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# Freight in urban planning and local policies: results from a new survey in twenty French cities

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**KEYWORDS:** Urban freight, logistics, regulation, planning, planning tools, governance

## ABSTRACT

Since the 1996 law “LAURE”, which first made it mandatory to include a freight transport policy strategy in urban travel plans, local authorities are expected to regulate and plan freight transport within their territory, using urban planning tools at their disposal. The objective of the research is to identify current freight planning and policies in France, using a sample of twenty French cities which we examined in detail through data collection and interviews. The research focuses on the regulations and planning instruments. We conducted a systematic analysis of local traffic and parking ordinances and local zoning plans in the twenty urban areas. The objective was to observe how municipalities actually regulate and plan urban freight. We interviewed local decision-makers in order to further analyze challenges in conducting an urban freight policy. We conclude the research by mentioning that regulatory instruments such as local ordinances are routinely used, more so than planning instruments such as zoning plans, although a new planning policy is emerging. Also, it seems that differences in urban freight policies cannot be explained by differences in the ‘logistics profile’ of one city compared with another. Urban freight policies depend more on the type and level of commitment of individual elected officials and local decision-makers. Finally, we identify French cities’ specific patterns in terms of urban freight policies compared with other European ones: less reliance on low emission zones, high fragmentation of local municipal truck and van regulations within metropolitan areas, and some innovative planning and zoning regulations related to a new niche of urban warehouses for city logistics.

## INTRODUCTION

Over the past 25 years, a succession of laws in France (LAURE<sup>1</sup>, SRU<sup>2</sup>, NOTRE<sup>3</sup>, MAPTAM<sup>4</sup>, LTECV<sup>5</sup>) have strengthened the powers of local and metropolitan authorities for urban planning and transport regulation. Since the LAURE, which first made it mandatory to include a freight transport policy strategy into urban travel plans, local authorities are expected to regulate and plan freight transport, using urban planning tools at their disposal. At the local level, municipalities (or inter-municipal structures) are in charge of the road network. They are therefore responsible for local traffic and parking regulations, including access rules for delivery vehicles. Mayors are responsible for organizing the life of the city, defining land use regulations, and ensuring that public space is shared between different uses. In a context of sustainable urban development, traffic lanes are reduced in favor of soft mobility (bicycle paths,

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<sup>1</sup> LAURE: Law on Air and Rational Use of Energy (1996).

<sup>2</sup> SRU: Law on Solidarity and Urban Renewal (2001).

<sup>3</sup> NOTRE: Law on New territorial organization of the Republic (2015).

<sup>4</sup> MAPTAM: Law on the modernization of territorial public action and the affirmation of metropolitan areas (2016).

<sup>5</sup> LTECV: Law on Energy Transition for Green Growth (2015).

pedestrian zones) and public transport (bus lanes, tramway, etc.). Urban freight needs to operate within restricted space and time. Finally, public actors are increasingly involved in the implementation of environmental policies. Pollution generated by freight transport and logistics activities fall within their scope.

We believe it is time for an assessment of more than two decades of urban freight policies. After years of experiments and planning in different cities, how are urban freight and logistics activities integrated in local planning documents and traffic ordinances? The objective of this research is to identify current freight planning policies in French cities. Our general aim is to contribute to overcoming the challenges involved in planning consistent sustainable urban logistics. The aim of the paper is to describe the appropriation of urban planning tools to regulate freight, made available to local public actors by the legislative framework. The literature on public policies, freight and logistics issues has mainly focused on metropolitan areas. Different case studies around the world have been proposed, but comparisons between several cities of the same country are scarce. In a decentralized country where local public policies have a lot of leverage in planning and regulation, how do cities deal with freight and logistics?

We propose to compare urban freight public policies at different scales in twenty urban areas in France, by looking at planning documents, local ordinance and conducting some interviews.

This paper is organized around six sections. The first one presents a short literature review on the issues of urban freight planning and regulation. We then present the method and data used in this research and the typology of the urban areas we observed (section two). The third section presents urban freight planning regulation and planning in French cities. The fourth section focuses on freight in local zoning plans. The fifth section presents an analysis of local ordinances and shows the great heterogeneity between cities regarding freight regulation and deliveries. We conclude the paper in the last section.

## **LITERATURE REVIEW ON URBAN FREIGHT POLICY**

Efficient and sustainable urban freight transport supports urban lifestyles, promotes industry competitiveness, attracts and helps retaining high-value industrial and trading activities (Anderson, Allen, & Browne, 2005). At the same time, it also produces negative impacts (e.g. congestion, pollution, accidents, decreased attractiveness of an urban area) (Macharis & Melo, 2011). The growing number of deliveries due to high consuming level, e-commerce and instant deliveries has increased the cities' dependency on transportation systems (Dablanc, 2018). Considering this context, planning for urban freight and logistics is challenging for public authorities. The literature has focused on various issues that public authorities face to implement freight planning and freight traffic regulation.

A decade ago, researchers and practitioners agreed on the lack of awareness and knowledge of public stakeholders in freight transport issues (Dablanc, 2007; Lindholm, 2010). There was a low level of understanding of freight issues at the local authority level (Lindholm, 2010; Lindholm and Berhends, 2012). Ten years later, several metro areas and cities in Europe have initiated a process to integrate freight transport and logistics issues in urban planning (Lindholm and Berhends, 2012; Debie and Heitz, 2017). Public stakeholders have also invested into urban logistics projects (Gonzalez-Feliu et al. 2014) or promoted innovation in city logistics pilots, proving that they are increasingly aware of the importance of negative externalities generated by freight and logistics on urban areas.

The results of the first public policies are mixed. Some research has shown that these issues are now identified and integrated into a general reflection on transport or the environment. However, they are still rarely the subject of a long-term strategy (Lindholm,

2010). In the Paris metro area, the gap between the objectives set out in the planning documents and the actual logistics development has already been highlighted (Debrie and Heitz, 2017). The lack of cooperation between the different local actors is also analyzed (Lindholm, 2010). The lack of governance on urban freight issues leads to problems of readability of parking and circulation's regulation between municipalities, inconsistencies in pollution and emissions management or strategic logistics planning (Danielis, et al. 2010). This study aims to investigate how public authorities plan and regulate urban freight to reveal new issues they encountered to produce specific regulations.

## **METHOD AND DATA**

As mentioned in the introduction, the municipal level remains the main institutional level involved in regulating and planning urban freight and logistics. Municipalities have planning and regulatory tools at their disposal, and the metropolitan level is only just starting in getting access to some of these instruments, through a set of recent laws. Planning tools (land use plans, master plans) allow local public authorities to provide a long-term vision for city development, whereas regulatory tools (traffic and parking ordinances) allow local public authorities to deal with the current short-term situation.

We proceeded to a comprehensive data collection through observations at the local level in twenty cities and the metropolitan areas they are centered in. The twenty urban areas we selected for our observations are: Aix-Marseille, Bordeaux, Biarritz, Clermont-Ferrand, Grenoble, Le Creusot, La Rochelle, Lyon, Lille, Lens, Montpellier, Moutiers, Nantes, Nice, Orléans, Paris, Strasbourg, Toulouse, Rennes, Rouen, making a set or rather diversified (in size and 'logistics profile') cities in France. City names mentioned above are the names of the central cities, immersed in many other municipalities around them forming inter-municipalities. France has a very high number of municipalities (about 35,000 in total, the highest absolute number in Europe) and a metropolitan area routinely can count dozens of municipalities.

For each municipality or inter-municipality studied we collected local ordinances on truck traffic and parking as well as delivery time windows. We collected information on urban freight regulation, criteria used to limit truck and delivery van traffic in the city and their parking in public areas. We also looked at the local zoning plan (*plan local d'urbanisme*, PLU), a document compiling land use regulation, also expressing the long-term vision of a city's development. Building permits issued by a municipality must be strictly compatible with the PLU regulations. These PLUs today generally meet the objectives of densification of urban areas, preservation of natural areas, economic development and mix-used areas. The PLU has two parts. In the first part, the main objectives and long-term vision are established on the basis of a diagnosis, and lay the foundations for future development. This part is not mandatory. The second part is the regulatory part. It has a mandatory value, defines land uses and the applicable law in each area. It identifies guidelines for four categories of areas: urban (U), agricultural (A), natural (N), to be urbanized (AU). We specifically examined article 12 of the PLU, which determines the measures to be taken in terms of off-street loading/unloading areas for each new building.

All PLUs within a metropolitan area must be compatible with the metropolitan master plan (Schéma de Cohésion Territoriale, SCOT). This strategic document contains the guidelines and objectives to organize space, transport, mobility and major facilities. We also conducted some interviews (for Paris, Orléans, Toulouse, Montpellier) to better understand the public authorities' motivations to regulate and plan urban freight.

The recent national laws (LAURE, SRU, NOTRE, MAPTAM, LTECV) reinforce freight planning by requiring local public authorities to identify freight issues and to plan accordingly in their PLU and ordinances. The successive laws provide a framework for regulation and planning at the local level. How is freight integrated into these plans?

# REGULATION OF URBAN FREIGHT IN FRENCH CITIES: LACK OF TERRITORIAL CONSISTENCY

## Traffic and parking of goods vehicles: mostly, a municipal competence

In France, the regulation of traffic and parking for delivery vehicles has remained largely municipal, unlike other urban functions such as road management (works, cleaning), waste collection or the organization of public transport, which are institutionally organized at a metropolitan level. This generates specific challenges for truck drivers. Each municipality chooses the criteria used to regulate freight (i.e. vehicle gauges, size, tonnage and delivery times) and produces local ordinances. With regard to vehicle traffic, it may take specific measures or draw up a "traffic plan" that defines traffic directions, route specialization, traffic lights, etc. It can prohibit the circulation of motor vehicles in certain parts of the city (e. g. prohibit circulation in one direction). The mayor is also in charge of enforcing principles related to environmental policies and pollution reduction. It may, by local ordinances, prohibit access to certain roads or sectors to vehicles whose traffic is likely to compromise either public tranquility or air quality. This possibility was reinforced in 2015 by the LTECV.

## A lack of consistency in the regulation of freight vehicles' traffic and parking

We collected all the existing local ordinances on commercial traffic, parking and deliveries regulations in the 20 urban areas (for all the central cities and a selection of the suburban municipalities). We note the great heterogeneity in the use of criteria to regulate freight vehicle access to urban areas. Indeed, eight criteria are used: tonnage, time window, height, length, width, area (of the vehicle), volume of the vehicle, and age, or the Euro standard, of the vehicle. They can be single-used or cumulative (Figure 1).

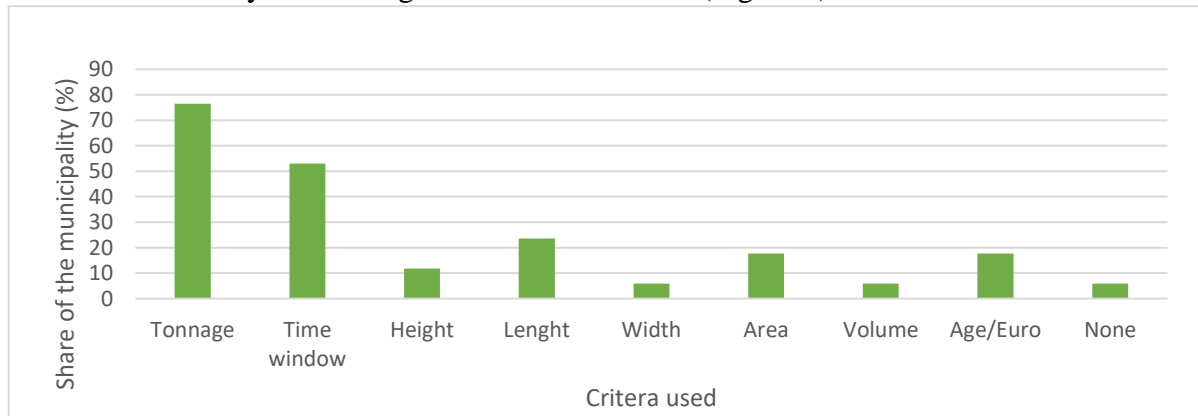


Figure 1. Type of regulatory criteria for commercial vehicles in the 20 urban areas

Gross Vehicle Weight, in tonnes (e.g. 3.5t, 7.5t, 29t) is the most used criterion depending on the street or time window. 78 % of the observed cities use GVW as a criterion to control the circulation of trucks and vans. 52 % of the cities use restrictive time windows. Usually, this measure reduces truck and van access, especially during peak hours. It may contribute to reducing congestion. However, shops, restaurants or people homes are not delivered before 6 a.m. because of the noise generated by the deliveries. Off- hour deliveries are not developed in those cities. So, the time window available is often two to three hours in the morning, between 7 and 11 a.m. and in the evening between 6 and 9 p.m. Vehicle length is used in 25% of the cases, whereas height, width or surface (the City of Paris actually uses a truck's surface to regulate access) are not much used. The age of the vehicle is not very used either. Only three cities use truck and van limits based on their age or their Euro standard (Paris, Strasbourg, Grenoble). For example, in Grenoble, since 2017, the most polluting freight vehicles can no

longer access the "extended city-center", Monday to Friday from 6am to 7pm. The CQA (Air quality certificate) standard is applied to light commercial vehicles put into before 2001 and to heavy trucks put into service before 2006 (from May 1<sup>st</sup> 2019). This regulation is equivalent to the implementation of a low emission zone (LEZ). Grenoble is one of the few French cities with a LEZ, as French cities have been lagging behind European cities in general in implementing LEZs (Dablanc and Montenon, 2015). The City of Paris has also implemented a LEZ since 2015. Since 2018, talks have started between the different municipalities within the metropolitan area of Paris, for the moment reaching a total of 79 municipalities (out of 131) ready to extend the Paris LEZ to the metropolitan level.

This first analysis shows the great heterogeneity in the criteria used to regulate the circulation of commercial vehicles. Municipalities consider they do not need to regulate more. But, the lack of planning and the absence of consistency in the criteria used limit the scope of urban freight regulation. Also, municipalities are limited by short-term vision offered by a regulation produced by local ordinances.

We also identified local ordinances on parking and deliveries in the 20 central cities of our sample (Figure 2).

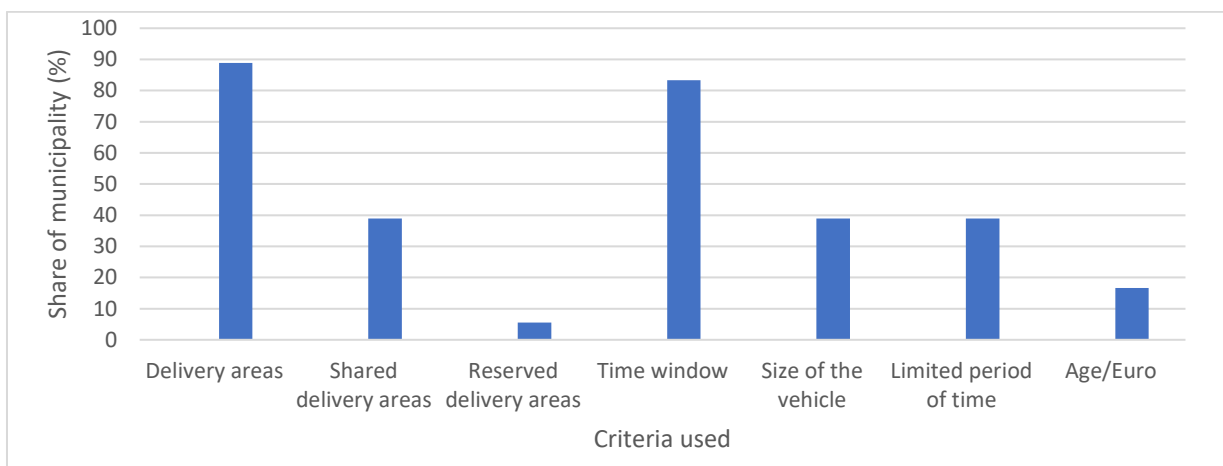


Figure 2. Use of regulatory criteria for parking and delivery areas

Loading/unloading areas (also called delivery zones) are widely used. Almost 90% of the cities have them. French case law has established that a delivery zone cannot be reserved for a specific user (e.g. trucks or vans) but can be reserved for a specific use (deliveries for example), which means private car drivers can use them if they are delivering (their shopping bags for example). Some delivery zones are shared: out of delivery time windows, it is possible for a car driver to park there. In our sample, 40% of cities implemented such shared areas. In addition, Paris offers reserved delivery areas that prohibit parking for non-freight vehicle at any time of the day or night (« reserved delivery areas »).

Time windows are used in more than 80% of cases. The aim is to regulate the effects of congestion as effectively as possible. Some municipalities regulate the size of the vehicle, not only for access but also for the use of delivery zones (40% of cities). The size of the delivery areas varies from one place to another, from one street to another, from one municipality to another. A ministerial instruction of 2002 specifies a template layout of delivery areas. It defines the technical standards for delivery areas as well as the necessary signage for its use. This is a recommendation and does not imply that all delivery areas should be brought up to standard. 30% of the municipalities have set up a limited time for delivery, for the occupation of the area between 20 and 30 minutes with the use of a disk. This is to avoid cluttering the roadway for too long and to allow deliveries to run smoothly.

Finally, some municipalities have favorable regulations for deliveries to clean vehicles (CNG, electric or bicycles), by offering wider delivery time windows for clean vehicles. This is meant to encourage carriers to shift to cleaner modes (e.g. in Toulouse CNG or electric delivery vehicles up to 20 m<sup>3</sup> are authorized 24/24h in the city center to make deliveries.). However, in the examples we found, the additional time provided to clean vehicles is 30 minutes to one hour, which is not enough to encourage carriers to change their ways of delivering. Some cities also have regulations that differentiate between business sectors. For example, in Nantes, pharmaceutical deliveries are included in the group of health professionals and benefit from a longer time to make deliveries (two hours, compared with other deliveries, which only have a maximum of 20 minutes to complete a delivery). This innovative measure reflects the ability of public authorities to adapt to specific situations and to understand the various logistics challenges.

### **A regulation focused on city centers**

The comprehensive identification of traffic regulations also showed that traffic restrictions were rarely made at the level of the entire municipality (18%). They mostly concern a restricted area such as the city center (63%) or a pedestrian zone (59%) often located within the city center, or even a few streets (40%). Freight regulation is focused on city centers, the historic and commercial cores of cities where most of the pedestrian areas are developed. The development of pedestrian areas and public transport are created in line with economic policy in order to support businesses that face competition from shopping centers located on the outskirts of cities with easy road access and also to comply with the new model of sustainable city. Some city centers (e.g. Toulouse, Nantes, and Orleans) have retractable bollards at the entrance to these areas. To deliver them, truck drivers need a badge or have to call on the intercom. The delivery schedule is more controlled.

Freight transport is better identified and regulated in city centers. The hyper-regulation of city centers contrasts sharply with their surroundings and reinforces the idea of a fragmented city. The development of freight regulation dedicated to the city center may increase local inequalities between the center and the rest of the city. This focus on city centers contributes to a fragmented regulation in the city and between the cities. Like for passenger mobility, most of the local and urban policies focus on dense city centers. Urban freight has become one element of the “territorial compromise” identified in many recent studies on urban transport policies in Western cities (Kaufmann, 2013; Debrie and Heitz, 2017). These studies highlight the contrast between the concentration of policies in central zones (aimed at ensuring sustainable mobility), and the overall lack of regulation of mobility in peripheral areas, which are more structured by a form of self-regulation for road transport. Regarding environmental regulation or air quality, we can ask if focusing on city centers is efficient.

## **A LACK OF COORDINATION AT THE INTER-MUNICIPAL LEVEL**

### **Fragmented metropolitan areas by uncoordinated regulations**

There is a great heterogeneity between urban areas in terms of regulating urban freight transport. But this heterogeneity can also be observed within the metropolitan areas. For example, in Orleans, municipalities apply eight different tonnage criteria that vary from one municipality to another even though the territory is continuous. This complicates the itinerary of trucks which, when in possession of the information, have to establish sometimes complex and longer routes, contributing to pollution or other forms of nuisance. It also creates tensions between municipalities, with some deliberately adopting restrictive rules that transfer the problem to the neighboring municipality. In the case of Paris, the same street straddling several

municipalities may be subject to several regulations. One example is a long street crossing the municipalities of Paris, Vincennes and Saint-Mandé, which does not have the same delivery time windows nor tonnage restrictions. The important use of local ordinances to regulate urban freight deprives local public authorities of a long-term vision. This lack of projection complicates the harmonization within urban areas and between cities. The problem is the lack of governance on these subjects.

### **Issues and challenges for the harmonization of municipal rules**

A coordination at inter-municipal or regional level has been encouraged by the successive national laws. But, in fact the lack of cooperation between cities from the same agglomeration is an obstacle to produce efficient and consistent freight regulations. In 2014, the MAPTAM law and the ALUR law (extended the scope of automatic transfers of traffic regulatory powers from municipalities to EPCI (public establishment for territorial cooperation, i.e. metropolitan level governments) under certain conditions. But the law allows municipal mayors to oppose the automatic transfer of these powers by notifying the President of the EPCI within six months after the election of the President. The transfer does not take place in the municipalities whose mayor has notified their opposition, and in practice this is what has been happening in all cases. There is the particular case of joint competences. Indeed, in certain situations, the competences may be common between two mayors. For example, if a local street represents the border between two municipalities, then the regulatory powers belong to the two mayors. According to a decision of the Douai Administrative Court of Appeal of 2004, these mayors may take a joint decision, either by concordant orders signed by each of them, or by a single order signed by the two mayors. Regarding the twenty cities we observed, none of them have transferred powers to the President of the EPCI, and despite an incentive framework which means the local level prevails.

In the twenty cities we are looking at, inter-municipalities have different legal forms. Our sample includes four 'urban communities' (Lens, Biarritz, La Rochelle, Le Creusot), one 'community of communes' (Moutiers), and the fifteen remaining, the largest ones, are 'metropolitan areas'. The acquisition of status is linked to a population threshold (e.g. 50,000 inhabitants for 'urban communities' and 400,000 inhabitants for 'metropolitan areas'). Depending on their status, urban areas have different urban planning and development competences. Metropolitan areas were created in 2015. They must produce a Master Plan, an inter-municipal zoning plan and a Mobility Plan at the scale of their territory. This requires significant harmonization, consultation and governance. Today, these agglomerations have not yet completed their transition and have not put in place these common tools. This means that within these areas, regulations and planning objectives still vary from one municipality to another.

### **Collaborative regulation: new tools for freight governance**

The integration of a municipality into an EPCI does not automatically mean that there is a harmonisation of regulations at the inter-municipal level. The transfer of power is not effective in all cases, which makes regulatory harmonization more difficult. Outside the EPCI legal framework, municipalities have the possibility to collaborate voluntarily with each other to harmonize their regulations in a collaborative approach. In another area of the Paris metropolitan area, an experiment will be carried out in the second semester of 2019 with about ten municipalities attempting to harmonize their traffic and parking regulations (*Comité Opérationnel des règlements de voirie et de livraison dans la métropole*, COMOP). Initial discussions indicate that the tonnage criterion will be the one used. It also emerged from these discussions that the reserved and shared delivery areas, such as those existing in Paris, will be



extended to the entire metropolitan area. The COMOP also recommends a limited period of use of the delivery areas to 30 minutes regulated by a disc or sensors (which would require the implementation of a more expensive infrastructure but which facilitate automated control). The possibility of testing night deliveries is being considered. These experiments show that cooperation between local public authorities is sometimes possible and could lead to an effective coordinated regulation.

Charters are also used as a territorial governance tool locally, with various objectives. The City of Paris, the city of Toulouse and the Paris Metro Area have charters organizing urban freight. As a tool, they guide the practices of urban developers and public stakeholders, along with other regional, metropolitan and municipal planning documents. These charters are linked to a new practice of management that seeks to develop more collaboration between private and public stakeholders within an economic sector. They can also help to ensure the proper integration of the planning documents at the regional and metropolitan levels, and ensure the consistency of planning practices and urban planning within local territories. Living labs or collaborative tools to regulate urban freight have already been well analyzed in the literature (e.g. Gatta and al., 2017, Nesterova and al, 2017; Quak and al. 2015). Our twenty study cases show that those collaborative tools are not very used by local authorities. The reasons for that are numerous: a lack of interest for freight in general, a lack of expertise and knowledge on freight, or a lack of money to invest in those experiments (Gardrat, 2017).

## **URBAN FREIGHT PLANNING IN THE SELECTED TWENTY CITIES**

How do municipalities actually organize urban freight in planning and zoning documents? The analysis of local plans shows that logistics has indeed been brought onto the planning agenda. The review of planning documents together with our interviews have shown a great heterogeneity between French urban areas regarding the integration of freight and logistics issues in planning documents. Some cities (Paris especially, and Lyon) appear as “leaders” as they integrate freight and logistics into each planning document and into specific urban development projects. Some cities have identified objectives for freight and logistics development in their planning documents, but have not yet started to implement urban logistics projects. More surprisingly, some cities have initiated urban projects integrating freight and logistics. For example, they have experimented urban consolidation centers, but without any planning framework (e.g. La Rochelle). This reflects a very short-term planning practice, not a disinterest in freight and urban planning. We can make the hypothesis that planning urban freight requires more cooperation between municipalities and is more difficult to realize than a one-time freight project or a local freight regulation. Finally, some urban areas have no freight planning nor logistics projects (e.g. Moutiers, Lens, and Biarritz). The least dense cities of our study are also the ones which do not integrate urban freight and urban logistics into their planning documents. By pushing further our investigation, we observed that this heterogeneity also depends on the specific local decision-makers (some are very active and interested in logistics issues, while others are not) and on specific combinations of stakeholders’ partnerships.

We looked at the article 12 of the PLU and made a comparison. 60% of cities have integrated freight provisions into their PLU, providing delivery requirements for new buildings. Some cities have provided very specific conditions. For example, in Grenoble new buildings like restaurants, wholesale trade facilities, industry facilities, logistics facilities or offices must have a delivery area of 12m per 2.5m for buildings of 1000m<sup>2</sup> or more of floor space. We observe in the wording of articles 12 that a certain latitude is left to the local authority to implement a delivery area. The lack of rigidity makes it possible to adapt the delivery areas to the needs of new constructions.

Some cities have different provisions according to the city's areas and neighborhoods (e.g. Paris). In the 2006 Paris PLU (it has now been replaced by a new PLU, since 2016), 'major urban service zones' (UGSU) opened the way to urban logistics innovations or logistics real estate projects. The stated objective was to develop logistics facilities, among other activities (waste management, medical infrastructures facilities etc.). Since then, the UGSU zones in Paris have kept, and further specified, their own adapted freight regulation. Also, in its 2016 zoning code, a new category of CINASPIC ('Constructions and Installations Required for Public Services or Collective Interests', a legal category of buildings provided "easier" building permit process) are dedicated to urban logistics, reserving some land for small warehouses from which, for example, electric vans and cargo cycles can be operated, or allowing logistics activities to be integrated into urban projects (Raimbault, et al., 2018). This specific measure is, to our knowledge, unique in Europe.

The legislative framework leaves enough scope for local authorities to determine in their PLU the parking conditions for delivery vehicles. As a result, there is a significant heterogeneity but also flexibility, with more or less detailed provisions, leaving room for interpretation and adaptation by the developer according to the zoning and purpose of the building.

## CONCLUSION

Overall, in French cities, local traffic and parking ordinances are much more utilized for the management of urban freight than planning instruments such as local zoning plans (PLUs). Urban freight regulations remain a prerogative of municipalities, which rarely take advantage of planning tools to regulate freight and logistics. Despite the fact that freight and logistics are gradually integrated into the hierarchy of planning documents, from the regional master plans to the local PLUs, local authorities remain the main actors in charge of converting sustainable objectives into actions and practical urban projects. Our study shows that their position is key. If local authorities have not integrated freight and logistics issues into local planning documents, the objectives set out by the other public stakeholders at different institutional levels are not being carried out. 'Governance' (the ability to carry on an urban freight agenda in partnership with the business community), therefore, is key to push freight issues into public action. The planning of consistent sustainable urban logistics is a challenge for cities because they must overcome governance issues. City authorities do not necessarily need more regulatory power to integrate freight and logistics in local planning, but they need to be more supported in this process and educated on urban freight issues. The reinforcement of municipal coordination, as was brought by a set of recent legislations in France, may impact positively urban freight regulation. But overall, the lack of consistency in regulating and planning freight and logistics in urban areas generates complexities for the freight and logistics industry.

Compared with other European cities, French cities stand out in several ways in terms of urban freight policies and planning. French metropolitan areas are more fragmented, with more municipalities in average than in any other metropolitan area of equivalent size in Europe<sup>6</sup>. The resulting patchwork of public policies leaves a lot of leeway for the smallest level of public policy (the municipality). In negotiations between private companies and local authorities, municipalities are in a weak position compared to real estate developers, for example. In the case of an inter-municipality, the balance of power can be reversed and favor measures that promote urban freight. This finding is consensual with other works (Dablanc and Raimbault, 2015). Freight and logistics planning rather depends upon specific characteristics of public stakeholders and public and private stakeholders' relationship. This also creates a great

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<sup>6</sup> For example, at equivalent demographic sizes, Lyon metro area has 59 municipalities while Gothenburg metro area in Sweden has only 13 municipalities.

heterogeneity between urban areas in France. Our analyses also show that traffic and delivery regulation tools are widely used, but they are used in a different way than in other European cities. Today, most large European cities ban trucks according to their age (low emission areas), while in France low emission zones are a rarity, and the rules have remained rather traditional, based on gauge and tonnage standards. When low emission zones exist, they are poorly applied. Finally, and on a more positive note, French cities seem to be currently innovating in one particular area: zoning regulations related to urban warehouses. Paris and the Paris region, for example, have recently been designing interesting regulations for building permits related to logistics activities. Although freight transport and logistics planning in PLUs is still under-utilized, it is developing.

In general, the development and support objectives (for example, modernization and optimization) of urban logistics are still low in most urban areas in France, despite the fact that new national legislation does provide an extensive array of policy instruments to become more innovative and efficient in urban freight policy and planning.

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