, institutional logics and norms are divided into discrete units, each addressing aspects of an overarching and complex problem (Beunen et al., 2017; Uittenbroek, 2016). Within the field of organisational studies, policy silos have been addressed through what is termed cross-functional cooperation (Bouckaert et al., 2010a; Jacobsen, 2017). Our point of departure is that, given this ‘siloe’d nature of urban governance, it is not clear either in urban governance processes or in existing research how to situate logistics and how to effectively govern for sustainable urban logistics.

The empirical basis for the paper is a study of three Norwegian cities—Bergen, Trondheim, and Stavanger—currently working to integrate logistics into their governance processes. Given that freight transport comprises 30% of all urban transport in Norway (Bjørger, Seter, et al., 2019), it plays a significant role in reducing national transport emissions. All three cities have recently started integrating logistics into their governance structures, and are in the process of developing regulations, interventions, and networks between actors in both the public and private sectors. We have interviewed key governance actors in the three cities, reviewed plans and policy documents, and participated in urban logistics and mobility conferences to understand the existing governance structures in these cities and the prospects for incorporating urban logistics in them.

On this basis, we detail the challenges cities face when integrating logistics into their governance structures and how these are reconfigured to contribute to more sustainable urban logistics. At the most general level, we argue that the key issue is to reframe logistics as a ‘matter of concern’ (Latour, 2004) for public governance. We find that urban and regional actors are starting to integrate logistics in their

governance processes but are facing various types of barriers. Institutional fragmentation creates a particular barrier towards effective governance of urban logistics. Institutional divisions of labour and legal questions are unresolved, and urban level authorities struggle to identify effective interventions and measures. Therefore, it is important to clarify responsibilities in the public sector, and to find ways to reconcile different interests, including those of urban logistics actors.

The article proceeds as follows. In Section 2, we provide an overview of relevant debates in research literature and policy, focusing on how urban governance frameworks can face institutional barriers. In Section 3, we provide an overview of transport governance in Norway in a multilevel governance perspective and justify the three case cities being studied, before we outline our methodological framework in Section 4. Section 5 contains our analysis of the current governance structures in the three case cities and of the intent to adapt these to urban logistics, whilst we in Section 6 conclude that there is a range of unaddressed issues in current policy agendas, including the limits and possibility for use of public authority and how to build trust and collaboration across sectors.

2 | LOGISTICS AS A CHALLENGE FOR URBAN GOVERNANCE

Urban logistics governance does not exist in a vacuum, it is embedded in broader changes in urban and multi-scalar governance structures playing out over the past decades. In general, public-sector governance has seen a shift towards networked, cross-sectorial, collaborative, and entrepreneurial forms of governance (Brenner, 2004; Harvey, 1989). There is now a broad discussion among governance scholars on how to understand and manoeuvre in the current governance landscape, and a widespread interest in various forms of collaborative governance (Torfing et al., 2019). This typically means drawing citizens into decision-making processes, but also relying on the private sector for planning and service delivery (Bouckaert et al., 2010b). In turn, public sector governance occurs in an increasingly complex landscape of actors, relationships, and distributed power relations.

For cities, the shift towards entrepreneurialism has long been criticized for downscaling welfare state instruments, which in turn has contributed to increasing social inequality and socio-spatial segregation in urban landscapes (Hall & Hubbard, 1996). At the same time, urban governance actors have been experimenting with various forms of collaborative governance within and beyond the city. They are using networks and cross-sectorial collaborations to manage a range of challenges, not least sustainability and climate challenges (Davidson et al., 2019). It is widely recognized that these issues require cooperation across and within spheres of governance. Yet this is complicated by the ‘wickedness’ of these problems, which means that the problem at hand is much larger and more complex than the narrow solutions available (Boswell & Mason, 2018; Castán Broto, 2017; Innes & Booher, 2016; Westskog et al., 2020).

A key part of the problem which we are seeing in logistics governance is that solutions are divided between governance actors in

ways that constrain effective implementation. As Betsill and Bulkeley (2002:15) put it, these spheres of urban governance are “splintered into competing bureaucratic and economic interests.” Such splintering is what governance scholars have referred to as ‘silos’ within public institutions that separate functions and consequently resources (Bouckaert et al., 2010b), which become evident when public authorities attempt to address ‘wicked’ problems (Oseland, 2019). Even where there is political will for radical changes to policy, insufficient administrative capacity can limit the use of the tools and information available to achieve a desired outcome (Aall, 2012:88–89). As we return to in the analysis, insights from the literature illustrate how the structure of municipal governance institutions shapes how knowledge and competence of urban logistics are distributed.

In the field of transport research, there is ample literature on the barriers to effective governance for urban sustainability. Urban transport policy has been the focus of differing forms of policy integration, where the goal has been for various actors working on the same issue to collaborate within and across institutional levels (Kennedy et al., 2005; May, 2013; Stead, 2016). This has created more interdependence between those involved, but has also led to the involvement of more actors in policymaking processes (Stead, 2016). Such interdependence is in line with general trends in public sector governance discussed above. Policy integration in transport policy also encompasses the application of several parallel policy measures, for example in the form of policy packages, that together may contribute towards policy objectives (Westskog et al., 2020). This research reflects the discussions on functional silos and examples, such as policy packages, that are meant to contribute to overcoming these institutional barriers for urban transport governance.

Research on policy integration, and urban governance more broadly, has given less attention to transport of goods. This is even though transport of goods is vital for functioning cities and creates a host of social and environmental challenges (Kennedy et al., 2005). For the purposes of this article, urban logistics is defined in line with the European Commission as “the movement of goods, equipment and waste into, out from, within or through an urban area” (Fosheim et al., 2017). This definition of urban logistics is broad exactly because most freight transport “begins and terminates in urban areas, and often traverses several urban areas during longer distance journeys” (Cui et al., 2015:583).

Although there are surprisingly few studies of urban logistics governance, there is a growing field of research that recognizes how urban logistics interacts with mobility and other urban policy fields (Cui et al., 2015; Lindholm & Blinge, 2014; Morel et al., 2020; Patier & Routhier, 2020). In this work, coordination issues between administrative and political branches of authorities have been seen as one institutional barrier for urban logistics governance (Nordtømme et al., 2015). Other barriers are horizontal coordination with private stakeholders and vertical coordination between public authorities in collaborative processes (Cui et al., 2015). The existence of functional silos is also described in recent research as one of several barriers to urban transport governance (Cui et al., 2015; Lindholm & Blinge, 2014), yet the direct effect of these silos is not outlined. Lindholm and Blinge

(2014) argue that barriers to implementation are often brushed aside and not considered sufficiently for them to be overcome. For the most part, this research describes how different cities distribute responsibility of urban logistics but does not analyse how institutional structures affect this distribution, or how relegating responsibility to the private sector affects public concern such as sustainability goals.

The literature illustrates that cities have taken a largely passive role in logistics governance, as they have traditionally prioritised personal mobility at the expense of urban logistics (Bjørger, Seter, et al., 2019). Policy measures such as access restrictions, time restrictions, and regulation on emissions requirements are prevalent several places (Macharis & Kin, 2017), illustrating this mostly indirect role for the public sector. Typically, goods-related challenges have been left for the private sector to resolve (Patier & Routhier, 2020). Reviews of one urban logistics solution, urban consolidation projects, have concluded that most publicly supported pilots cease to exist once public funding is removed, and that public financial support must be accompanied by policy support so that private actors are incentivised to continue participation in these urban logistics projects (Allen et al., 2012; Lebeau et al., 2017; Stathopoulos et al., 2012). This literature finds three barriers to changing urban logistics: funding, policy support, and horizontal coordination between sectors and between actors in the private sector. Public authorities may be unaware of the existing regulation and enforcement capabilities within their mandate (Bjørger, Seter, et al., 2019), and as a result private actors find it difficult to find the information that they need to contribute to policy formation (Morel et al., 2020).

Research in this area is important not just to fill gaps in the academic literature, but also to help the public sector overcome emerging challenges. There has until recent years been insufficient knowledge in policy circles of how to manage the challenges that growing freight transport creates, despite public interest in addressing them (Cui et al., 2015; Eidhammer et al., 2016; Lindholm & Blinge, 2014). This governance challenge has raised interest at the European level, and in recent years the European Union has promoted an approach to logistics governance that considers the entire transport chain, as well as incorporating urban freight into policies and plans (Eidhammer et al., 2016:82).

The European strategy for increased consideration of urban logistics includes funding more research on how to integrate urban logistics into broader plans for urban transport and mobility (European Commission, 2013), as well as piloting context-specific solutions. These have allowed for the evolution of Sustainable Urban Logistics Plans (SULPs) to supplement efforts with Sustainable Urban Mobility Plans (SUMP) (Ambrosino, 2015). Whilst SUMP are intended to integrate different modes of mobility into urban and transport planning, SULPs complement SUMP by taking into consideration the variables that distinguish urban freight from passenger transport (Aifandopoulou & Xenou, 2019:11). Therefore, SULPs can serve as a basis for future revisions to SUMP or be independent documents, depending on the local circumstances of each urban area (Aifandopoulou & Xenou, 2019; Ambrosino, 2015). Through this and similar frameworks, public authorities are considering different forms

of cooperation across functional silos in their urban governance structures, and research has suggested that smaller cities can benefit from pooling their efforts to govern both mobility and logistics (Rubini & Lucia, 2018).

Contributing to more sustainable urban logistics therefore requires that public authorities overcome fragmented organisational structures, clarify legal authorities, and create arenas for interaction between the relevant branches of public authorities and with the private sector. Based on this literature, we hold that coordinated approaches to the governance of urban logistics require attention to governance structures and to breaking down existing functional silos in the public sector, as has previously happened in transitions from transport to mobility of people. In the following, we empirically assess how these problems surface as public authorities enrol logistics into their governance structures.

3 | THE GOVERNANCE CONTEXT OF NORWAY

Norwegian urban logistics governance can be expected to be aligned with broader governance trends noted above, with a shift towards networked, entrepreneurial and collaborative governance. Of course, the Nordic welfare state structures have cushioned some of the socio-economic effects of state restructuring that have been witnessed elsewhere (Haarstad et al., 2021). Within the transport sector, Norwegian policy measures have until recently followed the same pattern as elsewhere in Europe; restructuring transport of people has been seen to reduce urban emissions and other unsustainable practices, and transport of goods has only in recent years been considered integrated into these efforts. Transport and land-use have become intertwined in multi-goal, multi-level contractual agreements initiated by the state focusing on personal mobility (Westskog et al., 2020). The three cities under focus were among the first in Norway to sign these agreements with the state, and yet as part of these agreements urban logistics is explicitly excluded from the main goal: that the urban areas affected shall acquire better traffic flows, reduced greenhouse gas emissions, reduced local air pollution, and less traffic noise. Instead, the target is for private car use to stagnate and for land use to become more efficient (Samferdselsdepartementet, 2020).

Even though the agreements do not address urban logistics directly, they are intended to accommodate logistics by improving overall traffic flows in urban areas (Bergen Urban Growth Agreement, 2019). Urban Growth Agreements, as they are called, have evolved over several years and existing ones have grown in geographic scope and in stakeholder involvement, with both the Ministry of Transport and Ministry of Local Government and Modernisation directly involved (Westskog et al., 2020). They have shown that complex topics within the transport sector require broad involvement and are an example of governance across levels of government, in addition to being evidence of cooperation across functional silos. Nonetheless, the Norwegian context draws parallel to debates elsewhere in Europe, where policies towards sustainable transport have focused on

personal mobility at the expense of transport of goods (see Cui et al., 2015; Lindholm & Blinge, 2014; Patier & Routhier, 2020).

Urban Growth Agreements have shown how governance of the transport sector can function across scales and sectors, with a role for regional and national authorities in governance structures. For urban logistics, this is crucial because most freight transport begins and ends in urban areas but can result in long journeys across several urban areas (Rubini & Lucia, 2018). Coordination in governance structures must thus go beyond functional silos within municipal administrations and consider aspects of multilevel governance across vertical and horizontal spheres of governance (Bouckaert et al., 2010a; Jacobsen, 2017). If Urban Growth Agreements show the role of vertical coordination in transport governance, urban logistics requires the addition of horizontal governance in the form of coordination across functional silos in urban administrations and across sectors. Existing research on the governance of urban logistics has suggested that this horizontal coordination includes cooperation with local stakeholders, which requires incentives for private actors to cooperate (Bjørngen, Seter, et al., 2019; Macharis & Kin, 2017). Regional and national strategies in Norway allow for a hierarchy of approaches that, along with respective guidelines, facilitate knowledge-sharing, strengthen links between urban logistics and supply chains, and create arenas for dialogue (Bjørngen, Seter, et al., 2019), which must be complemented by considering how urban governance structures for urban logistics are operating.

This article investigates empirically how urban logistics is addressed in the cities being studied, and how different strategies and governance structures have contributed to these efforts. It builds on existing research on the governance of urban logistics and narrows down on barriers in the public sector such as functional silos to understand the effect that such silos have on efforts towards sustainable urban logistics.

4 | METHODS

Research on urban logistics in Norway draws parallels to the challenges faced by cities elsewhere, and as a result researchers recommend that cities improve cooperation across horizontal and vertical levels of governance. Among these recommendations are broader stakeholder involvement and the consideration of context-specific knowledge (Bjørngen, Bjerkan, & Hjelkrem, 2019; Bjørngen, Seter, et al., 2019; Fossheim et al., 2017; Nordtømme et al., 2015; Tennøy et al., 2020). The cities of Bergen, Trondheim, and Stavanger have participated in some research and experimentation projects, but whilst it appears that the cities of Trondheim and Stavanger have been active participants in these projects, it is unclear to what extent the city of Bergen has been so (see e.g., Ambrosino, 2015; Jensen, Fossheim, & Eidhammer, 2020). All three cities have in recent years altered their governance structures for urban transport and mobility because of nationally coordinated policy packages, centred around the reduction of private vehicle use and assuming that urban logistics will indirectly benefit from it. Questions remain as to how alterations around these governance structures have affected urban logistics.

Our article applies an explorative comparative analysis of three cases: Bergen, Stavanger, and Trondheim. Together with Oslo, these were the first four large cities (pop. over 100,000) to sign an Urban Growth Agreement with the Norwegian government that incorporated transport and land use policy. Oslo is excluded from the analysis because it is both a municipality and a Norwegian county, meaning that it has regional responsibilities and authority that the other three cities do not.

The paper builds on archival research and interviews with urban stakeholders that work with urban logistics to explore how they understand the policy process in these three cities. Together, these methods arrive at a focus on institutional fragmentation in the public sector, and therefore draw on theory on fragmentation and coordination in public administration. This research forms part of a project where some of the major stakeholders are partners and included in regular discussions of developments in the logistics sector.

4.1 | Data collection

Following an initial literature review of existing research on urban logistics and urban climate governance, this article is based on a process tracing analysis of the different plans and governance structures related to urban logistics in the three cases. This involves a document analysis of public documents, including municipal master plans, district plans for urban centres, transport strategies, and climate and environment strategies. The choice of documents was initiated by applying keyword searches (in Norwegian) of ‘urban logistics’, ‘logistics’, ‘goods transport’, ‘goods’ and ‘business transport’ on municipal websites and then by analysing equivalent documents in all three cities with consideration of the same keywords. Then we conducted semi-structured interviews with key stakeholders in both the public and private sectors to compare the approved plans and strategies to the understandings that different stakeholders have of them, as well as their perspective of how urban logistics is addressed in their local area.

A total of 14 interviews were carried out, distributed as displayed in Table 1. The business representatives work mostly in freight transport companies (e.g., parcel delivery, independent truck drivers, freight consolidators) and some also represent interest organisations, including organisations for city centre business owners. When considering whether to interview individual businesses or other actors, it was concluded that the overall interview data was already reaching saturation in similar types of responses that included representatives. Public

TABLE 1 Interviews categorised by stakeholder type

Public (<i>n</i> = 6)	Authorities	Local level	3
		Regional level	3
Private (<i>n</i> = 8)	Organisation	Chamber of commerce	3
	Businesses	Local representative	4
		National representative	1
Total			14

representatives are mainly from planning, transport, and environmental departments in their respective administrations. All but two of the interviews were held virtually as video interviews (in large part due to pandemic concerns), with the remaining two being carried out as telephone interviews. The planners interviewed were selected based on authorship of documents related to urban logistics or participation in events or projects on the topic. As for the representatives of the private sector, these represent mostly larger transport businesses or local representatives of interest organisations who also represent smaller businesses, and these were contacted following a snowball technique or due to participation in previous urban logistics workshops.

Considering that most of these interviewees had participated in urban logistics workshops in the past, the interviews sought to explore whether these workshops had led to any changes in plans or governance structures. They focused on awareness of existing or proposed urban logistics plans, strategies, or projects, with special attention paid to public governance structures. Given that previous research on the governance of urban logistics has sought context-specific analysis, these interviews contribute to an understanding of how governance structures in specific contexts may adapt to include urban logistics in public governance. They provide perspectives for public administration as opposed to business-based solutions and build on existing literature both on urban logistics and on coordination in the public sector. Any interview quotes are translated by the authors from Norwegian. Smaller businesses will be contacted for a later stage of this project.

5 | EMERGING GOVERNANCE STRUCTURES FOR URBAN LOGISTICS

All three cities being studied have at one point partnered in research projects regarding urban logistics but differ in how they have addressed this policy area. It appears that urban logistics has received the most attention in the Trondheim area, where the city is incorporating it into its local plans and institutional responsibilities and where the regional authority has made urban logistics into a priority area within transport planning. The city is, amongst other things, learning from its participation in the NORSULP research project, which sought to aid cities in arriving at Sustainable Urban Logistics Plans (SULPs) (Jensen, Fosshem, & Eidhammer, 2020). Meanwhile, planners in both Bergen and Stavanger have hinted that urban logistics plans are being considered, but unlike in Trondheim the administrations in these two cities lack a political mandate to draft a SULP.

Urban logistics appears to be attracting the attention of the authorities in the three cities, but they differ in their planning for urban logistics and in their interactions with other governance actors. Whilst Trondheim and Bergen both address urban logistics through measures in their ‘street use plans’ for their city centres, the way in which these have been developed and the solutions that have been chosen, differ. Authorities in Trondheim considered experiences from stakeholder workshops that were part of the NORSULP project and developed an attached report focusing on urban freight (Trondheim



Office for City Planning, 2020a, 2020b), whereas in the process leading up to the plan in Bergen, goods deliveries are to be ‘considered’ and the preparations seek ‘solutions that attend to the commercial sector’s need for access’ (own translation) (Bergen Urban Growth Agreement, 2019:9). Meanwhile, Stavanger does not have a street-use plan for its city centre. Instead, its municipal master plan has a section on transport and mobility and its district plan for the city centre includes a thematic plan on road transport that considers access for goods deliveries (Stavanger Kommune, 2019a, 2019b).

In all three cities our informants have suggested that plans or strategies for urban logistics will be developed. Authorities in Trondheim appear to be narrowing their attention around their street-use plan for ‘Midtbyen’, the historic city centre (Trondheim Office for City Planning, 2020b) and on a revised municipal master plan, whereas authorities in Stavanger have proposed ideas founded on the city’s climate and environment plan, on its mobility strategy, and on a revised municipal master plan (Stavanger Kommune, 2018, 2019a, 2020). As in Trondheim, authorities in Bergen are preoccupied with a street-use plan for the city centre, and as in Stavanger some potential measures are already considered in the city’s ‘Green Strategy’—their climate and energy strategy (Bergen Kommune, 2015a, 2015b). Unlike in the other cities, any plans or strategies in Bergen have not yet undergone evaluation. For now, the authorities in Stavanger are considering a separate urban logistics plan whilst the authorities in Trondheim prefer an advisory strategy over a legally binding plan. The cities’ existing plans and strategies are summarised in Table 2. Plans and strategies refer to politically approved municipal documents, where cities are constrained by their plans and aspire to meet the goals in their strategies. Measures refer to individual policy decisions meant to contribute to goals.

Regarding actual measures or trial measures, authorities in Trondheim underwent talks with national logistics company Posten to establish a consolidation centre for the municipality’s own logistics operations already in 2015 (Ambrosino, 2015). Since then, PostenBring started a reverse consolidation pilot with waste recollection company Ragn-Sells, and logistics actor DB Schenker has proposed establishing a temporary consolidation centre near the city centre. However, authorities in Trondheim are seeking a long-term, scaled solution. For its part, Stavanger has worked in collaboration with the regional authority (Rogaland County Council) on a publicly initiated but privately run consolidation centre which for now has resulted in a common trans-shipment facility for two consolidators delivering in the city centre. Although Bergen does not have any projects directly addressing urban logistics, it seeks to create a zero-emissions zone

initially in its city centre and to establish multi-mode ‘mobility points’ where localised logistics solutions are possible. Authorities in the other two cities have also considered these measures, which are more in line with more common business-based logistics solutions.

5.1 | Institutional barriers towards implementation of logistics governance structures

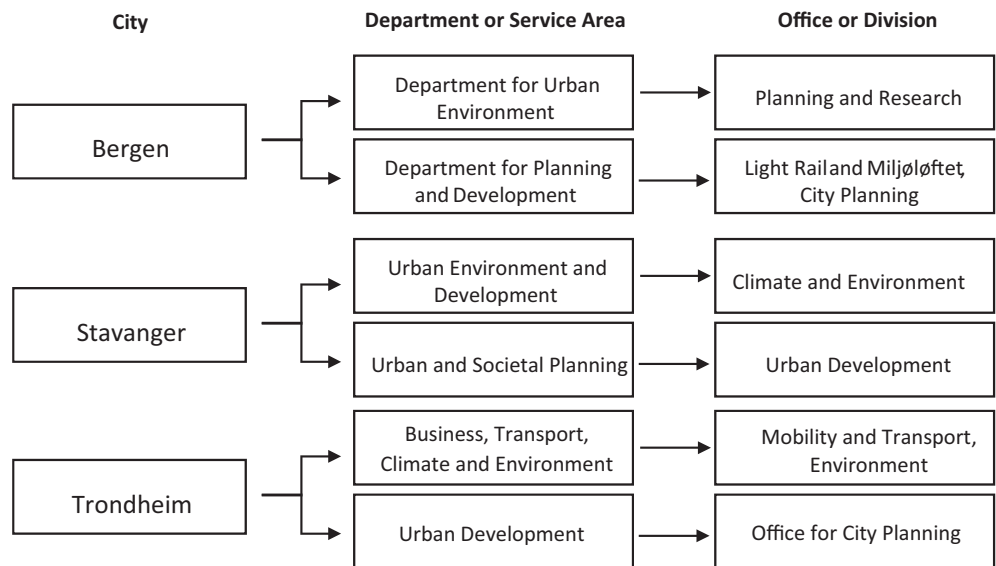
As noted in our literature discussion in Section 2, effective governance of urban logistics may be constrained by the governance structures of municipalities, which may not be accommodated to the challenges of logistics governance. In our cases, we see that despite the existence of several projects, plans, and potential strategies, implementation of these is limited by functional silos within the institutions of public authorities. Urban authorities see logistics as ‘new’ on the agenda and are typically unsure who should be responsible for it. As outlined in Figure 1 below, responsibility for urban logistics in each of the cities is divided across two departments or service areas (central column of the figure), each with several underlying offices or divisions (separated by commas in the boxes to the right). Common for the cities is the presence of an overarching planning department and an environmental department in the governance of urban logistics, where these are responsible for developing, for example, the municipal master plan and the climate plan or strategy. Implementation of measures is more likely to be an overlapping responsibility between departments, which leads to fragmentation as the underlying offices are assigned responsibility for implementing measures. As in earlier research on the governance of urban logistics, our data shows that the existing distribution of responsibilities leads to fragmented knowledge and implementation capacity. Our study shows how three cities are overcoming this fragmentation.

In all three cities there is a planning office responsible for developing the municipal master plan, and in Stavanger this office (Urban Development) is also responsible for the local Urban Growth Agreement, which private actors have named as important in finding synergies between mobility and logistics planning. Trondheim established an Office for Mobility and Transport in Spring 2021 to create such synergies by consolidating knowledge of transport and mobility, as well as to consolidate implementation capacity for urban logistics measures. However, in Trondheim the Urban Growth Agreement is the responsibility of the Environmental Office and in Bergen of the Office for Light Rail and Miljøløftet, meaning that transport-related

TABLE 2 Plans and measures for urban logistics in the case cities

	Bergen	Stavanger	Trondheim
Plans	Street use plan for city centre Climate & Energy Strategy	Municipal master plan District plan for the city centre Climate & environment plan	Street use plan for city centre with report on urban freight
Measures	Relocation of goods harbour to outside city Relocation of private consolidation centres Zero emissions zone	Public-led transshipment project	Private-led reverse consolidation experiment Public-led consolidation experiment

FIGURE 1 Fragmented responsibilities for urban logistics in the case cities (Source: Authors' elaboration)



knowledge and implementation authority is fragmented. Nonetheless, it is only in Bergen that the office responsible for the implementation of the local Urban Growth Agreement does not appear to be involved in efforts for formalised urban logistics planning.

As the most active city in logistics planning, Trondheim's efforts have become more coordinated since 2015. Trondheim's Office for City Planning has had logistics as a focus area in cooperation with the overarching Director for Urban Development (Trondheim Office for City Planning, 2020b). Our interviews with local logistics actors have however hinted that the Environmental Office, which oversaw the city's Urban Growth Agreement before the creation of the new Office for Mobility and Transport, has had strong influence in any logistics-related matters. Our interviews with local authorities revealed that the Environmental Office was in the past dependent on knowledge from the Office for City Planning, and that this is a reason for the new Office for Mobility and Transport to consolidate knowledge relevant for urban logistics (see Trondheim Kommune, 2021). Urban logistics has been seen as 'the most difficult topic for the city's street-use plan' and sustainable logistics 'has not been on the agenda at all.' Authorities in Trondheim sought to consolidate responsibility for logistics in this office and thus facilitate implementation of plans and measures, but in the year since the creation of this new office it appears that many employees have moved to positions outside the organisation. The Environmental Office thus continues to share the responsibility with the Office for City Planning, and this illustrates how restructuring of bureaucratic administrations (a potential governance solution) comes at a cost.

Within the municipality of Stavanger, the Office for Urban Development is mainly involved in a local consolidation project as the planning authority, with the support of the Office for Climate and Environment, which oversees implementation of measures in the city's Climate and Environment Plan along with others (Stavanger Kommune, 2018). There does not appear to be a wish to reorganise responsibilities in Stavanger, but the Office for Urban Development and the Office for Climate and Environment in Stavanger seem to

cooperate in planning and implementing relevant measures, respectively. Our informants in Stavanger have sought out more knowledge of logistics to place more long-term considerations of logistics within municipal plans and to increase cooperation with the implementing bodies. Despite a shared responsibility for urban logistics, this fragmentation leaves fewer unanswered questions than in the third city, Bergen, where the responsibility for urban logistics is least clear.

Our informants in Bergen have explained how urban authorities do not seem to have the political mandate to initiate work towards an urban logistics plan or strategy, and that the topic is currently only considered when it affects planning of the local light rail. The Light Rail is a regional responsibility and locally administered by the Office for Light Rail and Miljøløftet (the office in charge of the local Urban Growth Agreement), and yet it is the office for Planning and Research (under the Department for Urban Environment) that is most engaged with urban logistics in Bergen. This is not to be confused with Bergen's Office for City Planning, as the former is mainly in charge of implementing policy measures whilst the latter oversees, for example the municipal master plan. For now, the intention is that urban logistics may be considered as part of a focus on mobility in the municipal master plan, as already is the case in the other two cities. Such a plan would require the Office for Planning and Research to cooperate with the Office for City Planning, likely with inputs from the Office for Light Rail and Miljøløftet. Planners in the Office for Planning and Research appear to be collaborating with the Office for City Planning to achieve long-term strategies for urban logistics, but in Bergen any such strategies require the consideration of decisions made at the regional and national levels of governance more than elsewhere.

Regional authorities have varying degrees of interest in urban logistics, with authorities in Vestland County (where Bergen is located) being unsure what role they should take. This stands in stark contrast to regional authorities in Trøndelag County (where Trondheim is located), as here the County Council has placed logistics as one of its priority areas within transport policy and seeks to contribute to knowledge of goods transport in the public sector

(Trøndelag Fylkeskommune, 2019). Trøndelag County Council have participated in urban logistics experiments in Trondheim through the Urban Growth Agreement but are also unsure what role the city's authorities should take. It appears that for the City of Trondheim, this feeling is mutual.

Lastly, authorities in Stavanger have cooperated directly with the regional Rogaland County authorities to establish a consolidation centre near the city centre. County authorities had taken the initiative for this project, meant to be funded by the business users and run as an independent company, and since then municipal authorities have been encouraged to take a more direct role towards a long-term solution (see also Jensen, Wessenberg, & Fosshem, 2020). Regional interest in urban logistics in both Stavanger and Trondheim was however spear-headed by individuals who have now left the regional authorities, whereas interest in urban logistics in Bergen is mainly grounded at the municipal level. Common for all three cities is that urban authorities appear more capable of taking direct ownership of urban logistics measures than regional authorities, but the case of Bergen shows that consideration of these two levels is not enough.

One of the greatest challenges in Bergen is that a lot of administrative focus in recent years has been on the location of freight terminals in the city (see Eidhammer et al., 2016). The locations of the city's main freight terminal and goods harbour, both now in the city centre, have been the focus of state reports from the Norwegian Public Road Authority and the Norwegian Railway Directorate (Jernbaneverket, 2015; Øvretvedt et al., 2018). As a result, these freight terminals and the city's Urban Growth Agreement have taken up most of the resources that could help address urban logistics challenges. Both in Stavanger and in Trondheim the regional authorities have taken a more active role in analysing goods flows and evaluating solutions for urban logistics, but in Bergen it has been the state that has provided the most analyses and taken the most influential decisions. The national government decided the future of the city's freight terminal counter to local authorities' recommendations (Gillesvik & Haga, 2019), and the city's goods harbour is being relocated outside of the city centre but also depends on national and regional investments. In addition to the fragmented municipal division of responsibility over urban logistics, Norwegian cities therefore face the challenge of unclear roles across levels of governance. Although there are signs of increased administrative capacity for urban logistics, the organisation of the administrations will likely yield different results across the three cities.

5.2 | Informal barriers to implementation of logistics governance structures

In all three cities there is a fragmented responsibility for urban logistics, as is described in cities elsewhere in the world, and this fragmentation appears to be side-lining logistics actors. Authorities and private actors in all three cities have a perception that urban logistics is included late in planning processes, and private actors do not feel that the authorities are being receptive of their opinions. Private

actors report that the public sector has prioritised changes in personal mobility at the expense of urban logistics, and that this is creating tensions between different users of public space. This perception is based on the amount of attention that Urban Growth Agreements receive in the public sector and what the private sector sees as a focus on pedestrians, cyclists, and users of public transport at their expense. Fragmentation in public governance structures means many private actors do not know who to turn to, and many decide to lobby decision-makers directly to voice their priorities. It appears that for private actors, the existing administrative structures, and the absence of a place for urban logistics serves as a barrier to their direct influence, and this makes them lose the will to participate in policy processes.

Private actors in Bergen, Stavanger, and Trondheim participate in planning processes to varying degrees. Some larger businesses reach out to the authorities directly, in addition to being represented by interest organisations and chambers of commerce. Others reach out to political leaders instead of administrative bodies because the former are perceived to be more accessible and reactive. Several of the actors who directly participate in planning processes mention that the unclear responsibility for urban logistics—or fragmentation—in the public sector is what slows or even prevents participation in the first place. Some gave examples where municipal departments refer to each other when asked for information, leading to frustration and to a longer process. Private actors want to be involved early in planning processes and to feel that their views are being considered, because now they feel that other “road users” are being given all the attention. One informant even expressed a view that public authorities only involve them in planning processes to fulfil legal requirements of public participation, and that logistics actors are often ‘presented a plan without solutions to choose from.’ Others expressed that it is they who often take the initiative to be involved in planning processes. Additionally, private actors displayed a desire for a place to discuss solutions between each other and the authorities.

Local authorities, however, seek more knowledge on urban logistics before they can implement relevant measures. Our informant in Trøndelag County Council stressed the importance of pilots on urban logistics and of making private actors feel that their involvement is beneficial, arguing that ‘the fleet will become greener regardless. The real question is efficiency.’ Cooperation between public and private actors requires, in this view, that the public sector take a leading role in transitioning urban logistics. Trøndelag County Council is the most active public authority focusing on urban logistics, albeit through the Urban Growth Agreement for the Trondheim area. Regional authorities have worked alongside municipal authorities as part of this agreement that focuses on changes in personal mobility, and private actors claim that departments within the municipality as a result only concentrate on personal mobility. The Office for City Planning in Trondheim has had to engage with its transport planners and with the Environmental Office to ensure that urban logistics is tended to within municipal processes. Overall, the experiences of private actors reflect the existence of functional silos and of a need for more knowledge of urban logistics in public governance structures. Additionally, private

actors hint at a loss of influence as personal mobility remains at the core of urban transport policy.

6 | CONCLUSION

Transitioning towards a more energy-efficient urban transport sector requires the consideration of all aspects of transport. Logistics has largely been overlooked, but this is changing due to the growth of urban deliveries and a focus on congestion, emissions, and conflicts over public space (Lindholm & Blinge, 2014; Patier & Routhier, 2020). As cities are starting to deal with the challenge of logistics governance, we have argued that we need a better understanding of this challenge. This paper addresses the question of how different cities address urban logistics within their governance structures. We situate our research in existing literature on both broader governance trends, as well as work on urban governance more specifically. This research highlights a shift towards networked, entrepreneurial, and collaborative governance (Torfing et al., 2019), along with a concern for the 'siloeed' (Aylett, 2011; Bouckaert et al., 2010a; Oseland, 2019) nature of governance structures and the resulting coordination challenges across policy sectors (Banister, 2004; Morel et al., 2020; Stead, 2016). In our study, we find Norwegian municipalities experience the challenges of siloeed structures (visualised by Figure 1), which complicate the coordination of urban logistics governance.

Although the Norwegian context may be somewhat unique in terms of how its strong welfare state structures may have held back more radical governance reforms seen elsewhere, the general trends are similar. Our case studies in the Norwegian context identify these general tendencies, but we also pinpoint some specific challenges involved when urban logistics is enrolled in public governance processes and becomes part of the public policy-making agenda. Three of these specific challenges can be identified. First, it is unclear which municipal policy sector has, or should have, the mandate for urban logistics. As logistics shifts from being the responsibility of the private domain to being subject to public governance, public authorities must handle a new policy field that does not fit neatly into the pre-existing landscape of municipal departments, plans, and strategies. Several informants emphasised that logistics must be managed across sectors—but this also meant that it was unclear who has responsibility for it and ownership of the problems it generates. Our material (see Figure 1) shows how departments in charge of planning and of implementation of policy must cooperate to create both short-term and long-term logistics solutions. Cities do not yet have the institutional frameworks and policy tools required to transition towards sustainable urban logistics.

Second, although urban logistics is not entirely missing from existing plans and strategies in the cities being studied, these do not have many concrete goals or policy measures aimed at urban logistics. In the cases where specific logistics strategies or plans exist, these are largely without substance or measures. Most of these are physical measures in municipal plans, which fall under the realm of urban planning departments, meaning that environmental or transport regulations, or even municipal procurements, do not address unsustainable logistics

practices. Logistics remains largely a private domain and it is unclear to policy makers what interventions or measures can significantly impact logistics in a sustainable direction that are in the purview of urban or regional authorities. Consolidation of operations typically comes up as a potential measure, but this is dependent upon the willingness of private companies. Low-emissions zones are another oft-discussed measure, but this is dependent upon changes to national regulations. Shortly put, authorities are unclear about how to govern urban logistics.

Third, the challenges of governing logistics are becoming increasingly pronounced and tense as the cities are increasingly prioritizing sustainable mobility. Cities have initiated efforts to reconcile tensions between users of public space, yet tensions appear higher than ever before, and logistics actors report being excluded and not listened to. If public authorities are to reduce tensions, real involvement will need to consider differing interests, and the public sector will need to reach an understanding with the private sector as to what sustainable urban logistics entails. Piloting of different solutions appears to have led to greater understanding of the needs of logistics actors, and such piloting will need to be joined by long-term strategies and measures. In a Norwegian context, this could include piloting and strategies within the framework of Urban Growth Agreements, or at the least in cooperation with departments in charge of these agreements.

With this, the paper aims to point a direction for a literature on the governance of urban logistics and contribute to a discussion on appropriate public policy interventions. Literature on the challenge of making logistics more sustainable has addressed the role of business-centred solutions (Allen et al., 2012; Browne et al., 2012; Cui et al., 2015; Lebeau et al., 2017; Lindholm & Blinge, 2014; Patier & Routhier, 2020; Quak et al., 2016; Stathopoulos et al., 2012) but it has not analysed the broader implications of how to structure governance processes in ways that equip cities to deal with emerging logistics challenges. As our investigation showed, there are a range of unaddressed issues, including the limits and possibility for use of public authority and how to build trust and collaboration.

We need to better understand how urban governance actors can use networked and collaborative governance spaces to make logistics more governable. At the most general level, then, the key issue is to reframe logistics as a 'matter of concern' (Latour, 2004) for public governance. The underlying problem seems to us to be that logistics is currently framed as a private concern, while personal mobility is framed in more public terms. Public prioritisation of personal mobility has therefore hindered a new framing of logistics. This is a process of crafting plans and strategies, as well as the competences of planners and politicians, the division of labour between public agencies, and defining effective interventions.

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