

The retailer perspective on the potential for using urban consolidation centres (UCCs)

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Abstract

This paper examines the role of supportive policies and value-added services which may incentivise retailers to use an urban consolidation centre (UCC). The methodology is a case study of the city of Edinburgh, Scotland, based on semi-structured interviews with 30 retailers. Results show that retailers are generally not positive towards using UCCs, and the services that they need are already being provided by their existing logistics service providers (LSPs). Nevertheless, if they were forced by restrictions and rising costs to use a UCC, they would be prepared to do so. In that case, they would want those services currently provided by LSPs to be provided by the UCC and would be prepared to pay for them. For a successful transfer to a UCC model, the retailer, LSP and UCC would need to work together to avoid loss of revenue to the LSP.

Key words: retailers; urban freight transport (UFT); urban logistics; transport policy; urban consolidation centre (UCC); logistics service provider (LSP)

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1. Introduction

Urban consolidation centres (UCCs) are logistics facilities used for consolidation and transshipment of goods, usually located on the edge of city centres or close to demand points such as shopping malls, construction sites or shopping streets (Allen et al., 2012). The aim is to not only decrease the number of freight vehicles travelling to densely populated areas, but also to replace more polluting vehicles with less polluting options (Browne et al., 2005, Allen et al., 2014). UCCs also facilitate other transport-related activities that lead to the better utilization of vehicles and space, such as load consolidation and reverse logistics (Allen et al., 2012).

One of the main principles of the implementation of UCCs is to work with other policies such as time restrictions, low emission zones (LEZs), and pedestrianized zones (Akgün et al., 2019), in order to reduce the main negative externalities associated with urban freight transport. As such, over the last two decades many public authorities have either directly, or through European Union funded projects, provided start-up funding to UCCs, as well as instigating supporting policies (Panero et al., 2011, Lebeau et al., 2017). Nevertheless, the overwhelming majority of these initiatives have failed after the initial funding period ended (Kin et al., 2016, Aljohani and Thompson, 2021), primarily due to the difficulty in ensuring sufficient demand from both logistics service providers (LSPs), and retailers (van Duin et al., 2018, Akgün et al., 2020). This suggests that, for innovations in last-mile logistics to succeed, a better understanding of the perspectives of the different stakeholders is needed. To ensure long-term financial viability and increase the potential for consolidation, UCCs need relevant parties to come together and form a collaborative structure (Hagberg and Hulthén, 2022), but such stakeholder acceptability appears to be a major barrier preventing UCCs from surviving beyond the pilot stage (Nordtømme et al., 2015, Österle et al., 2015, Mepparambath et al., 2021).

Johansson and Björklund (2017) importantly highlight, however, that very few studies focus on UCCs from the retailers' perspective, despite the fact that they have substantial influence over other stakeholders such as carriers and suppliers through their (derived) demand for freight (Holguín-Veras et al., 2015). The authors also identified that the motivations for joining UCC schemes are less orientated by the improvement of services to customers, but rather would be primarily driven by reduced costs. Other studies have identified various factors that affect retailers' decisions about whether they would accept to receive their deliveries through UCCs, with a particular focus on the potential effects of time windows, congestion charges and off-hour deliveries (Marcucci and Danielis, 2008, Marcucci and Gatta, 2017). Aljohani and Thompson

(2020) have shown that retailers are in fact highly heterogeneous and their willingness to agree to using a UCC depends on various factors such as the intensity of their transport requirements.

Retailers play a crucial role in place-making in cities via promoting interaction, offering range of services, and boosting economic activities in their surroundings. Knowing more about retailers enables operators of UCCs to offer services that fit better with their actual needs, as the research on existing UCCs show that the business models are not always based on an offer of appropriate services (Björklund et al., 2017). Several value-added services can be provided by UCCs, such as off-site storage space, pre-retailing activities, waste management and recycling, e-commerce support, information system enabling tracking and tracing, and customized delivery days and times for the users (Browne et al., 2005, Paddeu, 2017, Björklund et al., 2017, Johansson and Björklund, 2017).

This study aims to understand how particular local transport policies (e.g. time window restrictions, low emission zones, availability of loading and unloading bays) and services (e.g. providing warehousing space, waste management, customized delivery times) affect the perceptions of retailers in considering receiving their deliveries through UCCs. Exploring the potential impacts of local transport policies will enhance the understanding about the motivations and willingness of retailers to participate in UCC schemes (Mepparambath et al., 2021). A case study methodology is applied to the city of Edinburgh, Scotland, based on 30 semi-structured interviews with independent retailers. Small and independent retailers were selected as they are more prone to disruptions (e.g. street design, traffic regulations) in their supply chains in comparison to chain retailers. In addition, they employ a very small number of people who make the majority of decisions, and profit margins are considerably smaller than chain retailers.

The following section reviews the UCC literature according to four key areas: benefits of using a UCC, challenges to the use of UCCs, the use of supportive policies in stimulating demand for the use of such facilities, and finally the services offered that could attract retailers to use UCCs. Section 3 presents the methodology and background case information, and Section 4 the results according to the four main areas covered by the literature. Section 5 discusses the results in the context of previous literature and section 6 concludes with the key findings and recommendations for UCC planners and developers.

2. Theoretical background on the retailer perspective of using UCCs

2.1 An overview of UCC typologies and working examples

Allen et al. (2012) identified and defined three main types of UCCs; (1) UCCs serving all or part of an urban area, (2) UCCs serving large sites with a single landlord, and (3) construction project UCCs. These UCCs differ from each other based on location and the type of customers they serve, infrastructure requirements, distance from customers and their business models, including key stakeholders and the value proposition. The first type of UCCs can be seen in busy urban areas which have traffic-related issues (e.g., congestion, poor air quality), and specific restrictions (e.g., time-window restrictions). These UCCs serve retail stores and hospitality outlets in these areas by utilizing low or zero emission vehicles, and in some cases also offer waste collection and management services (Lebeau et al., 2017). The second type of UCCs, which serve large sites with a single landlord, serve big complexes such as airports, shopping malls or hospitals. The third type specifically focuses on serving construction sites. These UCCs stay operational until construction projects are finalised, or, in some cases, they remain open to serve new construction projects. These UCCs are either initiated by construction companies for operational purposes or required by authorities as part of development projects. The first type of UCC, serving retailers in an urban area, is by far the most common type implemented in cities and discussed in the existing literature (Allen et al., 2012), and is also the focus of this study. While some of these examples remain active UCCs, the majority of projects have been terminated (after the pilot stage) mainly due to lack of interest from the users and lack of longer term financial support. A few successful and ongoing UCC projects will briefly be described in the following paragraph, and what they have in common is the engagement of stakeholders from the beginning of the project and long-term policy support.

Paddeu (2017) provided an extensive analysis of the Bristol-Bath Freight Consolidation Centre from the perspective of its users, which are the retailers located in the downtown area. Several factors contributed to the initiation as well as the longevity of the consolidation centre such as funding and supporting policy in the form of regulations implemented in the area (e.g., traffic and access restrictions). The financial support from three different European Union projects (CIVITAS VIVALDI, START, and CIVITAS-RENAISSANCE) provided the Bristol City Council and their partners with the financial support until the operations at the centre became mature and collaborative service offerings began to be developed. The retailers mentioned that the UCC allowed them to maximize their own space in their shops and they highlighted that the security of deliveries, as well as the timing and frequency are the primary benefits for them to

receive their deliveries through the UCC. A recent study by Dreischerf and Buijs (2022) of two UCCs which are also active to this date (in Amsterdam and Groningen) investigated how the introduction of a UCC affects the distribution of goods from a supplier's warehouses to the receivers, specifically focusing on changes in logistics processes, costs and service levels. The authors concluded that, while there was no cost difference between business-as-usual and the delivery system with a UCC, creating new service level agreements between suppliers and their receivers was important so that both stakeholders could create value from the new model.

2.2 Benefits of using UCCs for retailers

Several studies have investigated the potential benefits of UCCs in mitigating various externalities such as congestion, air pollution, and road safety (Browne et al., 2005, Allen et al., 2012, Allen et al., 2014), and as such this makes UCCs an attractive initiative for cities. UCCs can also provide benefits for LSPs, such as fewer vehicle trips, scope for renewable fuels and use of non-road modes, shorter unloading times and increased load utilisation (Allen et al., 2014, Aljohani and Thompson, 2019, Mangano and Giovanni, 2019). It is further argued that UCCs are well positioned to offer beneficial services for retailers such as storage space and pre-retailing services, which can enable retailers to have more choice of transport options, gain more sales space and increase product availability in their stores (Allen et al., 2014, Paddeu, 2017).

Pre-retailing services consist of preparing the products (e.g., tagging, preparing shelf displays, repackaging) for sale. These services enable shop owners to increase space and reduce time dedicated to unpacking and waste handling (Johansson and Björklund, 2017), which means having more time to assist their customers and to train members of staff (Allen et al., 2014, Johansson and Björklund, 2017). More storage space enables retailers to extend their product range (Browne et al., 2005, Allen et al., 2014, Paddeu, 2017). Finally, the transport features of UCCs enable retailers to contribute to environmental protection by receiving their deliveries with low emission vehicles and improving their waste handling (Browne et al., 2005, Allen et al., 2014, Paddeu, 2017). Existing research also shows that retailers would experience fewer stockouts, because stocks could be held at UCCs (Allen et al., 2014, Paddeu, 2017). These services provide retailers with better inventory control and more flexible and reliable delivery times (Browne et al., 2005), which can enhance their planning abilities with regard to staff and space planning in their shops (Johansson and Björklund, 2017).

2.3 Challenges of using UCCs for retailers

Cost is the biggest concern for all stakeholders that are involved with establishing and using UCCs and financial feasibility is the main concern for their long-term viability (Lindkvist and Melander, 2022). If UCCs are initiated by local authorities, direct and indirect financial support are the two most common tools in the start-up period (Lebeau et al., 2017). However, the overwhelming evidence shows that as soon as public subsidies end, UCCs do not survive (Kin et al., 2016, van Heeswijk et al., 2019).

From the user perspective, when UCCs are added this represents an extra link in the supply chain which leads to increased set-up and operating costs. Therefore, retailers as well as LSPs do not choose to receive their deliveries through UCCs unless local authorities subsidize these costs (Giampoldaki et al., 2021). dell'Olio et al. (2017) found that usually receivers are not willing to change the manner by which they receive their goods, especially if such changes involve increased costs (either in terms of time or money). Janjevic and Ndiaye (2017) argue that a UCC should be able to decrease delivery costs through providing gains in terms of distance and time. They identified the key factors influencing the cost attractiveness of UCCs as the distance to UCCs and enabling off-hour deliveries, factor and pricing of services, the density of the delivery zone and the size of cities, and the mode of management. Marcucci and Danielis (2008) found that the potential demand for using UCCs is influenced mainly by the distance of the parking bays from the shop, access permit cost, the service cost, and the delay in delivery time.

Lagorio et al. (2016) identified that potential stakeholders hesitate to participate in UCC projects due to maintenance of customer service levels, security of goods, lack of involvement of stakeholders in decision-making processes and potential conflicts with local authorities. According to Björklund and Johansson (2018), even though stakeholder collaboration is often mentioned in the literature, few articles analyse the complexity of managing a large number of stakeholders with different goals, costs and benefits. As highlighted above, even though value-added services offered by UCCs can provide some benefits to retailers, in previous trials with subsidised UCC costs retailers usually opt out as soon as they are expected to pay for UCCs and the related services offered (Marcucci and Danielis, 2008).

2.4 Policy measures applied to incentivise retailers to use UCCs

Local transport policies aimed at receivers of goods (retailers in the context of this study) have gained less attention by researchers in comparison to other stakeholders such as transport providers. Therefore, limited information exists concerning how retailers would react to potential changes instigated by local transport policies. Stathopoulos et al. (2012) suggest this is because it is difficult to find appropriate policy instruments to influence the behaviour of retailers regarding supply chain decisions, whilst Akgün et al. (2020) add that deliveries are simply a consequence of being in the retail business, and whilst not viewed as straightforward, are far from seen as problematic. Consequently, policy would need to impose fairly draconian measures to change that situation, and whether this would be desirable from a wider economic perspective is open to debate.

What research does exist suggests that higher reductions offered to retailers in city taxes would result in more using UCCs (dell'Olio et al., 2017), and that the packages of policies that may increase retailers' use of UCCs, are quite different from those that would influence the transport carrier (Marcucci and Danielis, 2008). In the latter study, retailers were found to be primarily influenced by cost, whilst the carriers tended to focus on transport efficiency. The authors highlight that this is probably because any cost increases could to some extent be passed on to the retailer (assuming demand was relatively inelastic), however transport efficiency results in improved vehicle utilisation and lower costs to the transport operator. This would imply that there is no one package of measures that would encourage all stakeholders consistently in the use of UCC, and hence what would be required is a range of measures, and in turn a reasonably extensive policy portfolio (Anand et al., 2021).

2.5 Services offered at UCCs that could attract retailers

According to Björklund et al. (2017), a viable business model for a UCC should be able to adapt to a dynamic environment and innovate new services to generate more revenue, and as such seek to become a more complete logistics provider. Business models need to ensure the balanced distribution of costs and risk among the stakeholders (Johansson and Björklund, 2017), often involving a public subsidy to guarantee that users will not be penalised financially, at least in the start-up phase (Allen et al., 2014).

The potential benefits to UCC users discussed above relate strongly to the specific services offered by the UCC. These service offerings can also become additional sources of revenue for

UCCs as retailers usually are required to pay for these services. In addition, the ability of developing service offerings indicates that UCCs can develop and adapt their business models to a dynamic environment, which is characterized by different expectations and requirements of different stakeholders (Björklund et al., 2017). Existing studies mention a variety of services that can be offered by UCCs such as providing off-site storage space, pre-retailing activities, waste management and recycling, e-commerce support, information system enabling tracking and tracing, and customized delivery days and times for the users (Browne et al., 2005, Paddeu, 2017, Björklund et al., 2017, Johansson and Björklund, 2017, Akgün et al., 2020). The potential benefit of these services was discussed in section 2.2, but the challenge is that the services desired by retailers are usually already being provided by their LSPs, thus switching to the UCC would mean not only a change in supply chain but a transfer of payments and loss in revenue to the LSP. It also possibly reduces the potential market, as it requires a ‘double coincidence of wants’, in the form of only attracting retailers with a need for additional logistical services and a demand for consolidated deliveries.

3. Methodology

3.1 Case study location and sample identification

UCC issues are well-studied in the literature, and the goal of this study is to focus on the retailer perspective, which has been under-researched. Of the studies that do exist, the majority have adopted quantitative research methods and investigated retailers’ willingness to participate in UCC schemes (Marcucci and Gatta, 2017, dell’Olio et al., 2017). Another stream of research has also adopted quantitative methods to investigate distribution network configurations by taking UCCs and a network of stakeholders (including retailers) into account (Aljohani and Thompson, 2019, Mepparambath et al., 2021). However, there is still need for in-depth elucidation of what specific internal and external circumstances would affect the decision of retailers to be involved with UCCs (Aljohani and Thompson, 2020). Therefore, a single case study methodology was selected to explore the impact of local transport policies on retailers’ willingness to participate in UCC schemes. The case study is exploratory in nature because exploratory studies are useful to understand a precise nature of an issue and/or a problem (Lee and Saunders, 2017).

The choice of case is the city of Edinburgh, the capital city of Scotland with 527,620 inhabitants (National Records of Scotland, 2022). There exist a significant number of independent retail stores located in the city and surrounding suburban centres. Such places tend to have traffic problems related to parking, lack of dedicated places for freight vehicles, lack of dedicated lanes

for cycling and pedestrians, noise pollution, intrusion of vehicles and congestion. Local authorities implement policies to mitigate these problems, but such policies can be unpopular with local business as they tend to be viewed as being counterproductive to their logistics operations, as well as dissuading footfall trade.

Several criteria have been identified to choose the interviewees. First, they should be independent retailers. The main reason is that independents are more exposed to disruptions in their deliveries caused by policy measures and operational issues, in comparison to chain retailers. Independent retailers are usually reliant on a decentralised urban supply chain system, for instance goods are received from several different points of dispatch, which would suggest there may be more potential to benefit from the use of a UCC (Allen et al., 2012). An additional criterion was to focus on retailers selling non-perishable products, which do not require special handling conditions such as refrigeration. Non-perishable products include fashion, furniture, gifts, accessories, toys and books. Under these criteria, 50 retailers were identified in Edinburgh city centre, and in suburban centres near to the city centre. 30 retailers agreed to participate in the study. The common feature of these locations is that they are the parts of the city with retailing agglomerations and similar local transport policies are in place for all of them.

3.2 Data collection and data analysis

Semi-structured interviews have been used to collect primary data from each the retailers. All interviews were conducted face-to-face. The duration of interviews varied between 20-30 minutes. The interview guide consisted of four sections. (1) general business and operational questions; (2) urban freight transport policy measures; (3) benefits, challenges, supportive policies and available services of UCCs; (4) communication with policy makers. All interviews were recorded and transcribed. An analytical matrix was used to collate data against each of the four categories identified from the literature, which was then summarised for presentation in the paper. These categories are (1) benefits of using UCCs, (2) challenges of using UCCs, (3) the impact of supportive UFT policies on the willingness of retailers to use a UCC, and (4) the impact of value-added services on the willingness of retailers to use a UCC.

4. Results: Retailers' perspectives on urban consolidation centres

4.1 Logistics operations of the retailers and existing challenges

The retailers in the sample have similar supply chain and logistics operations. As highlighted, their supply chains are best described as decentralised, where each single retailer manages order processes and inventories individually. The supply process is triggered by retailers when they order products from their suppliers. In all cases, the shipment from the supplier to the premises of the retailers are arranged by the supplier. The order frequency varies. Consistent with other studies, (Johansson and Björklund, 2017, Faccio and Gamberi, 2015), the majority of the retailers receive deliveries on a daily basis (at least one delivery per day) or on a weekly basis (2-3 deliveries per week). Others receive their deliveries on a monthly basis (1-2 deliveries per month) or only during a particular period of the year such as between June and August. The deliveries are made to the shops and to the warehouses by logistics service providers. Occasionally, suppliers (e.g. artists' paintings, postcards) make the deliveries by themselves. Deliveries take place during the daytime and generally are scattered throughout the day. Only one of the retailers receives a part of their deliveries during out of their regular business hours. This particular retailer has an agreement with one of their suppliers to enter the shop to make the deliveries out of business hours. Most of the logistics service providers inform the retailers about the time of their deliveries during the day through emails or text messages. Sometimes the retailers selling furniture receive deliveries from abroad. The interviews revealed the issues that cause the retailers most difficulties when receiving deliveries (Table 1).

Table 1: Challenges that retailers experience during deliveries

Challenges	Number of retailers
Lack of floor space	10
Lack of personnel	9
Pressure due to restrictive transport policies (e.g. time restrictions, parking restrictions and lack of dedicated parking spaces)	7
Size of deliveries (e.g. bulky, deliveries on pallets)	5
Damaged products	5
Inconsistency of the delivery times during holiday seasons	3
Lack of loading/unloading bays (LUBs)	3
Health and safety standards of LSPs	2
Location of the shop (in connection with the lack of LUBs)	2

4.2 Benefits of using a UCC

The retailers mentioned six different benefits that they could potentially obtain by receiving their deliveries through a UCC (Table 2), emphasizing three in particular. First, they are aware that consolidation of deliveries would offer environmental benefits and reduce traffic as packages are delivered in fewer vehicles that could be low- or zero-emission. Second, the retailers want guaranteed days and times for their deliveries. Third, and related to the second, is the potential operational flexibility brought by being able to modify and improve the delivery speed. Some of the retailers had different motivations in asking for regular deliveries and advanced knowledge of the size of the shipment. The majority of the retailers are solo workers, or they have one member of staff working at their shops. Knowing how many boxes will arrive and at what time makes the planning of workspace and staff easier, which were the two most common problems identified by the retailers as regards receiving deliveries (Table 1). The same retailers also think that consolidation would enable them to receive fewer deliveries and organise them outside peak times, so they would have more time to spare for their customers instead of handling the deliveries (e.g., unpacking, labelling, organizing shelves and recycling).

Table 2: Benefits of receiving deliveries through a UCC stated by the retailers

Benefits	Reasoning	Number of retailers
Environmental benefits	<ul style="list-style-type: none"> Decreasing the level of carbon emission Decreasing the level of congestion in town centres where consumers visit heavily 	6
Regular and customized delivery dates and times	<ul style="list-style-type: none"> Deliveries would not arrive at the peak times when customers visit shops Deliveries would arrive on the same day and time 	5
Operational flexibility	<ul style="list-style-type: none"> Timing of the deliveries (whether they arrive as quick as the business-as-usual) 	5
Knowing the size/amount of the delivery in advance	<ul style="list-style-type: none"> Useful for planning of staff and floor space 	2
UCC as a single point of communication	<ul style="list-style-type: none"> Dealing with a single entity rather than dealing with multiple LSPs Enabling better communication 	2
Receiving fewer deliveries	<ul style="list-style-type: none"> Due to the characteristics of parcels and space floor constraints, receiving the least number of parcels is essential 	1

A small number of retailers mentioned that they could benefit from dealing with a single entity rather than several logistics service providers. One of the retailers, who is already renting their own space from a warehouse for deliveries and inventory, mentioned that one of the main benefits of this arrangement is that they have their own dedicated member of staff. They can communicate with the warehouse crew directly for deliveries from suppliers, deliveries to customers and

managing the inventory. This situation also emphasizes the importance of having a lower number of points of communication for small and medium sized retailers.

Despite these potential benefits, the financial aspect of using a UCC remains a main factor driving their decisions. When asked whether they would be willing to pay for using a UCC, retailers answers can be grouped under three categories: non-willingness to pay; conditional payment; willing to pay (Table 3).

Table 3: Willingness to pay for using UCCs

Willingness	Reasons	Number of retailers
Not willing to pay	<ul style="list-style-type: none"> • Deliveries from suppliers are free of charge as long as the retailers order above a certain amount • No need for the services offered by a UCC • Anything that retailers need is in place • The concept of UCC is not efficient and do not experience problems with the local transport policies • No operational flexibility • The type of products and/or are not suitable to use a UCC • Value added services are already provided by the existing LSPs and the local transport policies are not restrictive enough • The costs of operations are high already for small businesses • The number and the frequency of deliveries are manageable • Already have their own warehouse space 	17
Conditional payment	<ul style="list-style-type: none"> • The fees paid to a UCC should match with the current fees that retailers pay to LSPs and other third parties currently • They would transfer the services (e.g. e-commerce support and recycling & waste management), which they already buy from other vendors to the UCC depending on the subscription fee of the UCC • Decision to pay for a UCC depends on the economic considerations when a UCC is established and starts its daily operations. Economic considerations refer to the fees of a UCC, rents, the cost of goods bought and local tax rates • Would pay only if the local transport policies increase the cost of delivery operations 	11
Willing to pay	<ul style="list-style-type: none"> • Operational flexibility • Environmental and traffic related benefits (e.g. reducing carbon emission and reducing congestion) 	2

The unwilling group represented the majority of retailers. The type of products and the type of supply chains (including the agreements with their suppliers) drive the retailers’ decisions. They do not want to pay for receiving their deliveries because the retailers always order above a certain number of products, and as a consequence receive free deliveries from their suppliers:

“At the moment obviously the companies we are buying from support our delivery charges. Adding additional costs on top of that for us does not make any sense. I would

not want to volunteer for that. Services would not warrant that we would like the UCC. Anything we want is already in place [Retailer # 5]”

The second group of retailers involve those who are willing to pay for using a UCC conditionally. The majority of the retailers in this group want to know about the cost of last mile deliveries and the value-added services in advance before any UCC project is in operation. One of the retailers mentioned that they would not be convinced to use a UCC if they use it only for the last mile delivery and added that:

“If it was simply taking my parcels and delivering it once a week, I would not want to pay for it but adding in any of these additional services then I would definitely be happy to pay. Even if it is for something like waste management and recycling, I am paying £200/year, that would be instantly a fee I could transfer over to the UCC. Additional stockholding yes, something like that to me values £50 a month because I would only use that at a certain period of the year. [Retailer #19].”

Another retailer mentioned that:

“We would imagine we would want them (i.e. UCCs) to match the prices with what we are already paying with our existing service providers. Then we would switch.”

Only two retailers showed some interest in paying for using a UCC. Their motives are based on operational flexibility and environmental concerns. One of the retailers, which also has their own warehouse space, mentioned that they could change their current set-up to a UCC due to operational issues:

“If it was on a price comparison, then obviously we are saving on the environment; we are doing a few different things so even if it was at a slightly higher level it would be something we would like to have. Even if the UCC fee came to slightly more than that, the time and the saving from the hassle would probably outweigh the monetary cost [Retailer # 12].”

“The thing with the UCC again about net benefits like less traffic on the road; it improves the overall experience of the city centre and probably I would rather go with it. I guess an extra £1 or £2 per parcel . . . would not be too much [Retailer # 20].”

Some of these retailers think that if new more restrictive policies were introduced (see next section) or there was an increase in the restrictions associated with current policies, it would increase the cost of delivery therefore would become more inclined to use the services of a UCC:

“I think I would use the centre because it would keep my costs down; anything that will keep my costs down I would have to try and accommodate but it will certainly make my life more difficult as a small business [Retailer #13].”

4.3 Challenges of using a UCC

The results of the interviews revealed that the retailers see more challenges and disadvantages than benefits of receiving their deliveries through a UCC (Table 4). The challenges can be categorized under three groups (financial, operational and strategic), although some challenges overlap all three groups.

Table 4: Challenges of receiving deliveries through a UCC stated by the retailers

Main category	Challenges	Reasoning	Number of retailers
FINANCIAL	Increasing cost of operations	<ul style="list-style-type: none"> • Adding an extra chain to their supply chains 	8
	Increasing the cost of goods sold	<ul style="list-style-type: none"> • Due to increases in the cost of operations 	2
OPERATIONAL	Delay in deliveries	<ul style="list-style-type: none"> • Due to system breakdown • Due to improper management • Due to consolidating all parcels in a single delivery 	14
	No increased efficiency	<ul style="list-style-type: none"> • A UCC would not make time management more efficient • Due to size of deliveries and the characteristics of the products, there is no value added to last mile operations • Not suitable for the products which need to go through customs clearance 	5
	Unable to handle deliveries if all boxes arrive at the same time	<ul style="list-style-type: none"> • Due to working with limited number of staff 	5
	Compromising from the safety of goods	<ul style="list-style-type: none"> • If there are too many customers, there might not be enough space to store parcels safely • Loss of control over the deliveries • Damaged deliveries 	5
	Sensitivity to the timing of deliveries	<ul style="list-style-type: none"> • Retailers who place orders in small batches and frequently demand faster deliveries • Some customers are willing to pay extra for dedicated slots and for more accuracy in delivery time; therefore 	2
	System breakdowns	<ul style="list-style-type: none"> • If the UCC would not work due to system errors, all parcels would be stuck in one place 	1
STRATEGIC	Orienteering problems with the new system	<ul style="list-style-type: none"> • Defining the responsibilities, liabilities, and financial plans • Transfer of liability and responsibility of parcels 	3

	Characteristics of products	<ul style="list-style-type: none"> • Goods produced on make-to-order basis are not suitable for shipping through a UCC • Goods that do not need special delivery 	2
	Relationship management with suppliers and LSPs	<ul style="list-style-type: none"> • Breaking established relationships with other stakeholders 	1

The first category of challenges consists of financial issues, which are, of course, the concern of each retailer. Even though some mentioned that the benefits of using UCCs could outweigh the cost caused by adding another step in their supply chain, a significant majority agreed that receiving their deliveries through a UCC would mean paying for their last mile operations. A particular challenge to overcome is that for virtually all of the retailers interviewed, their suppliers offer free delivery when they place orders over a certain amount. The retailers also raised a concern that the extra cost incurred through the use of a UCC may result in final retail price increases.

The second category of challenges are operational. Adding a new step in the supply chain is both an operational and financial challenge. Some of the retailers mentioned that they may lose control over their deliveries if the products have to be handled an additional time. Potential breakdowns and errors may cause delays in deliveries. Some of the same retailers mentioned that they would prefer receiving their boxes in multiple deliveries, for two reasons. First, they have limited floor space and therefore have difficulties in managing large deliveries, hence look to avoid situations where these clash with the visiting hours of customers. Second, if there is a problem with the single UCC delivery, they would receive none of their products. Whilst acknowledging the environmental and traffic related benefits of having fewer vehicles on the streets, several retailers highlighted that deliveries could take longer:

“It may cause delays in deliveries as delivering the same number of packages with fewer trucks may take longer than business-as-usual [Retailer #20].”

Adding another step in the supply chain repeatedly came up as an issue from different angles during the interviews. From the strategic point of view, the retailers mentioned that every additional stage to supply chains may complicate the operations in terms of cost, the liability and the transfer of the products’ responsibility. As such, they would hesitate in transferring to a different distribution system due to these issues; in the course of the interviews, this led into the fact that this would also require them to re-define roles and responsibilities with a new distribution system. They also highlighted that they have well established working relationships with their current LSPs and using a UCC would break these relationships.

4.4 The impact of supportive UFT policies on the willingness of retailers to use a UCC

The discussion with the retailers was based on whether the introduction of one or more potential local transport policies would affect their decision to use UCCs for their last mile deliveries). To facilitate this, nine policy measures were identified and put into three groups: parking and loading; emissions and congestion; other. These are shown in Table 5. Some of these are already in place in parts of Edinburgh, specifically time window restrictions, loading/unloading restrictions, parking restrictions and loading/unloading bay, whilst one, out-of-hour deliveries, is not in place but nevertheless is already used by one of the retailers interviewed. In addition, at the time of the interviews Edinburgh was due to introduce a low emission zone by 2020, although this was subsequently delayed until June 2022 due to the Covid-19 pandemic.

Table 5: The opinions of retailers about the effect of policies on their likelihood to use a UCC

Policy group	Policies	More likely	Less likely	Not an option	No opinion
Parking and loading	Parking restrictions (exempt if using the UCC)	9	13	0	8
	Loading/unloading restrictions (exempt if using the UCC)	7	14	0	9
	Time window restrictions (exempt if using the UCC)	6	13	1	10
	Increased availability of dedicated LUBs	4	12	0	14
Emissions and congestion	Low emission zones (exempt if using the UCC)	7	11	0	12
	Congestion charge (exempt if using the UCC)	7	12	0	11
Other	Delivery and servicing plans	2	9	2	17
	Pedestrianisation (exempt if using the UCC)	1	0	29	0
	Out-of-hour deliveries	1	1	26	2

The first result to note is that some retailers highlighted that a proposed policy measure is not possible or applicable in their location and hence they could not give any opinion such proposed measures. Of those that are, retailers are particularly concerned about parking and loading policies as they interfere with their deliveries and the visits of customers, particularly in terms of passing trade. One retailer mentioned that they are aware of the importance of the policies and their calming impact on the traffic; however, they find the design of the policies problematic. The problems occur due to the duration and the quantity of the policies as the movements of goods vehicles and individual cars are restricted by multiple policies. Some of the retailers occasionally bring parcels with their own cars and they suffer problems due to parking limitations and the lack of dedicated parking bays. Limiting parking bays is one of the most common precautions that local authorities implement to decrease the number of cars travelling in the city.

“Definitely parking restrictions, it becomes a constraining factor for us when there is no parking for customers. It would be good to have dedicated parking for the customers on street or somewhere else. Sometimes if I want to pick up something in the evening or do something here, it is good to be able to park outside instead of waiting until certain times. [Retailer #24].

“The time window restrictions, it is a disadvantage for us because we are a small and independent shop, if somebody just wants to run in for a gift or a card obviously, they would not stop because of the restrictions [Retailer #21].”

On the other hand, a body of retailers think that the policies do not pose any threat to their deliveries. One even argued that policies such as parking and time window restrictions might work in favour of freight vehicles when they deliver during the daytime:

“If there is a smaller number of cars parking outside, freight vehicles can find more space to park and load/unload goods [Retailer #27].”

The retailers were asked whether they would prefer using UCCs if their deliveries were then exempt from parking and loading restrictions. A small group were willing to use UCCs only if the timing and the number of the restrictions were increased to the point where being exempt as a result of using the UCC becomes necessary:

“I think generally the UCC is a bad idea and I would not be tempted to use it unless it is costing me a vast amount of cash and I am not really in favour of it. Because I think it is just an extra and I think there are already enough steps in the supply chain [Retailer #28].

Otherwise, the retailers prefer seeing local authorities take actions which would not increase the cost of receiving deliveries such as evaluating existing policies and increasing the number of dedicated loading and unloading bays as well as car parking.

Looking at the second group of policies, retailers voiced mixed and even opposing opinions concerning the impact of an LEZ and congestion charges. Even retailers who mentioned that parking and loading policies do not pose any problem for their deliveries, mentioned that it would be inevitable to pay for an LEZ and/or a congestion charge if they were introduced.

“LEZs, I agree with them to some extent but you have got a city council who want to reduce the level of traffic in some part of Edinburgh which means causing more traffic in other parts of Edinburgh. . . . Congestion charge, I would not go for a charge because it

is ridiculous to have for a city the size of Edinburgh. They tried to bring it before and when the people voted against it then that is when the council became anti-car [Retailer #15].”

The retailers in this group mentioned that they support the actions taken by the public authorities to create a better environment, but argued that the implementation of emission and congestion related policies would be unfair for LSPs and suppliers:

“I am all for helping prevent climate change and lowering the pollution, etc. Congestion charge makes sense, there might be a lot people who are carpooling or using public transport. It is not like you can carpool deliveries because they are already carpooled in one big lorry so I do not really see how that can feasibly be changed in any way other than providing rewards or penalties to the courier companies for using low or high emission vehicles. [Retailer #26].”

One of the main concerns is that retailers would be affected if LSPs did not have suitable vehicles at the time of implementation of local transport policies. However, one of the retailers already mentioned that they are observing a transition from conventional vehicles to electric vehicles and low emission vehicles:

“A lot of delivery trucks have got like they are switching to EVs and low emission vehicles. I do not think that is going to affect us that much because delivery companies already sorted their vehicles. [Retailer #12].”

Some of these retailers are already familiar with the impacts of emission and congestion policies on their costs because they are selling their products online and shipping them to other cities such as London:

“We end up working around them. For instance, congestion charge, if I were delivering to London, DPD would charge me extra if postcodes are within the charging zone. So, I have an average charge but that could be an issue. [Retailer #3].”

The third group contains the three policies that received little interest from the retailers. This is mainly due to the fact that these policies are perceived to be not applicable in many cases due to their geographical locations and the ways that they run their businesses. Pedestrianisation, delivery and service planning and out-of-hour deliveries were discussed with the retailers. In the case of the first mentioned (pedestrianisation), the vast majority of retailers simply perceived this

to not be a policy option, hence no firm results could be drawn on the impact this may have on their willingness to use a UCC.

Only one of the retailers uses out of business hours delivery with one of their suppliers, where the supplier has the key to the shop to gain access at such times. Making deliveries outside of regular business hours is perceived as not being an option for the majority of individual retailers as they either work alone or with few numbers of people in their shops.

4.5 The impact of value-added services on the willingness of retailers to use a UCC

The retailers were asked if value-added service offerings would make a UCC more attractive (Table 6).

Table 6: The opinions of retailers about the effect of value-added services on their perceptions

Value-added services	Positive (More likely, and/or in need)	Negative (Less likely/No need)
Customised delivery date & time	17	13
Improved tracking & tracing	16	14
Electric vehicles	15	15
Waste management & recycling	15	15
Additional stockholding	11	19
E-commerce support	10	20
Pre-retailing	0	30

Some of the retailers mentioned that early delivery possibilities, a wide variety of time/date offerings, and knowing the exact delivery times are the features that they would want if they were to use a UCC for their deliveries:

“It would be depending on whether they are offered for free or based on a charge, but I would certainly want customized delivery times and dates, so I could control what was being delivered so I did not have everything come at once [Retailer #13]”

Nevertheless, the offer of such services as an incentive may be limited as many already receive this service from their current LSPs:

“Customized time and date are really good if you can do that because then I can time it but it is also time consuming because either I have to book it or they have to call me . . . Most of the couriers provide time slots already so we know staff is always here when deliveries arrive [Retailer #6].”

When asked about tracking and tracing, it was found that the majority of the retailers receive this service from their current service providers:

“Tracking and tracing is essential for us because our items are not low-priced items, so we need to know that they are trackable. We do have e-commerce services and tracking and tracing, but I think they could be made better [Retailer #7]”

As shown in Table 6, electric vehicles are one of the most favourable features of UCCs according to the retailers, although this did produce an even split, potentially partly off-set by the fact that electric vehicles are already becoming popular and widely used to deliver goods in cities. Nevertheless, key positive reasons highlighted were:

“Delivery by electric vehicles would be good because we do everything here on an ethical and fair basis [Retailer #5].”

“We are quite environmentally conscious; I think deliveries by electric vehicles would be the biggest selling point for us. [Retailer #22].”

Some retailers mentioned that they struggle with waste management and recycling on a daily basis as they are lacking space and staff to take care of recycling (e.g. cardboard boxes, glasses, plastics and food waste). They usually pay third-party companies to handle their recyclable materials, but some are not happy with their current service providers. However, they could change only if the prices match their current spending.

The individual shops in Edinburgh are characterized by a limited floor space as is the case in many cities where land is valuable, and space is scarce. Therefore, stockholding is a type of service that the retailers considered useful. Some mentioned that they need extra space particularly during the holiday seasons (e.g., Christmas) when the number as well as the frequency of deliveries increase. Pre-retailing services however were not favoured by the retailers.

Some of the retailers find e-commerce services useful and think that it would decrease the complexity of their in-house operations if they could send some deliveries from the UCC to their customers directly. One retailer would use this service if the UCC could offer a better deal than their current service provider. However, the majority did not show interest in using this service. First, some of the retailers do not sell their products online. Second, the retailers who already have their own warehouses send their products to their customers either from the warehouse or from suppliers' facilities.

Finally, not a single retailer would prefer to buy pre-retailing services (barcoding and/or tagging of goods and preparing goods for shelf/window display) from UCCs. The common belief is that the retailers want to perform these operations themselves even if they are lacking floor space and/or personnel. The main reasons could be due to security concerns and the potential delays that could occur due to performing pre-retailing operations at UCCs. These concerns were not mentioned by the retailers specifically in relation to this service but were listed by them as some of the challenges of using UCCs. Also, the retailers could see pre-retailing activities as simple tasks which are not worth paying extra considering retailers' cost sensitivity and underlying cost structures.

5. Discussion

5.1 General issues

Throughout the course of the interviews, it became overwhelmingly clear that the delivery cost per parcel plays a central role in the supply chain decisions of retailers in Edinburgh. Most of the retailers preferred not to pay to use a UCC because they do not currently pay for their deliveries when they order above a certain quantity from their suppliers. Aljohani and Thompson (2019) also identified that when receivers make choices among different delivery strategies, the cost of deliveries is the most important criterion, followed by punctuality, security and status updates. Marcucci and Danielis (2008), while also highlighting cost as a major issue, also found that delivery time plays a significant role. Some of the Edinburgh retailers prioritise time-savings and efficiency gains over the extra costs to use the UCC and its services because they think that they can use the time as well as the effort saved from following up deliveries to improve their customer service and operational performance in general. (Mangano and Giovanni, 2019) similarly found that retailers can accept higher costs for deliveries that are more reliable and reduce stockholdings. Those retailers in Edinburgh willing to pay for using a UCC appear to be more sensitive to delivery times and risks originating from handling of their parcels. Knowing the exact time of the delivery provides operational flexibility for retailers, which was also identified by Lebeau et al. (2018) as a crucial determinant of perceived level of service for receivers. Using the UCC as a single point of communication (instead of trying to reach multiple LSPs to track deliveries) also produces less risk for retailers.

Many local transport policies are not designed specifically to support UCCs or even freight transport more generally but are part of a larger plan for the city, such as the introduction of pedestrianisation or a LEZ (Lebeau et al., 2017, Akgün et al., 2020). The findings of this study

showed that the Edinburgh retailers are sceptical of congestion charging and low-emission zones, although they are in favour of switching their deliveries to electric vehicles. The findings relating to environmental concerns matches conclusions from Mangano and Giovanni (2019), where the authors identified that sustainability is considered as a lever by retailers to generate more revenue, being potentially more aware of environmental issues than other sectors due to their customer facing role. However, retailers may be more concerned about security of the delivery and the additional transport costs than the environmental benefits of low emission vehicles (Aljohani and Thompson, 2019).

While the retailers are not in favour of restrictive transport policies, they recognised that in future they could be more likely to use a UCC as a result of increased costs or inconvenience resulting from the implementation of policy measures such as low emission zones, congestion charge, parking restrictions and time-window restrictions. In line with the findings from Marcucci and Gatta (2017) and Akgün et al. (2020), the retailers in Edinburgh that are more sensitive towards delivery times and moderately sensitive towards risk and cost are also influenced by local transport policies and by the operational benefits that UCCs offer.

The study found that value-adding services have more positive influence on the retailers than the local transport policies. This is mainly because the retailers can associate the advantages and the disadvantages of using UCCs directly and clearly by looking at the service options. More than half of the retailers mentioned that additional stockholding space, customized delivery dates and times, improved tracking and tracing, distribution with electric vehicles and waste management would make them more likely to choose using UCCs over their current system, as long as the prices are matched. They recognised that value-added services at the UCC can positively affect in-store operations especially in terms of more efficient use of space and ease of managing personnel (Gammelgaard et al., 2016, Lindkvist and Melander, 2022).

Nevertheless, the results showed a significant number of retailers who were of a completely different view, which reflects the heterogeneity identified by Aljohani and Thompson (2020). As Johansson and Björklund (2017) argue, the potential to further improve customer service at retail stores might not be achieved with the implementation of a UCC. This is mainly because of the fact that the retailers in need of extra space and/or consolidation of goods are already renting warehouse space and are receiving tracking and tracing services from their LSP. In the context of Edinburgh, the retailers never experienced alternative ways of receiving their deliveries and feel safer under the current network of relationships with LSPs; in the process of carrying out the interviews, it became clear there was a strong hesitation to break these established relationships.

According to Paddeu (2017) the sense of security of their goods being handled by third parties is closely linked to the degree of relationship between the retailers and the staff of the UCC.

5.2 Policy issues

Kiba-Janiak (2017) identified seven criteria to measure the maturity levels of cities in freight planning as part of local transport strategies: *(1) The time when the local authority began planning city traffic in order to protect the environment, (2) the time when the local authority began to involve freight transport into long-term city plans, (3) the development by the local authority of a complex plan, which includes passenger and freight transport, (4) the development of a freight transport plan by a local authority, (5) the range of local authority cooperation with stakeholders, (6) the regulation on data collecting in the field of freight transport in a city, and (7) the long term partnership of local authority with UFT stakeholders* . When considering the findings of this study together with the evidence presented in previous studies, it can be concluded that Edinburgh and Scotland in general show low maturity in incorporating urban freight planning into strategic transportation planning (Akgün et al., 2019, Cowie and Fiskén, 2023). Cowie and Fiskén (2023) argued that some of the main strategy documents (i.e., Transport Vision 2030 and Edinburgh Local Transport Strategy 2014-2019) provide very limited emphasis on urban freight including complex plans, data collection tools and techniques, and principles of stakeholder collaborations. According to the authors, existing policies focus on developing traffic calming measures or solving general traffic related problems rather than providing a strategic logistics plan.

The first step to improve the maturity levels of cities in freight transport planning is to integrate freight in national transport strategies (Fossheim and Andersen, 2017), which then should be followed in local transport plans and city mobility plans. During the last 10 years, Transport Scotland published two national transport strategies in 2016 and 2020. Between these two national transport strategies, there were no substantial changes in the recognition of urban freight transport as part of national, regional, or local transport planning. Both documents discuss challenges and potential solutions briefly and it remained unclear what actions will be taken specifically by the authorities. The most recent strategy document recognises several challenges of urban freight transport in Scottish cities such as congestion, air pollution and potential road casualties (Transport Scotland, 2020). Some of the root causes of the increasing volume of freight distribution in cities have been discussed briefly (e.g., increasing online purchases, changing consumption habits), and the strategy discusses the necessity of decarbonisation of freight activities via switching to low or zero emission vehicles, and developing new business models. However, there is no discussion about what responsibilities each stakeholder has with regard to

any of these actions. Another document called Clean Air for Scotland 2 (CAFS) published by The Scottish Government (2021) provides slightly more detailed discussion on UFT solutions that will correspond with clean air and environment objectives of the country. The document discusses the potential use of low emission vehicles for freight transport (e.g., electric cargo bikes) and stresses the necessity of cross-sector collaboration between governmental agencies, academia, and private sector organisations. However, like the national transport strategies, it does not provide any specific roadmap towards achieving these objectives and a corresponding timeline.

While the governmental agencies do acknowledge freight in their strategy documents, they do not integrate freight as an essential part of their long-term strategy and planning. These agencies do not develop a comprehensive logistics strategy at the national level, and they do not identify the roles and responsibilities of local authorities in this matter. Recently, Edinburgh City Council (2021) published the new City Mobility Plan 2021-2030. In this plan, the City Council presents freight as one of the core components of their mobility plans. The City Mobility Plan 2021-2030 proposes a combination of delivery and servicing solutions including neighbourhood delivery hubs, click & collect facilities, consolidation hubs (located at the edge of the city), and access timing restrictions. The City Council claims that they are planning to achieve these objectives by better use of transport data, developing strategies to better allocate road space between modes of travel and making use of emerging technologies. Even though the City Council does not provide a corresponding timeline for achieving these policy measures, a roadmap on how these policy measures will be achieved or a stakeholder mapping for identifying relevant stakeholders, this plan does at least provide more details in comparison to those developed in earlier years.

Although Scotland is no longer a formal part of the European Union, the local authorities may still benefit from following the guidelines of sustainable urban logistics planning (SULP) as a policy support tool. The SULP guidelines, authored by Rupprecht Consult (2019) and published by the European Secretariat, aims to provide small and medium-sized cities (in Europe) which do not have the required resources and tools with policy assessment and modelling tools for sustainable city logistics. The SULP guidelines incentivise cities to have clear and measurable goals and objectives (Bjørngen et al., 2019), recognition of UFT related challenges (Buldeo Rai et al., 2017), seeking a balance between efficiency and sustainability when choosing and implementing policies (Buldeo Rai et al., 2018), embedding collaboration as a core component of policy making (Lindholm and Browne, 2013), and seeking for practical support as well as learning from best practices (Kiba-Janiak, 2017). By considering all these objectives and mapping all relevant steps that need to be carried out to accomplish them, Edinburgh and several other cities

in Scotland can ensure a systematic approach for achieving the objective of zero-emission transport and freight deliveries in urban areas.

6. Conclusions

This study investigated the perspective of retailers on their potential use of UCCs and the impact that a range of policy measures may have on these decisions. The first clear conclusion is that in general retailers are not positive towards using UCCs. While they see some potential benefits, the services that they need are already being provided by their existing LSPs. Furthermore, the basic workings of the supplier market, where the delivery charge is effectively incorporated in the final commodity price to the retailer, as such represents a major barrier to any potential move to the use of a UCC.

It also became clear in the course of the research that retailers generally possess little information or opinions about local transport policies and the urban freight system that operates outside of their shops, as long as it is not affecting their current business. In this case retailers either have very limited communication with local authorities or none at all. Moreover, they did not see any reason to change that relationship. This result is entirely consistent with a low level of “maturity” in the UFT policy context (Kiba-Janiak, 2017). Perhaps unsurprisingly, the retailers are concerned more about the potential challenges that UCCs could cause to their own businesses, rather than the wider economic, social, and environmental concerns.

When asked about the possible effects of more restrictive urban freight and logistics policies, interestingly retailers potential use of a UCC seemed to be more influenced by an expansion of existing policies (e.g. time restrictions, loading/unloading restrictions), rather than through the introduction of new ones (e.g. LEZ, congestion charge). To some extent, this may reflect the realities they currently face, and hence the reluctance to give views surrounding policies with which they are unfamiliar. Nevertheless, they are aware of the increase in restrictive traffic management policies in city centres (e.g. pedestrianisation, parking restrictions, low emission zones, congestion charge), and if they were forced by such restrictions and related rising costs, they would potentially make use of a UCC. Two inferences result from this potential change. First, some retailers pointed out that the LSPs would be the first impacted by such changes as they are the ones performing the deliveries, hence any such measures would have a far greater impact on LSPs operations rather than the retailers directly. Second, the retailers would want those services currently provided by LSPs to be provided by the UCC and would be prepared to pay for them. An important finding from the study is, therefore, that any service the retailers would potentially pay for at the UCC is a service they are already purchasing from the LSP. Ultimately

therefore, the issue is a transfer of payment to the disadvantage of the LSPs. Future research is needed on the LSP perspective and how it can be aligned with the use of UCCs so that they are not disadvantaged or put in competition with one another. This finding echoes the conclusions of Björklund and Johansson (2018) regarding the need to understand the UCC from a holistic perspective that includes all stakeholders. It also suggests a clear need for an active city logistics policy (Benjelloun et al., 2010), where a comprehensive approach is taken aimed at attempting to mitigate the negative impacts of urban freight transportation without penalising the economic, social, administrative, cultural, tourism and other related activities.

The strong policy implication arising from this research, therefore, is that for a successful transfer to a UCC model, all parties, i.e. the regulating authority, retailers, LSPs and potential UCC operators, would need to work together (Hagberg and Hulthén, 2022). As such, it would fall upon the local authority to implement such a policy and enable this coalition. Initiating UCCs and implementing local transport policies, however, are delicate matters because of the positions that public authorities and retailers hold as policy makers and policy receivers. Previous research has shown that public acceptability is a crucial factor influencing the choice of policies made by local authorities (Akgün et al., 2019) and the public acceptability could be ensured through continuous consultation among stakeholders of urban freight transport. Gammelgaard (2015) explains this situation based on an imbalance of power, where public authorities represent an authority figure. For successful implementation, it is necessary to have a constructive partnership between policy makers and policy receivers through increased stakeholder engagement and a general raising of the level of policy maturity in the city.

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