ULaDS
URBAN LOGISTICS AS AN ON-DEMAND SERVICE

IMPLEMENTATION ROADMAPS FOR SATELLITE CITIES

D5.6 Implementation roadmaps for Satellite cities

Date: 26/02/2024

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The ULaaDS project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 861833. ULaaDS is a project under the CIVITAS Initiative.

CIVITAS 2030
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THE CIVITAS INITIATIVE IS CO-FUNDED BY THE EUROPEAN UNION

Deliverable details

Project acronym	Project title
ULaaDS	Urban Logistics as an on-Demand Service

WP	Deliverable title
WP5	D5.6: Implementation roadmaps for Satellite cities

Document history

Version	Date	Author(s)	Status*	Dissemination level**
1	15/02/2023	Arianna Americo (EUR)	Draft (Outline and structure)	CO
2	04/01/2024	Arianna Americo (EUR)	Updated draft (Lessons learned from trials) sent to Satellite cities for input.	CO
3	29/01/2024	Liviu Stanciu (AIM), Lars Petter Klem (BER), George Lowder (EDI), Marco Surace (RSM)	Input from Satellite cities received by EUR	CO
4	15/02/2024	Arianna Americo & Kateřina Kührová (EUR)	Final draft shared with TOI and BAX for revision	CO
5	22/02/2024	Howard Weir (TOI) Niccolo Corti (BAX)	Comments to final draft	CO
6	26/02/2024	Arianna Americo (EUR)	Final	PU

*Status: Draft, Final, Approved, Submitted (to European Commission).

Dissemination Level: **PU: Public; **CO**: Confidential, only for members of the consortium (including the Commission Services); **EU-RES** Classified Information - restraint UE; **EU-CON**: Classified Information - confidential UE; **EU-SEC**: Classified Information - secret UE

Contractual delivery date	Actual delivery date	Deliverable type*
M42	M42	**R**

*Deliverable type: **R**: Document, report; **DEM**: Lighthouse, pilot, prototype; **DEC**: Websites, patent fillings, videos, etc; **OTHER**; **ETHICS**: Ethics requirement; **ORDP**: Open Research Data Pilot.

Project Abstract

ULaaDS sets out to offer a new approach to system innovation in urban logistics. Its vision is to develop sustainable and liveable cities through re-localisation of logistics activities and re-configuration of freight flows at different scales. Specifically, ULaaDS will use a combination of innovative technology solutions (vehicles, equipment and infrastructure), new schemes for horizontal collaboration (driven by the sharing economy) and policy measures and interventions as catalysers of a systemic change in urban and peri-urban service infrastructure. This aims to support cities in the path of integrating sustainable and cooperative logistics systems into their sustainable urban mobility plans (SUMPs). ULaaDS will deliver a novel framework to support urban logistics planning aligning industry, market and government needs, following an intensive multi-stakeholder collaboration process. This will create favourable conditions for the private sector to adopt sustainable principles for urban logistics, while enhancing cities' adaptive capacity to respond to rapidly changing needs. The project findings will be translated into open decision support tools and guidelines.

A consortium led by three municipalities (pilot cities) committed to zero emissions city logistics (Bremen, Mechelen, Groningen) has joined forces with logistics stakeholders, both established and newcomers, as well as leading academic institutions in EU to accelerate the deployment of novel, feasible, shared and ZE solutions addressing major upcoming challenges generated by the rising on-demand economy in future urban logistics. Since large-scale replication and transferability of results is one of the cornerstones of the project, ULaaDS also involves four satellite cities (Rome, Edinburgh, Alba Iulia and Bergen) which will also apply the novel toolkit created in ULaaDS, as well as the overall project methodology to co-create additional ULaaDS solutions relevant to their cities as well as outlines for potential research trials. ULaaDS is a project part of ETP ALICE Liaison program.

Keywords

Urban logistics, sustainability, strategy, replication, study visit, training, peer-to-peer, implementation roadmap.

Copyright statement

Executive summary

The D5.6 *Implementation roadmaps for Satellite cities* outlines the ULaaDS replication approach, focusing not only on the technical solutions tested in ULaaDS but also on the broader contextual factors influencing the deployment of the tested measures in each city. ULaaDS solutions were implemented in Lighthouse cities – Bremen, Groningen, and Mechelen, with four Satellite cities – Alba Iulia, Bergen, Edinburgh, and Rome, engaging in replication efforts. The peer-to-peer methodology served as the foundation for sharing best practices and implementation challenges among cities. This document's objectives include presenting key learnings from ULaaDS trials, outlining replication activities, and identifying measures with high replication potential for Satellite cities. Detailed descriptions of trials, challenges, lessons learned, and the implementation roadmaps for Satellite cities are provided, offering a comprehensive guide for other European cities seeking inspiration for replicating sustainable urban logistics solutions.

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1. Introduction

Cities in Europe have been increasingly concerned with the challenges that urban logistics poses, such as congestion, air pollution, CO_2 emissions, noise and safety. Striving to reduce CO_2 and air pollutant emissions has been on top of cities' administrators' agenda for years now, however, tackling the impact of the logistics sector often poses additional challenges for regulators. As a sector with many different stakeholders, new players changing at a fast pace and customers getting more and more accustomed to same day deliveries, regulating flows and managing the often-limited urban space represents a significant challenge for municipalities. While the wider take-up of sustainable urban logistics measures and innovative solutions can be an effective element in contributing to environmental goals and a higher quality of life within a city, key challenges must be tackled to ensure successful implementation.

A key objective of ULaaDS is to share the lessons learnt with other cities in order to avoid repeating mistakes and enable others to learn from the project experiences of testing and implementation. In ULaaDS, **replication is understood as a process of verifying the chances of a successful adaptation of ULaaDS solutions by other cities**. However, replication will not be limited to the technical solutions tested in ULaaDS, but it will touch upon the broader context that paved the way in each city to deploy a specific solution. Replication will then focus on the approaches applied to the technical solutions including organisational issues, operational schemes, enabling technologies, underlying service chains and business models, supporting public policies and institutional frameworks, collaboration, and stakeholder engagement. This approach takes into account the main difficulties cities face when aiming at replicating measures and solutions tested in other contexts, namely how to identify the ones that are most suitable to their local conditions and requirements.

ULaaDS solutions were demonstrated and validated in three Lighthouse cities: Bremen (Germany), Groningen (The Netherlands) and Mechelen (Belgium). Since large scale replication and transferability of ULaaDS results are among the cornerstones of the project, four Satellite cities are involved in the project: Alba Iulia (Romania), Bergen (Norway), Edinburgh (UK) and Rome (Italy). This, together with the selection and participation of Follower cities in the replication activities, will maximise the project impact even after its completion.

ULaaDS applies a peer-to-peer methodology as the basis for replication, enabling cities to share ideas with each other and learn from best practices and failures. In the following chapters the ULaaDS solutions are described, including the key lessons learned in each trial. The deliverable also explains the peer-to-peer learning methodology and illustrates the replication activities carried out. Finally, it outlines the implementation roadmap developed by each ULaaDS Satellite city.

1.1 Purpose of the document

The objectives of this document are:

1. To provide an overview of the key learnings generated by the ULaaDS trials, with a specific focus on the lessons learned for replication.
2. To provide an overview of the replication activities carried out in the project.
3. To identify the ULaaDS measures and solutions that have the highest potential for replication in the Satellite cities, thus serving as inspiration for other European cities.

1.2 Structure of the document

After providing a description of the trials implemented each Lighthouse city, including the challenges faced during the execution of the trials and the key lessons learned for replication, the document outlines the replication activities carried out in ULaaDS and concludes with the implementation roadmaps of the four ULaaDS Satellite cities.

2. ULaaDS Solutions

The solutions designed, developed, and tested in ULaaDS are at the centre of the replication activities in this project. As such they have been featured in the various ULaaDS replication activities and showcased during the study visit. However, as already explained above, replication will not be limited to the technical solutions implemented in ULaaDS. On the contrary, it will encompass the broader context that makes it possible to deploy a specific solution. Therefore, besides the ULaaDS solutions and schemes as described in the following paragraphs, existing approaches, best practices, governance, and business models will form part of the replicable measures.

In ULaaDS, two solutions and five schemes have been tested in the Lighthouse cities. These are:

Solution	Scheme
1) Collaborative delivery models to enhance logistics efficiency and multimodal mobility in cities	1. Containerised urban last-mile delivery 2. Logistical network integration of crowdsourced bike couriers 3. City-wide platform for integrated management of urban logistics
2) Effective integration of passenger and urban freight mobility services and networks (Cargo-hitching)	4. Location and infrastructure capacity sharing 5. Transport vehicle capacity sharing

ULaaDS Lighthouse Cities and Trials

The ULaaDS solutions have be tested in three ULaaDS Lighthouse cities. The following chapters describe each trial in each Lighthouse city, including challenges faced in the trial implementation, insights on the business models and lessons learned for replication.

2.1 Bremen

The primary focus of the two research trials in Bremen was on scaling up containerised urban freight transport, and on private micro-logistics, aimed at reducing the use of cars for household logistics.

2.1.1 Bremen trial 1

Table 1: Bremen trial 1 key facts

Basic trial facts	
Solution	Collaborative delivery models to enhance logistics efficiency and multimodal mobility in cities
Scheme	Containerised urban last-mile delivery
Objectives	• Reducing the number of polluting vehicles entering the city centre • Improving space management thanks to last-mile delivery by cargo bikes • Increasing the efficiency in the interaction between long distance freight transport and urban freight transport
Partners involved	BRE, RYT
Trial Site	Public ground

Description

The first ULaaDS trial in Bremen focused on expanding the number of micro hubs and cargo bike freight transport building on the forerunner project called Urban BRE which ran from 2019 to 2021 and was funded by the Bremen Ministry SWAE. Within this forerunner project, a micro hub was set up from which cargo bikes from ULaaDS partner Rytle cover the last-mile to the inner city. Within ULaaDS, the focus was on general cargo instead of courier express freight itself and on expanding the number of micro hubs within the city.

After important learnings from using containerised logistics in the courier express freight sector in Bremen, research trial 1 focused deliberately on applying the concept to general cargo in a B2B setting. To this end, the location Jakobikirchhof was not only used for parcel deliveries, but also for much larger B2B deliveries to shops in the inner city. Several locations were considered for new micro hubs, and finally the decision was made to locate a second hub at the original location at the Jakobikirchhof, and a new one in the city district Viertel. The two micro hubs at the Jakobikirchhof operate on public space using a special permit; the new one in Viertel is located on a commercial car park. To that end, three parking spots were rented long term for the micro hub. By the end of March 2023, the financing of the parking spots ended, and the micro hub operations seized — at least temporarily.

The B2B focus resulted in new partners supplying the goods, including a logistics service provider from a nearby freight village and another party supplying pharmacies and medical devices. The logistics service provider handled shipments with an average size above 60 kilograms, the party

supplying pharmacies and medical devices has much smaller shipments providing for an interesting contrast.

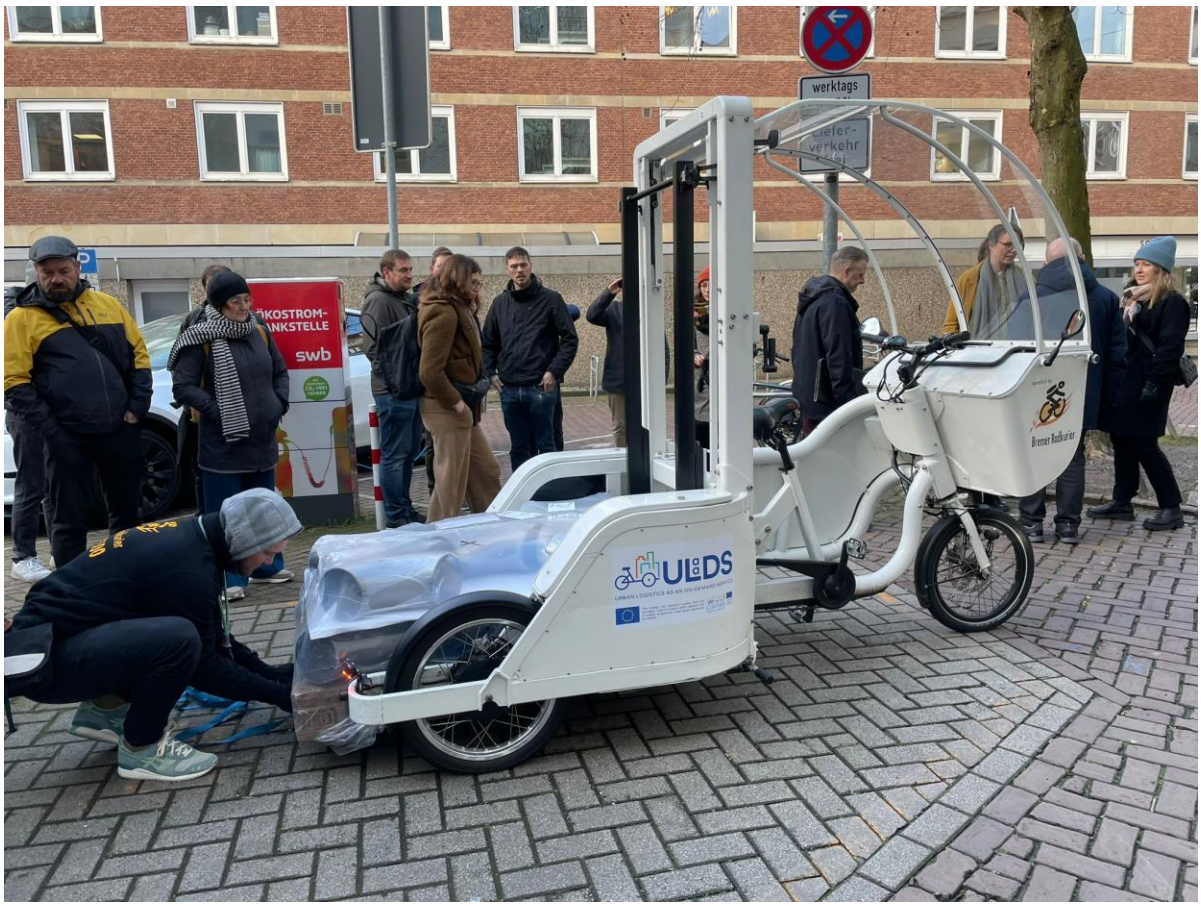

Figure 1: Bremen trial 1 – RYTLE bike loaded with pallet

Lessons learned for replication

Trial 1 in Bremen yielded valuable lessons for the implementation of last-mile delivery solutions using small-sized, zero-emission vehicles for general cargo. The trial showcased the effectiveness of advanced technology and infrastructure, particularly Rytle's e-cargo bikes equipped with features like full suspension and the capability to handle larger volumes and heavier shipments. However, it highlighted challenges unique to general cargo, emphasizing the need for strategic operational planning by logistics service providers. The significance of micro hub locations became evident, emphasizing the importance of placing these hubs close to delivery points to minimize travel distances. The trial validated the mission statement, demonstrating the feasibility of employing cargo bikes for general cargo and emphasizing the value proposition of transhipment from larger trucks. It also prompted a shift in the concept of containerized urban last-mile logistics, acknowledging the

infeasibility of pre-loading standardized units for general cargo. Key partnerships involving local authorities, logistics service providers, and last-mile delivery service providers were identified as crucial, with local authorities playing a pivotal role in identifying micro hub locations. Challenges in securing buy-in from logistics service providers were noted, as changes to operational processes initially decreased efficiency and resulted in cost increases. The solution's success hinged on logistics service providers perceiving societal and environmental benefits as outweighing operational downsides. The need for a comprehensive life cycle assessment was emphasized to evaluate the social and environmental impact. Despite challenges, the trial revealed social benefits, such as improved urban space usage, road safety, and job opportunities for local residents. Ongoing monitoring and adaptation were stressed for the continuous optimization of the implemented solution.

2.1.2 Bremen trial 2

Table 2: Bremen trial 2 key facts

Basic trial facts	
Solution	Effective integration of passenger and urban freight mobility services and networks
Scheme	Location and infrastructure capacity sharing
Objectives	• Avoid car trips for private logistics, thus reducing pollution and congestion • Offer users the possibility to familiarise with cargo bikes without having to invest in purchasing a privately owned one
Partners involved	BRE, ADFC
Trial Site	ADFC premises (Digital and physical), public ground

Description

The second trial focused on private logistics. The trialled solution focused on adding five dedicated cargo bikes to the (existing) ADFC renting scheme, called Fietje, extending the possibility to manage private micro-logistics by cargo bike (which relates to the transport of goods by individual citizens, such as transporting shopping or furniture items). When renting, the Fietje bikes can be collected from “hosts”, typically small local stores partnering. The use of the bikes is basically free, but there is the option for donations. ADFC and its partners are taking care of the maintenance and other functionalities of the cargo bikes. Users are able to book online their preferred slots to rent the cargo bikes, use them and return them to the rental location once done. The bikes themselves are acquired via external funding possibilities. For the near future, there is a plan to align the ADFC renting

procedure/platform with other cargo bike rental schemes hosted by district initiatives in the city of Bremen.

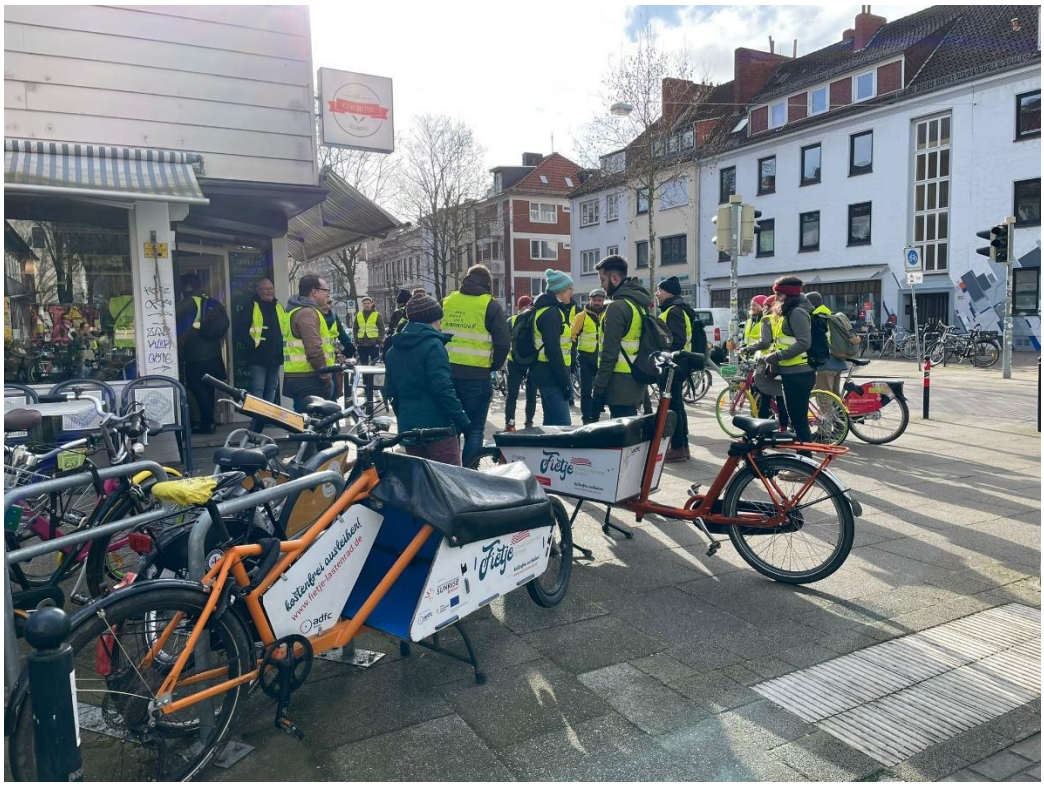

Figure 2: Bremen trial 2 - ADFC Fietje cargo-bikes

Lessons learned for replication

Trial 2 in Bremen offered insightful lessons for replication in other European cities. The trial, operating as a community-driven platform, distinguishes itself from commercially-driven solutions, with the ADFC relying on external funding and donations for revenue. The mission centres around enabling citizens to substitute car trips for activities like groceries and family outings by providing free access to cargo bikes. Critical activities for the success of this scheme involved identifying host locations for temporary cargo bike stalling and managing a user-friendly reservation website. The financial model depends on donations to cover expenses related to cargo bike acquisition, maintenance, and website development. Recognising limited resources and manageable social risks, the trial emphasizes citizen awareness and buy-in as key success factors. Local authorities play a vital role in spreading the word through campaigns and communication channels. Promotional events and targeted notifications during deployment are crucial, as is integration with other cargo bike systems in the city. The primary beneficiaries are citizens and visitors who gain a sustainable alternative for transporting bulky items, reducing reliance on cars. To ensure success, the trial highlights the need for community engagement, collaboration with local authorities, and seamless integration into the urban transport ecosystem.

2.2 Mechelen

The Mechelen trials cover both ULaaDS solutions across two schemes. Trial 1 focused on collaboration and asset-sharing between one local and two national logistic service providers to improve first mile efficiency: UPS, ECOKoeriers (ECO) and bpost (BPO). Specifically, they planned to join forces by consolidating pick-ups at local shops in the inner city, performed by cargo bikes from ECO and consolidated through a network of urban consolidation centres of BPO and UPS. In Trial 2, VIL and the city of Mechelen trialled an autonomous vehicle that delivers parcels and transports passengers at a local business park.

2.2.1 Mechelen trial 1

Trial 1 included several elements aimed at enhancing logistics efficiency by developing a collaborative urban freight transport model, as indicated in Table 3 below. UPS, bpost (BPO) and EcoKoeriers (ECO) work together with the city of Mechelen (MEC) towards streamlining business-to-business (B2B) logistics, building on prior advancements in B2C and C2B logistics in Mechelen. Specifically, the trial setup involved ECO picking up parcels from local shopkeepers and delivering them to bpost's existing microhubs, with BPO then sorting and transferring the parcels to UPS or its own delivery services for final delivery to consumers. Due to a small volumes per shop for each individual logistics service provider, picking up parcels at local shops is inefficient—both from an economic and sustainability perspective.

Table 3: Mechelen trial 1 key facts

Basic trial facts	
Solution	Collaborative delivery models to enhance logistics efficiency and multimodal mobility in cities
Scheme	City-wide platform for integrated management of UFT
Objectives	• Increasing network efficiency as a result of higher load factors • Increasing synergies with other spatial developments • Limiting environmental emissions • Increase flexibility and service availability
Partners involved	MEC, BPO, UPS, ECO
Trial Site	Public ground / bpost facilities / ECOKoeriers facilities

Description

Trial 1 in Mechelen failed to progress to the implementation stage. Initially, Mechelen had separate plans for bpost and UPS, with bpost creating additional microhubs and UPS renting a box in a city hub. Both companies intended to operate their cargo bike routes from these facilities. However, concerns raised by unions regarding the safety of bike couriers and their exposure to weather conditions prompted UPS to reconsider its approach. ECOkoeriers aimed to position itself as a crucial partner for first and last-mile deliveries, offering bike courier services and warehousing activities. However, Dropper's bankruptcy forced ECOkoeriers to reassess its strategy.

Subsequently, a collaborative trial involving all three companies was suggested to optimize logistics in the inner city through sustainable measures, within the ULaaDS project framework. The initial trial plan involved ECOkoeriers, a local bike courier service, conducting consolidated pickups from inner-city merchants. UPS and bpost were responsible for parcel delivery, with the parcels transported to bpost's microhub for sorting and onward delivery. However, due to hesitancy and a lack of formal agreement, especially from UPS, the trial underwent redefinition. In the revised version, UPS objected to having their parcels sorted at a bpost hub. The proposed solution involved ECOkoeriers picking up and transporting parcels from both UPS and bpost using cargo bikes, then dropping them off at respective pick-up/drop-off points.

During the Local Forum held to discuss the joint trial, retailers displayed a lack of interest, and concrete input was absent. A third version of the trial aimed to establish agreements between bpost and ECOkoeriers and UPS and ECOkoeriers. However, complications arising from subcontractors further hindered progress. The lack of headway and the prolonged time required to define the trial prompted UPS to consider discontinuing its efforts. Bpost also made a similar statement, ultimately bringing the process to a halt.

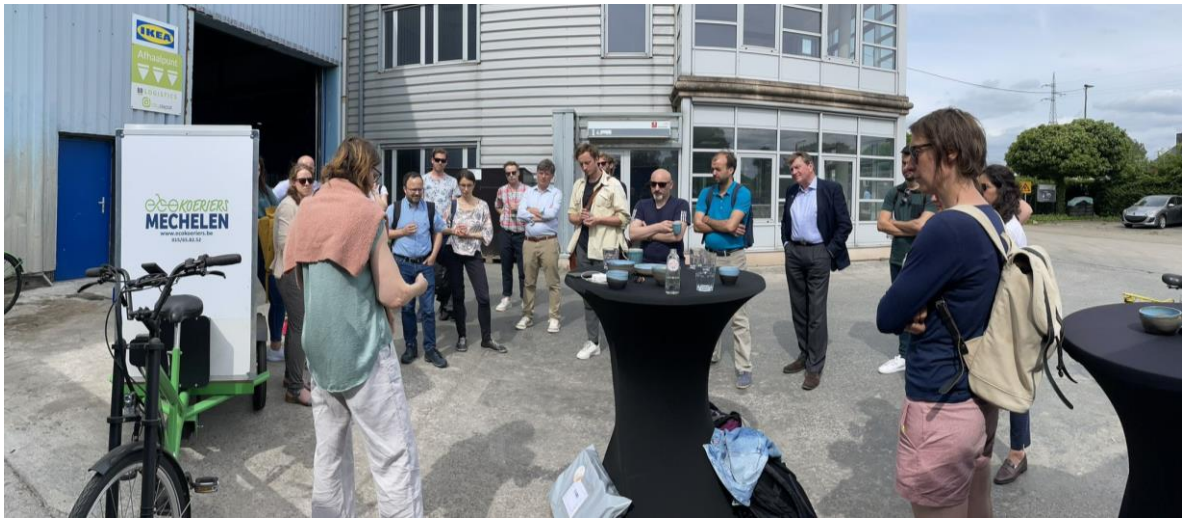

Figure 3: Mechelen trial 1 – Site vist to ECOkoeriers depot

Lessons learned for replication

The Mechelen trial 1, aimed at exploring collaborative urban freight transport solutions, brought forth significant insights into the complexities and challenges inherent in such initiatives. The intended role of ECOkoeriers as an intermediary service provider, bridging the gap between major delivery companies like UPS and BPO and local businesses, was envisioned to enhance operational efficiency and sustainability. The operating model involved ECOkoeriers consolidating pickups from merchants and delivering them to a central hub for sorting and onward delivery. Despite its potential to streamline loss-making activities for larger delivery companies and contribute to the city's sustainability goals, the trial faced hurdles in aligning operational processes and negotiating agreements.

The success of the intermediary model hinged on the seamless coordination of operational processes between ECOkoeriers, UPS, and BPO, alongside fostering mutually beneficial business agreements. The trial demonstrated the intricate nature of collaboration in the competitive logistics sector, where brand recognition and market share are fiercely protected. The need for clear cost distribution for each transport leg and fair benefits and responsibilities outlined further underscored the complexity of the venture.

The pre-trial business model, emphasising environmental benefits through shared resources and cost-effective consolidation, faced real-world challenges during implementation. The trial's preparation stages revealed the need for formal agreements, stakeholder engagement, and addressing concerns from local shopkeepers, logistics service providers, and the local authority. Despite efforts to engage stakeholders, issues such as resistance from competitors, data sharing, safety concerns, subcontractor complications, and a lack of interest from retailers led to significant hurdles. In its examination of the potential cost implications, the trial highlighted a disparity between the perceived value of the solution and the costs associated with its implementation. The lack of consensus, cooperation, and formal agreements hindered the establishment of robust partnerships and impeded the smooth operation of the integrated management system. While the trial acknowledged the anticipated environmental and social benefits, such as reduced emissions and congestion, the real-world challenges indicated a misalignment between the positive intentions and the operational and competitive realities.

In conclusion, the Mechelen trial 1 underscored the importance of aligning perceived value with the operational and competitive landscape to ensure successful deployment. The lessons learned emphasise the necessity of stakeholder engagement, formal agreements, and a realistic understanding of the challenges inherent in collaborative urban freight transport solutions. The experience, though not reaching the implementation stage, provides valuable insights for future projects and trials seeking to balance environmental sustainability with operational efficiency in urban logistics.

From the city perspective the following key lessons were identified:

- It is crucial to recognize that after a lot of bottom-up trialling in European projects, Mechelen is now placing a high priority on the development of policies that will further drive change in the mobility and logistics sectors. Flanking policy that steers the logistic streams in a more sustainable and efficient direction are needed.
- Acknowledging the importance of ongoing communication and stakeholder engagement. The city is committed to maintaining a regular dialogue with the logistics service providers that cater to the city. Biannual meetings, such as those within the zero-emission working group, will remain a cornerstone of this continued engagement.
- Acknowledging that changing things in logistics takes time and that there may be conflicts of interest that we, as a city, don't always see. Sensitivity to data sharing and a heightened emphasis on brand exposure in urban logistics emerged as more crucial considerations than initially perceived.
- Recognizing that logistic service providers are already optimizing their operations for efficiency. Our aspiration is to achieve comparable efficiency levels while concurrently prioritizing sustainability considerations.

2.2.2 Mechelen trial 2

In Trial 2, where the city of Mechelen and VIL experimented with the use of an autonomous vehicle, the focus is on the effective integration of passenger and urban freight mobility services (Solution 2) by means of shared vehicle use: cargo-hitching (Scheme 5).

Table 4: Mechelen trial 2 key facts

Basic trial facts	
Solution	Effective integration of passenger and urban freight mobility services and networks
Scheme	Transport vehicle capacity sharing (Cargo-hitching)
Objectives	• Testing the efficiency and benefits of an autonomous vehicle with shared capacity (parcel and passenger)
Partners involved	MEC, VIL
Trial Site	Mechelen North Business Park

Description

In the preparation research for the trial, five potential scenarios for implementing autonomous shuttles in Mechelen were presented to stakeholders, including policymakers, technology providers, academic experts, and business representatives. The selected scenario involved cargo-hitching with an autonomous vehicle at a business park. The trial preparations commenced in 2021, involving a feasibility study and the formulation of a tender for subcontracting the vehicle service deployment. The task of operating the autonomous shuttle during the trial was subcontracted to an external company, Easy Mile. Following the conclusion of the tender procedure, the process to obtain a permit was initiated. This stage took five months to complete, encountering complications, primarily related to the reluctance of both regional (Flanders) and national (Belgium) governmental departments to assume responsibility for granting the permit. Initially, the national department of transport considered it a regional task due to the trials being conducted on regional roads, but the regional government was hesitant to accept this responsibility. The situation was eventually resolved when the national Minister of Transport personally granted the permit based on a positive risk assessment and the required documentation for the vehicle. Testing commenced in June 2022, initially focusing on passenger transport and later incorporating a locker system to validate the cargo-hitching scheme for transporting both people and packages. Each of these two phases lasted approximately one month, in the ULaaDS scope we primarily concentrated on the cargo-hitching aspect of the solution as tested in the second phase.

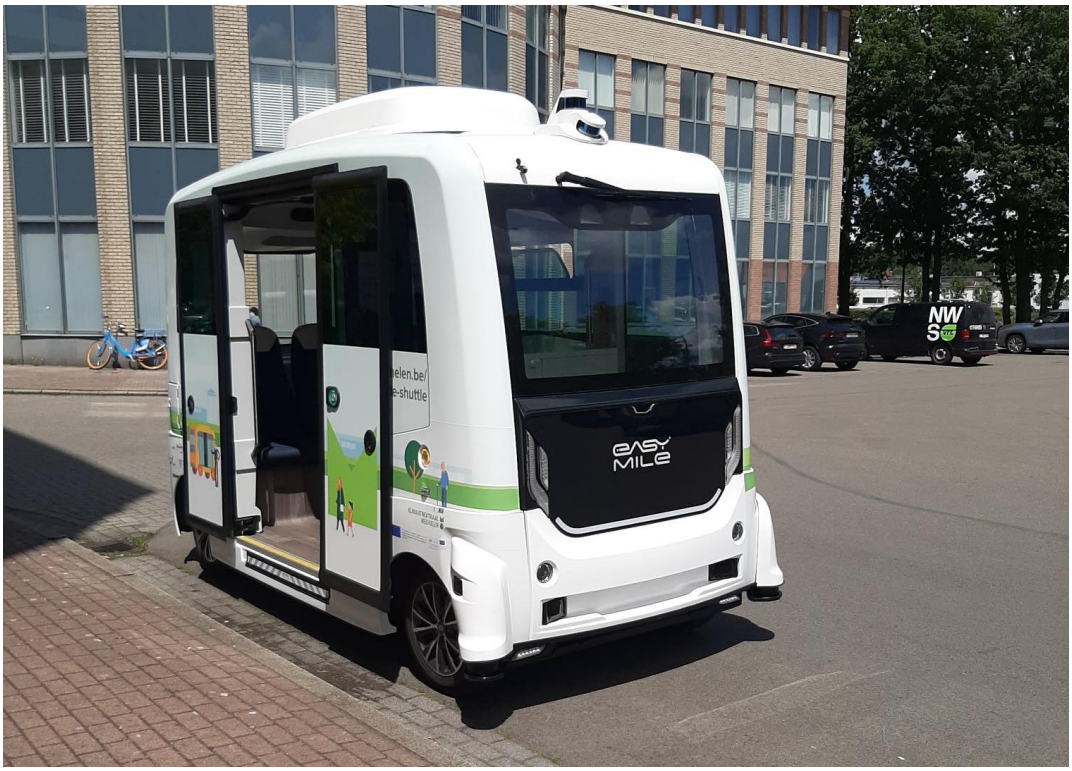

Figure 4: Mechelen trial 2 - Autonomous shuttle

Lessons learned for replication

The autonomous shuttle trial in Mechelen, focused on a route within the business park "Mechelen-Noord," spanning over 2 kilometres with six stops, operating on weekdays from 11 am to 6 pm. The trial incorporated cargo-hitching, placing the main stop near a parking spot with an existing bpost parcel locker and later integrating an on-board parcel locker into the autonomous vehicle. Operated by Easy Mile, the electric autonomous vehicle had a passenger capacity of 9 after installing the on-board parcel locker, comprising three small and three medium-sized compartments. Utilizing the autonomous vehicle for passenger transport required users to access a website displaying the route map and real-time vehicle location, while the on-board parcel locker functioned similarly to a stationary parcel locker.

From an operational standpoint, the trial revealed challenges for logistics service providers delivering into an on-board locker and for consumers picking up parcels. The on-board locker's low capacity and mobile nature posed difficulties for both logistics providers and consumers. The trial's business model aimed to explore the use of an autonomous vehicle for both passenger and urban freight transport, particularly parcel collection and delivery services. However, the trial indicated that the initial value propositions were not confirmed, highlighting challenges in integrating passenger transport and parcel services within the same autonomous vehicle.

Key lessons learned from the trial include the complications of maintaining consistent service levels in diverse urban environments, especially concerning weather conditions and roadworks. The combination of passenger transport and parcel services seemed to exacerbate challenges rather than creating synergies. The trial validated the importance of identifying a suitable route, creating schedules, and organizing loading and unloading. Additionally, the trial underscored the critical role of cooperation between different government levels to obtain necessary permits for operations. While the trial did not meet initial value propositions, it provided valuable insights for future exploration of the business model, considering potential revisions to service offerings, target markets, or operating models.

Stakeholder views, including city services, Mechelen inhabitants, and industrial zone workers, varied. Preferences for a fixed route and concerns about competition with cycling or walking were highlighted for city services. Inhabitants' views varied based on age and mobility, with acceptance among younger citizens and considerations for accessibility. Industrial zone workers saw potential in a shuttle service to Mechelen station but envisioned integration into supply chain logistics in the longer term. The use of the parcel locker on the autonomous shuttle was low, and suggestions included separating passenger and goods flows or using autonomous vehicles for goods transport between sites.

Overall, the introduction of autonomous shuttles received mixed feedback, acknowledging the potential for reduced staffing costs and increased service availability but emphasizing challenges related to social control, safety, and competition between passenger and freight transport. The trial yielded valuable insights that could guide future steps, and while not meeting initial value propositions, it provided a foundation for discussing adaptations to maximize autonomous vehicle

potential in urban contexts. Considerations for infrastructure improvements, increased familiarity, safety enhancements, and optimized route planning were emphasized for future experiments.

2.3 Groningen

The two Groningen research trials focus on the implementation of a shared platform for logistics and urban logistics as a service for commuters. Trial 1 focuses on developing and promoting a platform for shared zero-emission vehicles to enable collaborative delivery models for shopkeepers and other entrepreneurs in the city. Trial 2 focuses on the implementation of logistics services at a multi-modal mobility hub for commuters.

2.3.1 Groningen trial 1

In Trial 1, the municipality of Groningen (GRO) and the Groningen City Club (GCC) organise the development, implementation, and promotion of a platform for the on-demand supply of shops and delivery to consumers in the city of Groningen. Trial 1 addresses both ULaaDS solutions across at least three schemes.

Table 5: Groningen trial 1 key facts

Basic trial facts	
Solutions	1. Collaborative delivery models to enhance logistics efficiency and multimodal mobility in cities 2. Effective integration of passenger and urban freight mobility services and networks
Schemes	City-wide platform for integrated management of UFT Location and infrastructure capacity sharing Transport vehicle capacity sharing (Cargo-hitching)
Objectives	• Increasing the use of cargo bikes and other zero emission vehicles (and decreasing the use of polluting vehicles) • Increasing the efficiency/use of transport vehicles • Increasing liveability and safety because of the use of smaller, silent, and clean vehicles • Giving more target groups the opportunity to use electric vehicles • Reducing CO_2 emissions
Partners involved	GRO, GCC
Trial Site	Public ground

Description

The city of Groningen (GRO) and the Groningen City Club (GCC) joined forces in the development and rollout of a platform for the on-demand supply of shops and delivery to consumers. The goal is to develop and promote a platform for shared zero-emission vehicles to enable collaborative delivery models for shopkeepers and other entrepreneurs in the city. The platform provides access to different types of shared zero-emission vehicles. The vehicles are available at various locations throughout the city. This concerns the integration of mobility networks (Solution 2), with location and infrastructure capacity sharing (Scheme 4) and vehicle sharing (Scheme 5). The shopkeepers and entrepreneurs can.

The platform enables local shopkeepers and other entrepreneurs to access different types of shared zero-emission vehicles and use shared vehicles for supplying their shops and/or delivering to their customers in the city and its peri-urban and rural region. The vehicles were made available at different locations throughout the city. The platform can also be used for organising the delivery of orders from multiple participating shopkeepers.

During the development of the Groningen trial, the ULaaDS Local Forum resulted in a strong focus on assisting local shopkeepers and entrepreneurs in meeting the future regulatory frameworks of Groningen. Specifically, Groningen extended the geographical zone to which time-access restriction apply in 2022 — and that zone is also designated to become a zero-emission zone by 2025. In between 2022 and 2025, parties entering the city can get a waiver for the time-access restriction, allowing them to enter also outside the time window, if they use a zero-emission vehicle. Especially for smaller-sized vehicles (e.g., light electric freight vehicles and vans), concerns about the lack of availability and higher total cost of ownership are alleviated due to changes in the market. Nevertheless, many local shopkeepers and entrepreneurs are not able or willing to invest in a new vehicle, which hampers their access to the city in which they operate. What is more, local authorities see an opportunity to limit the number of vehicles used in the city. Combined, these observations resulted in a trial design where the focus was on rolling out a platform where local shopkeepers and entrepreneurs can organise using shared electric vehicles, which on the one hand helped shopkeepers exploring how these vehicles can be used in their operations, while on the other ensured they maintained access to the city as the regulatory framework becomes increasingly stringent.

Three distinct vehicles were made available in the trial: a cargo bike (Urban Arrow L), a light electric freight vehicle (Carver Cargo), and an electric van (Volkswagen ID. Buzz Cargo). The Urban Arrow L boasts a top speed of 25 km/h, a loading volume of 400 liters, a permissible total weight of 250 kilograms, and a range of 40 kilometers. The Carver has a top speed of 45 km/h, a loading volume of 500 liters, a permissible total weight of 500 kilograms, and a range of 100 kilometers. The ID. Buzz Cargo has a top speed of 145 km/h, a loading volume of 3.9 m3, a permissible total weight of 650 kilograms, and a range of 424 kilometers. Each vehicle had a stationary location in or near the city centre, requiring users to return the vehicle to the same location they picked it up. The cargo bike was situated in an underground bicycle parking lot east of the city centre, the light electric freight vehicle at a municipal office south of the centre, and the electric van had various stationary locations

throughout the trial, including a leasing company, a parking garage east of the city centre, and a designated spot at the south side of the city centre from June 2023. Noteworthy operating and business model implications arose from these locations. The trial involved seven shopkeepers utilizing the vehicles, including a wine merchant, a furniture and interior design shop, a cheese and luxury food shop, a children's apparel boutique, an art gallery, a garden boutique, and a bookstore. An online portal - developed for the trial based on a similar portal used for shared passenger mobility solutions - facilitated vehicle reservations. While the ID. Buzz was reserved 52 times and covered 6992 kilometers, the light electric freight vehicle had minimal usage (less than 200 kilometers). At the beginning of the trial, the cargo bike was vandalized, and the battery was stolen. After the bad start, the cargo bike became available but opening the lock presented another challenge. The location was also considered far from ideal. Some shopkeepers could borrow another cargo bike from a neighbouring shop or had their own cargo bike already. As a result, the cargo bike added little (perceived) value. The trial revealed shopkeepers reserve vehicles for relatively long durations, taking advantage of the free-of-charge usage during the pilot phase. Shopkeepers used the vehicles for various purposes and in diverse ways, with some adapting their logistics strategies based on the vehicles' capacities and capabilities.

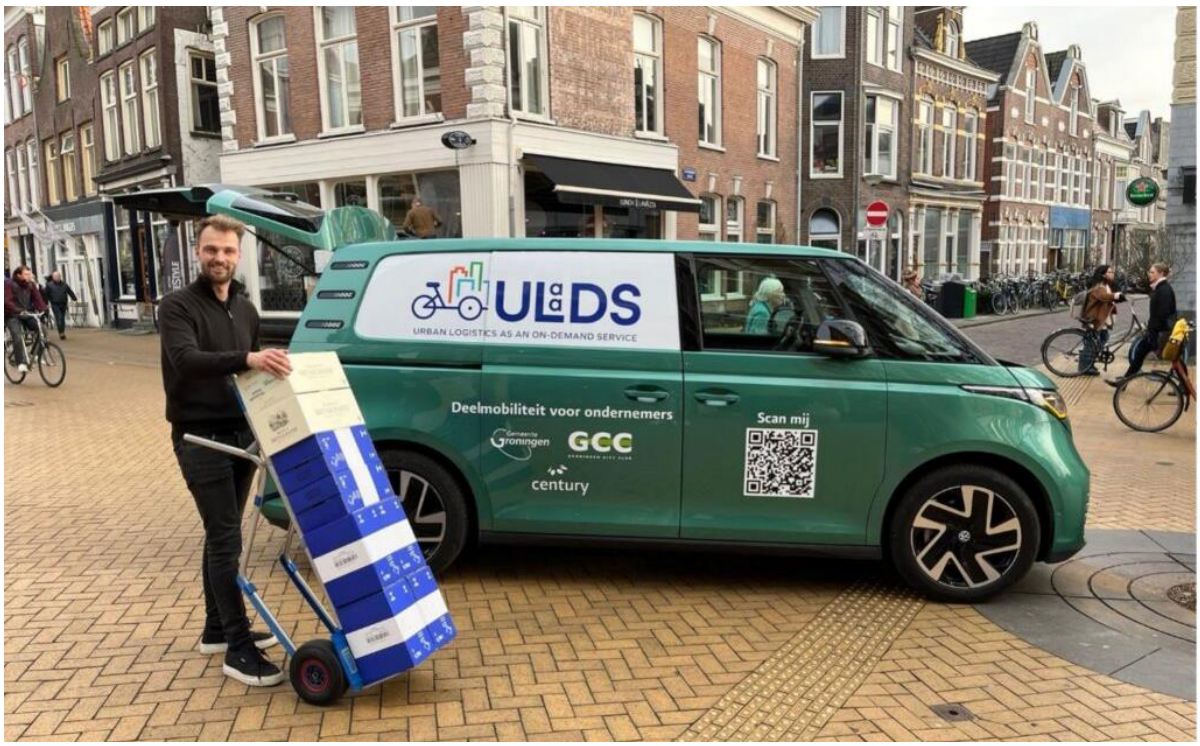

Figure 5: Groningen trial 1 – Shared electric van

Lessons learned for replication

The implementation of ULaaDS Trial 1 in Groningen has yielded crucial lessons for cities and stakeholders looking to replicate such urban logistics and delivery solutions. A pivotal aspect is the need for a well-functioning platform, offering real-time visibility of vehicle availability and seamless booking processes. Efficient resource management involves strategically allocating the zero-emission vehicles to fixed parking locations. The success of such initiatives relies heavily on key partnerships with vehicle providers, platform developers, shopkeepers, and local authorities, emphasising the necessity of gaining approval and support from all the relevant stakeholders. Cost considerations revolve around developing a viable business model that covers return on investment, operational costs, and profitability for service providers. Social and environmental factors, including the engagement of local shopkeepers, the visibility of vehicles, and reduced environmental impact, play pivotal roles. Revenue streams primarily come from user fees, with trial-specific considerations like initial low-cost or free services aimed at understanding user behaviour and refining the business model based on insights gathered during the trial phase. Flexibility, stakeholder engagement, and a keen understanding of user perspectives emerge as key determinants for the success and scalability of such scheme.

Additionally, the distinction between ad hoc and planned usage emerged as a critical factor in the implementation of the scheme, with shopkeepers valuing vehicle availability for unexpected deliveries, i.e. it became evident that unexpected, infrequent, or oddly-sized deliveries demanded a different approach compared to recurring routes and consolidated pickups. User engagement proved essential, requiring prompt resolution of challenges like vandalism or technical issues to maintain interest.

A nuanced understanding of the cost vs. availability trade-off highlighted the need for a balanced pricing scheme. The trade-off between cost and availability was identified through a combination of quantitative data analysis and qualitative feedback from shopkeepers. This involved assessing the impact of increased vehicle usage on shared fixed costs, leading to a lower price per use. However, an in-depth exploration of cost breakdown and revenue streams highlighted the importance of a well-thought-out pricing model, including considerations for distance driven and time used and well as considering the potential reduction in availability due to high demand. During the trial, the continuous refinement of the business model, emphasising the value proposition of zero-emission vehicle familiarity and local business support, was crucial.

Strong partnerships with mobility service providers, local authorities, and business associations played a pivotal role in addressing regulatory aspects and infrastructure challenges. The active engagement of local shopkeepers emerged as a linchpin for the platform's success, emphasising their role as both users and beneficiaries. The strong stakeholder engagement also allowed the

municipality to gain important insights on the need for strategic vehicle placement as the location of the different vehicles impacted their usage in the trial, with the cargo-bike placement being highlighted as one of the factors hindering its usage, while in the case of the van, the shopkeepers were more willing to walk longer distances to collect the vehicle. Lastly, environmental benefits and potential social risks were recognised, and thoughtful consideration of broader societal impacts.

2.3.2 Groningen trial 2

In Trial 2, the municipality of Groningen (GRO) and the public transport organisation of the provinces Groningen and Drenthe (OVB) experiment with the addition of logistics services to multi-modal mobility hubs for commuters. Trial 2 addresses both ULaaDS solutions across two schemes.

Table 6: Groningen trial 2 key facts

Basic trial facts	
Solutions	1. Collaborative delivery models to enhance logistics efficiency and multimodal mobility in cities 2. Effective integration of passenger and urban freight mobility services and networks
Schemes	City-wide platform for integrated management of UFT Location and infrastructure capacity sharing
Objectives	• Increasing the use of existing multimodal hubs by adding logistics services • Increasing the satisfaction of people using the multimodal hubs • Increasing liveability and safety in neighbourhoods by decreasing of the amount of delivery vans in neighbourhoods • Reducing of CO_2 emissions
Partners involved	GRO, OVB
Trial Site	Public ground / Park and Ride (P&R) location Hoogkerk

Description

Trial 2 sought to experiment with the addition of logistics services to multi-modal mobility hubs. Specifically, the municipality of Groningen (GRO) and the public transport organisation of the provinces Groningen and Drenthe (OVB) collaborated to install a white-label parcel locker system at the Park and Ride (P&R) location Hoogkerk, a key mobility hub near the city of Groningen. Table 6 above illustrates how the trial addresses ULaaDS Solution 2 by incorporating the parcel locker system into the public transport system and follows Scheme 4 by sharing its location with existing

infrastructure capacity. Additionally, ULaaDS Solution 1 and Scheme 3 are considered by ensuring that city shopkeepers and entrepreneurs can utilise the parcel locker system to serve their customers.

The implementation of Groningen Trial 2 faced challenges, resulting in valuable insights from both an operating and business model perspective.

The key challenges that emerged from the trial implementation are related to obtaining permits for placing the parcel locker. Firstly, meeting the preconditions, which include a land use agreement, a building permit, and an electricity connection, proved to be a difficult process, causing delays in the trial. Spatial integration posed another set of challenges. The high pressure on public space in the city, already allocated for various functions like transformer electricity stations, network providers' boxes, and green spaces, made finding suitable locations for parcel lockers challenging. The size of the lockers and their impact on existing views, greenery, road safety, and social safety further complicated the spatial integration. Accessibility issues for both delivery vans and customers, with the need for easy access by foot or bicycle and discouraging car use, added practical complexities. The land use agreement process faced hurdles due to the municipality's stricter policy on granting municipal land use to third parties. The absence of a policy framework for parcel lockers made reaching an agreement difficult, and disagreements over the rental price added complications. Additionally, the requirement for an electricity connection posed challenges, with waiting periods of three to six months in the Netherlands for new installations. The inability to use an existing electricity connection meant further delays in trial execution. Eventually, an agreement was reached with specific conditions, including an awareness of the pilot phase, the possibility of locker removal or adaptation, and potential future conversion into a rental agreement. As previously mentioned, overall, the lack of a policy framework for parcel lockers in Groningen was identified as a major obstacle in the implementation of this trial.

Interestingly, the municipality of Groningen, learning from these challenges, decided to broaden the trial's scope by examining parcel locker systems more comprehensively. Collaborating with an expanded ecosystem of local stakeholders, facilitated by the ULaaDS research trials, the municipality of Groningen aimed to establish an overarching policy framework for parcel locker placement in the city. This policy framework specifically focuses on situating parcel lockers in public spaces, while the underlying analysis also considers alternative forms of out-of-home e-commerce logistics services for consumers, such as in-shop pick-up/drop-off points and neighbourhood hubs.

This resulted in the publication of the study "Finding the Right Space for Urban Logistics: a Framework for Open Parcel Locker Systems".

Figure 6: Groningen trial 2 - Park and Ride (P&R) location Hoogkerk

Lessons learned for replication

The examination of out-of-home e-commerce logistics services in the municipality of Groningen delineates two primary models: white-label options, collaborating with multiple logistics service providers, and private-label options, integrated with a single provider. These encompass diverse services such as in-shop pick-up/drop-off points, crowd-sourced neighbourhood hubs, and parcel locker systems. The operational frameworks across these services align, involving consumers opting for out-of-home delivery during online transactions or following unsuccessful home delivery attempts. The efficiency of out-of-home delivery is spotlighted, particularly in densely populated areas like Groningen's inner city, with analyses indicating positive impacts on reducing stops, enhancing delivery van capacity utilisation, and decreasing overall route length as the percentage of out-of-home deliveries increases. Spatial integration, however, presents challenges, especially concerning suitable locations respecting existing views, greenery, and safety considerations for in-shop points, neighbourhood hubs, and parcel locker systems. Accessibility, both for delivery vans and customers without promoting car use, adds practical complexities. The consideration of dwell time reveals that out-of-home deliveries can significantly reduce total dwell time at delivery stops, contributing to enhanced delivery efficiency and optimised route lengths.

Throughout the trial's progression, several crucial lessons have surfaced, shaping the business model for parcel lockers at mobility hubs in Groningen. The municipality now views parcel lockers within a broader context, considering them as one of several out-of-home delivery options, including in-shop pick-up/drop-off points and neighbourhood hubs. This shift in perspective resulted from stakeholder engagement, particularly discussions during the second Stakeholder Forum in Groningen, involving logistics service providers, local shopkeepers, and civil servants from various municipal departments. Stakeholder insights aligned around a shared vision of establishing a dense network of out-of-home delivery options, aiming to minimize consumer travel distances for parcel collection. The updated approach emphasises the role of parcel lockers for local residents, not just commuters, and articulates a mission to mitigate negative externalities associated with e-commerce delivery. The

approach underscores the need for public authority involvement in permitting parcel lockers on public spaces like mobility hubs, with a proactive role in liaising with logistics providers and system providers. Shopkeepers, suppliers, and entrepreneurs seek to have a say in finding suitable locations and defining operating model preferences. The lesson learned about revenue streams underscores the importance of reduced operational costs for logistics service providers, particularly in private-label integrations. The approach also validates budget costs, clarifying that public authorities may bear investments for white-label solutions on public spaces. The societal and environmental costs of parcel lockers on public spaces are acknowledged, with potential risks outweighing benefits unless carefully managed. Despite potential benefits for logistics providers, commuters, and residents, the trial underscores the need for balanced considerations and strategic planning in parcel locker placement.

3. Non-technical elements with replication potential

As previously mentioned, replication in ULaaDS is not limited to the technical solutions tested in ULaaDS but encompasses the broader context that paved the way in each city to deploy a specific solution. For this reason, two other important elements have been identified with replication potential:

- Enabling regulatory frameworks
- Stakeholder engagement methodology

3.1 Enabling policy and regulatory frameworks

In the course of preparations and the subsequent implementation of trials in Bremen, Mechelen, and Groningen, several key insights have surfaced, shedding light on the indispensable role of a supportive policy and regulatory framework in fostering the success of innovative business models. A prime illustration of this is evident in the city of Groningen, which has long been recognized for its progressive mobility strategy, notably through its 1977 "traffic circulation plan" that strategically minimized car presence in the city centre. Building upon this foundation, Groningen, in 2014, committed to the Green Deal city logistics, a covenant aiming for zero-emission city logistics by 2025. This pivotal Green Deal laid the groundwork for the Dutch climate accord, reinforcing the goal of zero-emission city logistics across 40 major and medium-sized cities in the Netherlands.

Further solidifying its commitment, Groningen delineated specific actions in its Sustainable Urban Logistics Plan of 2021, titled "Room for Zero-Emission City Logistics." This comprehensive plan included the extension of the existing time-access restriction zone, slated to transition into a zero-emission zone by 2025. Consequently, numerous new shops and entrepreneurs are required to conform to the designated time window between 5 am and 12 pm (i.e., noon) when entering the city with a freight vehicle, or alternatively, they must seek a waiver permitting access outside this time frame. All zero-emission freight vehicles qualify for such a waiver, obtainable at a significantly reduced cost. The implementation of the time-access restriction zone extension synchronised with the initiation of the platform in the ULaaDS Groningen Trial 1. Subsequently, some shopkeepers, formerly located outside the zone, found themselves grappling with the time-access restriction challenge and the availability of shared vehicles. Empirical data from the trial strongly indicates an increased willingness among these businesses to explore the use of shared vehicles after the new regulation was put in place.

A proactive approach to establishing policy and regulatory frameworks can also be illustrated by the initiative the city of Groningen took with regards to parcel lockers. When faced with the multitude of technical challenges related to the placement of the parcel locker in trial 2, the city decided to

establish an overarching policy framework for parcel locker placement in the city. This policy framework specifically focuses on situating parcel lockers in public spaces, while the underlying analysis also considers alternative forms of out-of-home e-commerce logistics services for consumers, such as in-shop pick-up/drop-off points and neighbourhood hubs. This resulted in the publication of the study "Finding the Right Space for Urban Logistics: a Framework for Open Parcel Locker Systems".

As illustrated also by the implementation of the trials in Mechelen, more stringent regulations are needed in certain instances to nudge the private sector into considering innovative business models. A change in access restrictions or in parking, loading and unloading rules, etc… could provide the right framework and drive the logistics service providers into looking at alternative, more sustainable, delivery options.

The trials also brought to light — an often implicit — expectation from private businesses that public spaces could be utilised at no cost, or even that public funds should be allocated to prepare these spaces if a novel solution they provide contributes to improved sustainability. In Bremen, the local public authority took the initiative to identify suitable locations for micro-hubs, integral to supporting the efficient distribution of goods in the city as part of Trial 1. In an effort to facilitate the trial, the authority provided valuable land for one micro hub at no cost and rented parking spaces for another. However, once the authority ceased covering the rental cost, operations at the rented micro-hub came to a halt. This outcome highlights a critical challenge: while private businesses are keen to contribute to sustainability and adopt innovative solutions, they also expect support from public authorities, often in the form of resources or subsidies.

This raises significant questions about the long-term viability and scalability of sustainable solutions, especially if they depend on public subsidies or resources. It emphasizes the need for novel sustainable urban freight transport solutions to not only have sound operating and business models but also receive support from public authorities in the form of a conducive regulatory framework. This is particularly crucial given the potentially higher costs of sustainable solutions compared to traditional methods, which might hinder businesses from fully embracing them.

In essence, the ULaaDS trials serve as both inspiration for private businesses and a call to action for policymakers and other stakeholders. They highlight the necessity for collaborative efforts to create regulations that not only encourage the transition from existing urban freight transport activities towards more innovative, sustainable solutions but also ensure the long-term sustainability and success of such initiatives. The findings underscore the intricate balance needed between private enterprise and public support to shape a future where urban freight transport aligns with both economic efficiency and environmental sustainability.

3.2 Stakeholder Fora methodology

In ULaaDS, engaging stakeholders played a crucial role, with the three lighthouse cities actively sharing their challenges and solutions with implementation partners. These partners comprised representatives from public authorities, logistics service providers, retailers, experts, and other relevant stakeholders. The main methods employed to involve stakeholders included hosting Local Stakeholder Fora, applying the collective target system, and conducting online surveys. This approach delivered dual benefits. Firstly, it refined the trials to improve long-term outcomes and gain broader acceptance. Secondly, it enhanced the understanding of the business community's needs for economically sustainable solutions.

The Stakeholder Fora methodology was developed by ULaaDS partner IFZ and aimed at identifying the needs and requirements of the stakeholders involved in the ULaaDS trials and assessing the impacts on the actual plans of implementation is one of the key challenges of the project. The Stakeholder Fora methodology covers the following aspects:

- The identification of relevant local stakeholders via stakeholder mapping
- The introduction of a collective target system to elaborate common and diverging aims and objectives
- The establishment of a co-creation dialogue via Local Fora

The methodology is described and explained in the ULaaDS D2.2: Local ecosystem stakeholders´ needs and requirements & prioritization of use cases.

While the Stakeholder Fora methodology was used in ULaaDS mainly with the objective of defining and refining the trials, its principles and methods can be applied in boarder contexts, for example in the process of developing a Sustainable Urban Logistics Plan (SULP).

To formulate SULPs that effectively tackle the complex challenges of modern urban logistics, cities need to embark in an inclusive stakeholder engagement process. This participatory approach should encompass a diverse range of stakeholders, including representatives from public authorities, logistics service providers, businesses, experts, and other relevant parties. Employing various engagement strategies, such as the Local Stakeholder Fora methodology used in the ULaaDS trials, cities can cultivate an environment of collective decision-making and information sharing.

This inclusive and collaborative approach to stakeholder engagement in the SULP development process serves two purposes. Firstly, by actively involving stakeholders from the outset, cities can gather real-world feedback and insights, enabling adjustments and refinements while planning measures and policies. This iterative process not only enhances the effectiveness of the measures but also contributes to more sustainable and adaptable long-term solutions. Additionally, it helps build consensus and acceptance among the various stakeholders, which is vital for the successful implementation of proposed logistics solutions. Secondly, this inclusive engagement methodology

extends to understanding the needs of the business community. Close collaboration with businesses provides invaluable insights into their specific requirements for economically sustainable logistics solutions. Recognizing and addressing the unique demands of different industries and sectors is essential for tailoring SULPs to ensure they effectively meet the diverse logistical needs of the urban landscape. Moreover, a comprehensive understanding of business needs promotes the development of logistics solutions that are not only efficient but also economically viable, which is crucial for the overall success of SULPs.

4. Implementation roadmaps – Methodology

This chapter describes the different steps that guided the ULaaDS Satellite cities in the development of their Implementation roadmaps.

It details the activities performed and their outcomes:

- Replication training
- Technical webinars
- Replication webinars
- Study visits
- Trainings
- Peer-learning webinars

Table 7: ULaaDS replication activities calendar

Replication training	Technical webinars	Replication webinars	Study visits	Trainings	3 Peer-learning webinars	Implementation roadmaps, Replication booklet
28 October 2021						
	28 April 2022 (Mechelen)		16-17 May 2022 (Mechelen)			
	28 September 2022 (Groningen)		11-12 October 2022 (Groningen)	November 2022		
	15 March 2023 (Bremen)		27-28 March 2023 (Bremen)	June 2023	22/24/26 Jan. 2024	Feb. 2024

4.1 Replication Training

A replication training was organised with the Lighthouse and Satellite cities to present and discuss the ULaaDS replication approach, create a mutual understanding of the planned solutions in each city, as well as collect and discuss the learning needs of each city. It equipped cities with the peer-learning methodology that is applied in the project. The replication training took place in M14. Due to the COVID-19 pandemic, the training took place online. The agenda of the replication training is available in Annex 1.

4.2 Technical webinars

Technical webinars were organised ahead of each study visit. During the technical webinars, the solutions being tested by each lighthouse city were presented. Additionally, a technical introduction to the measures to be showcased during the visits was given by the host city and the technical partners active in each trial. Besides offering a learning and knowledge exchange opportunity within the ULaaDS community of practice, these webinars also target interested cities beyond the community and were open to the public. The technical webinars took place between M20 and M31.

Table 8: ULaaDS Technical Webinars series: Towards zero-emission last-mile deliveries

Title	ULaaDS Partners contributions
Towards zero-emission last-mile deliveries: Mechelen in the spotlight *Partners involved in Mechelen trials asked the recording not be disseminated to the public.*	• Roos Lowette, Project Coordinator, Team mobility, City of Mechelen • Gregory Perez, Urban Logistics Project Manager - bpost • Domien Stubbe, Project Leader, VIL – Empowering Logistics • Adriaan Scheiris, Public Affairs Director West Europe at UPS • Inneke Vos, Project Manager, ECOkoeriers
Towards zero-emission last-mile deliveries: Groningen in the spotlight Recording	• Sjouke van der Vlugt, Policy Officer Urban Planning, City of Groningen • Martin Courtz, Hub Program Manager, OV-bureau Groningen Drenthe • Erwin Mulder, Project leader, Groningen City Club • Paul Buijs, Assistant professor, University of Groningen
Towards zero-emission last-mile deliveries: Bremen in the spotlight Recording	• Karsten Hülsemann, Project Coordinator, City of Bremen • Dr. Thomas Nobel, Managing founding partner – To be now logistics • Bonnie Fenton, ADFC Bremen • Rytle

4.3 Replication webinars

Replication webinars were organised before each study visit to refine the content of the visit together with the participants and get familiar with each other's background, collect specific requests, and finalise the agenda. The replication webinars also represented the first occasion in which the selected Follower cities met with the ULaaDS cities. Therefore, each Follower city was asked to present their local context, challenges, success stories and specify which ULaaDS measures they were most

interested in. The replication webinars represented an important step to align expectations and needs ahead of the study visits. They took place approximately two weeks before each visit.

The following ULaaDS Follower cities joined the replication webinars and the study visits respectively:

- Mechelen: Follower cities → Gdynia (PL), Helmond (NL), Leuven (BE) and Milan (IT)
- Groningen: Follower cities → Elbasan (AL) and Kadıköy (TR)
- Bremen: Follower cities → Baerum (NO), Madrid (ES), Turku (FI) and Varna (BG)

4.4 Study visits

Study visits were at the very heart of the ULaaDS replication approach. Each Lighthouse city hosted a study visit for the other Lighthouse cities, Satellite cities, and the selected Follower cities. The study visits were an occasion to showcase existing measures and ongoing activities. They offered an opportunity for the visiting cities to learn about the host cities' experiences first-hand and ask specific questions. Simultaneously, the host cities had the chance to share challenges and get tailored feedback. A transferability session was organised at the end of each study visit to analyse the transferability potential of the analysed measures. The study visits take place between M21 and M31. The agendas of the study visits in Mechelen, Groningen and Bremen are included in this document as Annexes 2, 3 and 4 respectively.

4.5 Trainings

In the context of ULaaDS, trainings refer to teaching and learning activities organised for the primary purpose of helping city practitioners acquire and apply knowledge on specific sustainable urban logistics topics. This often involves contribution by external experts on urban logistics.

ULaaDS organised two trainings in the framework of the Annual Eurocities Mobility forum.

The first ULaaDS Training took place on 17 November 2022, during the Eurocities Mobility Forum in Antwerp. The chosen topic for the first training was "Planning logistics hubs". The training was facilitated by Arianna Americo (Eurocities), led by Dr. Tom Assmann (Otto von Guericke University Magdeburg), and had contributions from Dr. Lorena Axinte (Bax & Company) and Prof. Joris Beckers (University of Antwerp). The content was based on findings from:

- Cargo Bike Depot/CityChangerCargoBike – Planning of cargo bike hubs
- ULaaDS D3.1: Benchmarking business/operating models and best practices
- R!sult project

The second ULaaDS Training took place on 1 June 2023, during the Eurocities Mobility Forum in Porto. The training focused on SULP Development and was co-organised by Eurocities, Bax & Company, Flanders Institute for Logistics (VIL) and Rupprecht Consult. The training was hosted and facilitated

by Arianna Americo (Eurocities), Dr. Lorena Axinte (Bax & Company), Domien Stubbe (VIL) and Levent Saran (Rupprecht Consult).

To support city authorities, the workshop aimed to:

- Describe how a SULP planning process is structured, what steps are to be taken, and when,
- Describe and discuss prerequisites for a successful SULP development,
- Provide concrete examples on how to set up stakeholder engagement mechanisms,
- Provide an overview of new business models and technologies and how to find the right fit for your city,
- Describe methods to monitor and evaluate progress.

The content of the training was based on:

- Fact-finding study on status and future needs regarding low- and zero-emission urban mobility
- Topic Guide: Sustainable Urban Logistics Planning
- ULaaDS D6.2: Guidelines, methods & policy recommendations to integrate ULaaDS in SUMP and SULP processes

Additional information on the ULaaDS trainings will is available online in the D7.3 *Training materials for the workshops* (M36) and will be provided in the D7.6 *Insights from training workshops organized* (M42).

4.6 Peer-learning webinars

Three peer-learning webinars were organised to facilitate replication of measures implemented in the Lighthouse cities. The specific subjects discussed during the peer-learning webinars were identified by the Satellite cities which selected the ULaaDS solution with the highest transferability potential. Satellite cities' representatives were encouraged to ask questions that would support them in the development and refinement of their implementation roadmaps.

The peer-learning webinars took place on 22, 24, 26 January 2024.

5. Alba Iulia implementation roadmap

Measures selected

Each city selects the set of ULaaDS measures they are interested in in replicating and described the selected measures in the table below:

Measure name and description	Solution	Scheme	Related Lighthouse city trial
Logistics micro-hubs and containerised last-mile deliveries. Adapted to Alba Iulia infrastructure and the general urban agenda, the logistics micro-hubs can be placed in the small inner spaces of neighbourhoods with at least 2 narrow access streets. Following this approach, the delivery companies will be able to place the goods in the container and then to deliver with low carbon means of transportation within an area of at least 3 neighbourhoods.	Containerized granulated delivery	• Mapping the areas • Proposals to delivery companies and signing partnerships • Emissions of permits for the placement of the containers • Placement of the containers	Bremen
Cargo bike sharing schemes for private logistics. Alba Iulia already implemented a pilot related to cargo bikes promotion within another EU project - City Changer Cargo Bike. The „upgraded" version to be replicated from the Bremen example is to directly explore the usefulness of the cargo bikes in the delivery process. Given	Using cargo bikes for micro-delivery processes	• Starting a dialogue with the delivery companies to promote the cargo bike concept in the delivery process • Adoption and usage of the cargo bikes by the delivery companies	Bremen

the new enlarged bike lanes that are to be built along the city, the solution is feasible in collaboration with the delivery companies in the city.			
Parcel lockers sharing. At the moment, in Alba Iulia, all the parcel lockers are placed in private areas (gas stations, parking spaces of large stores etc.). The concept was first implemented by the largest online store in Romania (with their own delivery company) and now is well-grounded amongst many delivery companies. At the moment, there is no sharing happening between companies in terms of parcel lockers.	Sharing public spaces for parcel lockers	• Using the local fora methodology to bring all the delivery companies to the same table. • Starting a dialogue about placing the parcel lockers in public spaces and sharing them.	Groningen

Each city carries out a short transferability assessment of each measure listed above based on the information provided by the related city and the information gathered during the replication activities (Technical webinars, Study visits, Peer-learning webinars).

Each Satellite city reflects on the conditions that made the measure successful in the Lighthouse city, where the measure was first implemented: time, resources, legal framework, etc… It assesses whether those conditions can be replicated in their specific context with points ranging from 1 to 5, 1 standing for low transferability potential and 5 being high transferability potential.

5.1 Measure 1: Logistics micro-hubs and containerised last-mile deliveries

Implementing logistics micro-hubs in Alba Iulia is a challenging approach in terms of public spaces and urban planning. The micro-hubs can be placed in the small inner spaces of the neighbourhoods, with a feasible access for the delivery cars (at least 2 narrow access streets). Changing the methodology of „traditional" delivery will be very hard to accomplish, but in the context of the climate change world-wide pressure, the delivery companies are open to the discussion and to using

more low carbon methods in the delivery process. Many of them are already changing the means of transport from gas to electric vehicles.

5.1.1 Measure 1: Transferability potential

Logistics micro-hubs and containerised last-mile deliveries. - Transferability potential assessment			
Conditions for implementation	**Scoring criteria**	**Score**	**Justification for answer**
Staff availability	1 – No staff available 5 – There are available staff	2	The municipality has the capacity to organise the local fora in order to further promote the methodology, and the actions established in the Urban Integrated Development Strategy and in the Smart City Strategy already elaborated.
The time needed for implementation	1 – The time needed to set up the scheme is not realistic to my context 5 – The time needed to set up the scheme is perfectly fine	2	The time needed for implementation is dependent on the delivery companies approach to this solution and in strong relation with the capacity of the municipality to create spaces for the containers.
Governance related efforts	1 – The Municipality doesn't have the experience or capacity to undertake all the coordination needed with stakeholders 5 – The Municipality can undertake all the coordination needed to set up this scheme	3	The effort on the municipality`s behalf is concentrated to promote the solution and to find the best spaces to place the containers in the city, along with the necessary permits.
Technical conditions required	1 – The Municipality does not have the technical knowledge to set up the scheme and is not able to	2	The municipality itself does not have the technical knowledge. The lessons learned in the

	build capacity or get external support 5 – The Municipality has all the technical knowledge necessary to set up the scheme		ULaaDS project are the base of the approach.
Financial framework	1 – There are no funds available to set up the scheme, and no perspective of change 5 – The funds to set up the scheme are available	3	The funds should be provided by the delivery companies or by the municipality, within the participatory budgeting process.
Legislative/regulatory framework	1 – There are no regulations, market maturity, or other frameworks in place to set up the scheme in my context 5 – Framework to set up the financing scheme is already in place	2	The regulatory framework can be adopted by the Local Council only after a strong argumentation and only after the delivery companies will agree to finance the solution. The current legal framework does not oblige the delivery companies to commit to any actions proposed.
Communication	1 – The Municipality does not have the experience or capacity to establish communication with stakeholders, citizens, etc. 5 – The Municipality can properly communicate with all stakeholders and citizens	5	Alba Iulia municipality has extensive experience in communication with the citizens. One of the best methods to promote and to implement the solution could be the participatory budgeting process.

** 1 being low transferability potential and 5 high transferability potential in your specific context*

5.1.2 Measure 1: Main challenges expected

Alba Iulia identifies the staff availability and time needed for implementation to be the main challenges in the implementation of Measure 1.

The city analysed the conditions for implementation and their main challenging aspects in the table below:

Staff availability	
Practical steps to take:	Staff availability: The municipality does not have as of now the necessary staff to implement the solution at a large scale. If a pilot will be initiated, then staff can be allocated.
Timeline:	2025-2027
Key points to be monitored:	• employment of specialists in the domain • collaboration with the delivery companies • security of the micro-hubs

Time needed for implementation	
Practical steps to take:	• Opening a dialogue within the local fora with the delivery companies, the public utilities companies and the tenant associations • Submission of a participatory budgeting project/EU project • Partnership accord elaboration and signage between the municipality and the private companies involved • Public tender for the acquisition of the containers • Permits and paperwork for the placement of the micro-hubs • Delegation of services dedicated to the micro-hubs • Contracts with the delivery companies
Timeline:	2026-2027
Key points to be monitored:	• The openness of the delivery companies to the idea of having/using micro-hubs

	• The implication and human resources allocated by the private companies • The frequency of usage of the micro-hubs

5.1.3 Measure 1: Implementation roadmap

Step	Timeline	Responsible department/organisation	External stakeholder to be involved	Key points to be monitored
Starting communication with the local stakeholders for the micro-hubs concept	2025	International relations, Partnerships and Urban Innovation Department within Alba Iulia Municipality	FanCourier SameDay DHL Urgent Cargus DPD UPS Dragon Star Courier	• Number of meetings • Evaluation of the necessity/opportunity on behalf of the local stakeholders • Votes on behalf of stakeholders involved in the development of micro-hubs
Submission of a project dedicated to micro-hubs	2026	One of the local stakeholders	FanCourier SameDay DHL Urgent Cargus DPD UPS Dragon Star Courier	• Elaboration and submission of the project

Implementation of the pilot	2027	Alba Iulia Municipality	The private company delegated to implement the project (public tender)	• Elaboration of the task book for the public tender • Delegation of the contract of the services

5.2 Measure 2: Cargo bike sharing scheme for private logistics

Alba Iulia already implemented a pilot related to cargo bikes promotion within another EU project - City Changer Cargo Bike. The „upgraded" version to be replicated from the Bremen example is to directly challenge the usefulness of the cargo bikes in the delivery process. Given the new enlarged bike lanes that are to be built along the city, the solution is feasible in collaboration with the delivery companies in the city. Alba Iulia municipality wants to attempt to set up a cargo bike sharing scheme for the private logistics companies in the form of participatory budgeting.

5.2.1 Measure 2: Transferability potential

Cargo bike sharing schemes for private logistics - Transferability potential assessment			
Conditions for implementation	**Scoring criteria**	**Score**	**Justification for answer**
Staff availability	1 – No staff available 5 – There are available staff	1	The municipality did pilot a project dedicated to cargo bikes. Following the implementation of the pilot, there is a need to employ dedicated persons for the maintenance and repairing of the cargo bikes. The administrative department of the municipality cannot manage this activity, thus a dedicated person should be employed.

The time needed for implementation	1 – The time needed to set up the scheme is not realistic to my context 5 – The time needed to set up the scheme is perfectly fine	3	The time for implementation depends on the level of usage of normal bikes and on the subsequent analysis of the capacity of the cycling infrastructure. The mobility projects developed by Alba Iulia are almost finished and the bike lanes are in the final phase of construction. However, the width of the bike lanes is almost as the size of a cargo bike. So in case a cargo bike and a normal bike meet in the lane, there is not enough space for both of them in some areas. The municipality will have to analyse this situation once the construction of the bike lanes is finished.
Governance related efforts	1 – The Municipality doesn't have the experience or capacity to undertake all the coordination needed with stakeholders 5 – The Municipality can undertake all the coordination needed to set up this scheme	3	The effort on the municipality`s behalf is concentrated to promote the usage of bikes at city level. The smart bikes are not yet in place, so there will be some time for the people to get used to biking in the city. The culture of biking in Alba Iulia is pretty low, but we hope that with the bike lanes in place people will start using micro-mobility solutions.
Technical conditions required	1 – The Municipality does not have the technical knowledge to set up the scheme and is not able to build capacity or get external support	5	The municipality has the knowledge, mainly related to the capacity of the bike lanes and the usability of cargo bikes. We can promote them, but we cannot guarantee the usage of cargo bikes at a large scale.

	5 – The Municipality has all the technical knowledge necessary to set up the scheme		
Financial framework	1 – There are no funds available to set up the scheme, and no perspective of change 5 – The funds to set up the scheme are available	3	The funds will be provided mainly from EU funds.
Legislative/regulatory framework	1 – There are no regulations, market maturity, or other frameworks in place to set up the scheme in my context 5 – Framework to set up the financing scheme is already in place	3	The regulatory framework is in place, but the market maturity is pretty low.
Communication	1 – The Municipality does not have the experience or capacity to establish communication with stakeholders, citizens, etc. 5 – The Municipality can properly communicate with all stakeholders and citizens	5	Some communication related to cargo bikes has already been done by the municipality. There is experience with this communication and the communication terrain established to certain extend.
Other factor: state of the current cycling infrastructure	1 – Factor is a barrier in your context 5 – Factor is easy to address	3	The width of the bike lanes that are not prepared for both cargo bikes and normal bikes.

5.2.2 Measure 2: Main challenges expected

Alba Iulia identified staff availability to be the main challenge for the implementation of Measure 2.

Staff availability	
Practical steps to take:	Staff availability: The municipality doesn't have as of now the necessary staff to implement the solution at a large scale. If a pilot will be initiated, then staff can be allocated. If there will be a decision to externalise the service for the cargo bikes, then there is no need for stuff on behalf of the municipality.
Timeline:	2025-2027
Key points to be monitored:	• Employment/externalise the services for cargo bikes

5.2.3 Measure 2: Implementation roadmap

Step	Timeline	Responsible department/organisation	External stakeholder to be involved	Key points to be monitored
Planning a participatory budgeting initiative	2025	International relations, Partnerships and Urban Innovation Dep.	Biciclim NGO Alba Sport Vision EcoMobilitate Delivery companies	• Number of meetings dedicated to promoting the idea of cargo bikes at municipal level • Evaluation of the necessity/opportunity together with the local stakeholders
Submission and approval of a participatory budgeting project	2026	One of the local stakeholders	Biciclim NGO Alba Sport Vision EcoMobilitate iVelo Delivery companies	• Elaboration and submission of the project • Project approval

Implementation of the pilot	2027	Alba Iulia Municipality	The private company delegated to implement the project (public tender)	• Elaboration of the task book for the public tender • Delegation of the contract of the services

5.3 Measure 3: Parcel lockers sharing

At the moment, in Alba Iulia, all the parcel lockers are placed in private areas (gas stations, parking spaces of large stores etc.). The concept was implemented by the largest online store in Romania (they have their own delivery company) and now is well-grounded amongst many delivery companies. Currently, there is no sharing happening between companies in terms of parcel lockers. Alba Iulia is planning to use the experience of Groningen and the developed local fora methodology to start a dialogue between all the delivery companies and propose placing the parcel lockers in the public space and sharing them.

5.3.1 Measure 3: Transferability potential

Parcel lockers sharing - Transferability potential assessment			
Conditions for implementation	**Scoring criteria**	**Score**	**Justification for answer**
Staff availability	1 – No staff available 5 – There are available staff	1	The municipality (the Public Domain dep.) can promote and supervise the initiative. No staff is currently allocated to work on the topic.
The time needed for implementation	1 – The time needed to set up the scheme is not realistic to my context 5 – The time needed to set up the scheme is perfectly fine	3	The implementation depends on the delivery companies dialogue and collaboration. The decisions of sharing the parcel locker will be theirs in the end.

Governance related efforts	1 – The Municipality doesn't have the experience or capacity to undertake all the coordination needed with stakeholders 5 – The Municipality can undertake all the coordination needed to set up this scheme	3	The effort on the municipality`s behalf can be focused on the public spaces that are to be put at the disposal of delivery companies through with the local council permits.
Technical conditions required	1 – The Municipality does not have the technical knowledge to set up the scheme and is not able to build capacity or get external support 5 – The Municipality has all the technical knowledge necessary to set up the scheme	5	Technical conditions are related to the public spaces and the urban aspect of the parcel lockers. The urban development dep. of the municipality can establish the placements, that will be then approved by the local council.
Financial framework	1 – There are no funds available to set up the scheme, and no perspective of change 5 – The funds to set up the scheme are available	3	The funds will be provided by the private companies, given the fact that the parcel lockers should be their properties.
Legislative/regulatory framework	1 – There are no regulations, market maturity, or other frameworks in place to set up the scheme in my context 5 – Framework to set up the financing scheme is already in place	5	The regulatory framework is strictly established by the municipality`s urban planning initiatives.
Communication	1 – The Municipality does not have the experience or capacity to establish communication with stakeholders, citizens, etc.	5	The communication can be made by the municipality along with the efforts of private companies that will join the

	5 – The Municipality can properly communicate with all stakeholders and citizens		venture to build parcel lockers on public spaces.
Other factor: competition for limited public space	1 – Factor is a barrier in your context 5 – Factor is easy to address	3	The length of the sideways/pedestrian spaces can be a barrier. The green spaces and the property limits (edges) could be a potential barrier.

5.3.2 Measure 3: Main challenges expected

Alba Iulia identified staff availability to be the main challenge for the implementation of Measure 3.

Staff availability	
Practical steps to take:	Staff availability: there is no staff available on the municipality`s behalf, excepting for the Urban Planning dep. The department can allocate personnel for the implementation, in order to prepare the documentation for Local Council approval and to supervise the placements of the parcels and the workings made by the private companies.
Timeline:	2025-2027
Key points to be monitored:	• The placements of the parcel lockers - supervising their placement to be the same as in the Local Council decision. • The external aspect/design of the parcel lockers - in order to correctly distribute the brands and to have a uniformity in terms of graphic design.

5.3.3 Measure 3: Implementation roadmap

Step	**Timeline**	**Responsible department/organisation**	**External stakeholder to be involved**	**Key points to be monitored**

Planning the dialogue with the delivery companies	2025	International relations, Partnerships and Urban Innovation Dep.	FanCourier SameDay DHL Urgent Cargus DPD UPS Dragon Star Courier	• Number of meetings dedicated to promoting the idea of common parcel lockers on public spaces • Evaluation of the necessity/opportunity together with the local stakeholders
Preparation of documents and permits for the private companies to place the parcel lockers on public spaces	2026	Alba Iulia Municipality		• Preparation of the documentation and elaboration of the permits to be approved by the Local Council • Project approval by the Local Council
Placement of the parcel lockers on public spaces	2027	Alba Iulia Municipality	The delivery companies	• Effective works for placing the parcel lockers on public spaces

6. Bergen implementation roadmap

Measures selected

Each city selects the set of ULaaDS measures they are interested in in replicating and describes them in the table below:

Measure name and description	Solution	Scheme	Related Lighthouse city trial
Micro-hubs in the city centre Promotion for using containerised micro-hubs as a solution to make possible the use of light electric vehicles and cargo bikes for urban logistics	Collaborative delivery models to enhance logistics efficiency and multimodal mobility in cities	Containerised urban last-mile delivery	Bremen trial 1
Shared mobility services for citizens and SMEs	Effective integration of passenger and urban freight mobility services and networks	Location and infrastructure capacity sharing	Bremen trial 2, Groningen trial 1
Analysis of the availability of PUDOs in the city centre of Bergen		Location and infrastructure capacity sharing	Groningen trial 2

Each city carries out a short transferability assessment of each measure listed above based on the information provided by the related city and the information gathered during the replication activities (Technical webinars, Study visits, Peer-learning webinars).

Each Satellite city reflects on the conditions that made the measure successful in the Lighthouse city, where the measure was first implemented: time, resources, legal framework, etc… It assesses whether those conditions can be replicated in their specific context with points ranging from 1 to 5, 1 standing for low transferability potential and 5 being high transferability potential.

6.1 Measure 1: Micro-hubs in the city centre

In Bergen the major logistic service providers (LSPs) will relocate (or have already done so) their main distribution facilities to the outskirts of the city centre. This makes the business case for using light electric vehicles and cargo bikes in their services less viable, and hence promotes the use of vans and trucks, which is not in line with urban development goals. To the LSPs case, it should be noted that they have moved out of the urban areas due to urban transformation projects and not of their own will. The city of Bergen aims to use the lessons learned from the ULaaDS trial from Bremen to address the situation.

The measure of containerised micro-hubs in Bremen makes an interesting example for how to make it possible to perform logistics with small vehicles in the city centre even when their distribution centres are located 20-30 kilometres away. It appears that the most important part is allocating a space in the inner city that actually can be used for such activities.

6.1.1 Measure 1: Transferability potential

Micro-hubs in the city centre - Transferability potential assessment			
Conditions for implementation	**Scoring criteria**	**Score**	**Justification for answer**
Staff availability	1 – No staff available 5 – There are available staff	3	Some staff available, but the amount of work required depends on willingness/interest of LSPs to cooperate and the City's ability to acknowledge the benefits of the measure for achieving public goals for urban development.
The time needed for implementation	1 – The time needed to set up the scheme is not realistic to my context 5 – The time needed to set up the scheme is perfectly fine	4	Several urban projects are calling for more piloting on innovative urban logistics measures. This could help making the case for faster approval of such initiative.
Governance related efforts	1 – The Municipality doesn't have the experience or capacity to undertake all the	3	It depends on how extensive the work on stakeholder engagement is, and if it's

	coordination needed with stakeholders 5 – The Municipality can undertake all the coordination needed to set up this scheme		possible to identify other projects by the municipality that also has benefits from the measures – which makes it easier to draw on more resources in this work.
Technical conditions required	1 – The Municipality does not have the technical knowledge to set up the scheme and is not able to build capacity or get external support 5 – The Municipality has all the technical knowledge necessary to set up the scheme	5	The Municipality has the required technical conditions in place. The challenge is to identify urban space which is both of interest of LSPs, and that could be rented for such activities.
Financial framework	1 – There are no funds available to set up the scheme, and no perspective of change 5 – The funds to set up the scheme are available	5	Municipality has the possibility to rent municipal ground to LSPs free of charge.
Legislative/regulatory framework	1 – There are no regulations, market maturity, or other frameworks in place to set up the scheme in my context 5 – Framework to set up the financing scheme is already in place	3	The legislative framework is in place – but much attention should be brought into fairness for LSPs. If the public ground is of interest for many companies, this could lead to the need for a full tendering process.
Communication	1 – The Municipality does not have the experience or capacity to establish communication with stakeholders, citizens, etc. 5 – The Municipality can properly communicate with	4	Throughout the ULaaDS project, the Municipality has learned much on stakeholder engagement with local stakeholders.

	all stakeholders and citizens		
Additional factor: availability of space	1 – Factor is a barrier in your context 5 – Factor is easy to address	3	Identifying place for the containers in urban area, where the amount of public space is already scarce will be a challenge.

** 1 being low transferability potential and 5 high transferability potential in your specific context*

6.1.2 Measure 1: Main challenges expected

Bergen identified staff availability, allocation of public space and stakeholder engagement as the main challenges in the implementation of Measure 1. The city analysed the conditions for implementation in the table below:

Staff availability	
Practical steps to take:	Identify processes and stakeholders within the city which benefits from innovation in urban logistics. Start the dialogue regarding the possible workload and willingness of stakeholders to get involved with their resources in the initiative.
Timeline:	Spring semester 2024

Allocating space in public grounds which is available for use and at the same time makes the business case viable.	
Practical steps to take:	1. The City has recently performed a mapping of all parking spaces in city centre. This can help identify locations that could work for a micro-hub. 2. Dialogue with other public actors (The Port, Railroad goods terminal, The County) in identifying the area with the highest potential for allocation of the hub.
Timeline:	Spring/Summer 2024

Stakeholder engagement	
Practical steps to take:	1. Stakeholder meeting to address current needs (much has changed last couple of years in terms of logistics) 2. Identify possible locations (see above), as a sketch for possible locations to initiate measures.
Timeline:	Spring/summer/fall 2024.
Key points to be monitored:	This processed must be linked to a recent order from the politicians to make a new transport- and logistics plan. Details are not clear yet if the politicians want a SULP, or more of a regional logistics movement.

6.1.3 Measure 1: Implementation roadmap

Step	Timeline	Responsible department/organisation	External stakeholder to be involved
Identify ongoing processes within organization	Spring 2024	Agency for Urban Environment, City of Bergen	-
Identify possible locations	Spring 2024	Agency for Urban Environment, City of Bergen	
Stakeholder engagement	Spring/summer 2024	Engage with LSPs to address current status of logistics in Bergen and see how we can cooperate to achieve common goals. With the knowledge from action point 2, address some locations that could be of interest. This would help make it easier for the operators to understand the measure, as well as come with feedback on what type of areas that's of interest or not. Parts of these processes are currently ongoing with Norwegian Railroad Property.	Port of Bergen, Norwegian Railroad Property, Logistic Service Providers

6.2 Measure 2: Shared mobility services for citizens and SMEs

Bergen is constantly working on promoting the use of shared mobility, and especially car sharing, to reduce the need for owning a car. The trial in Groningen proved that shared mobility services could also be of interest for local businesses. Bergen already has several car sharing operators, and the city should make future effort to tie these operators and SMEs together.

The trial of Bremen with cargo bikes for micro-logistics has in a great way showcased the impacts of this type of vehicle. Cargo bikes are currently not used to the sufficient extend in the City of Bergen.

Bergen has currently two measures aimed to promote the use of cargo bikes, both among citizens and businesses:

1. A financial grant scheme for cargo bikes, for both businesses and citizens. The scheme aims to reduce the cost barrier of buying a cargo bike. The scheme awards up to 1500€ per applicant.
2. The city has previously bought 3 cargo bikes which were available for rent for up to 3 weeks for private persons. This operation had to be cancelled due to lack of capacity within the organization. The bikes were given to a non-profit organization that rents out equipment for free to citizens of the city. Eventually, they had to return them since they lacked the competencies to keep them well maintained.

The city is now looking to revise our current public bike scheme, which is to be tendered in 2026. For Bergen it is therefore of interest to understand if and how cargo bikes could be part of a shared mobility fleet, and as such, cater to the needs of both citizens and businesses. This should also include reaching out to local businesses to understand how shared mobility services (bikes, cargo bikes, cars/vans) can help their activities, and reduce the need for private ownership of vehicles.

This measure is therefore inspired by the works and knowledge attained both in trial 2 in Bremen and trial 1 in Groningen. Both the tight collaboration with the local shop owner association in Groningen, as well as the impacts of the cargo bike rental scheme in Bremen is very much of interest. Bergen does not intend to replicate their trials, but to build on it and make them plausible in their own context.

6.2.1 Measure 2: Transferability potential

Shared mobility services for citizens and SMEs - Transferability potential assessment			
Conditions for implementation	**Scoring criteria**	**Score**	**Justification for answer**

Staff availability	1 – No staff available 5 – There are available staff	5	Staff already allocated for working on tender of public bike schemes.
The time needed for implementation	1 – The time needed to set up the scheme is not realistic to my context 5 – The time needed to set up the scheme is perfectly fine	5	Next tender is in 2026, which gives enough time for assessment.
Governance related efforts	1 – The Municipality doesn't have the experience or capacity to undertake all the coordination needed with stakeholders 5 – The Municipality can undertake all the coordination needed to set up this scheme	5	The Municipality has the experience needed for this scheme.
Technical conditions required	1 – The Municipality does not have the technical knowledge to set up the scheme and is not able to build capacity or get external support 5 – The Municipality has all the technical knowledge necessary to set up the scheme	4	The Municipality has to a certain extent expert knowledge on this part, while at the same time there's always more to learn on cargo bikes as part of shared services. A major discussion is if cargo bikes must be included in a public scheme, or if the market can handle this itself (so far, it looks like it cannot).
Financial framework	1 – There are no funds available to set up the scheme, and no perspective of change 5 – The funds to set up the scheme are available	3	Ongoing political discussions on how much funding should be put into a public mobility scheme. The result of this discussion will decide whether we have enough finances or not to include cargo bikes.

Legislative/regulatory framework	1 – There are no regulations, market maturity, or other frameworks in place to set up the scheme in my context 5 – Framework to set up the financing scheme is already in place	5	Already in place.
Communication	1 – The Municipality does not have the experience or capacity to establish communication with stakeholders, citizens, etc. 5 – The Municipality can properly communicate with all stakeholders and citizens	5	Tendering scheme will be communicated by the municipality. The municipality has experience with communication with citizens. Throughout the ULaaDS project, the Municipality has learned much on stakeholder engagement with local stakeholders.
Maintenance		3	Main concern is maintenance of cargo bikes and avoiding vandalism on these.

** 1 being low transferability potential and 5 high transferability potential in your specific context*

6.2.2 Measure 2: Main challenges expected

Bergen identified maintenance of the vehicles as the main challenge in the implementation of Measure 2.

Maintenance	
Practical steps to take:	Tendering cargo bikes as part of public bike scheme would make maintenance the responsibility of the service operator. The city should support the operator in building the capacity for the maintenance of cargo bikes and control that the bikes are well maintained.

6.2.3 Measure 2: Implementation roadmap

Step	Timeline	Responsible department/organisation	External stakeholder to be involved	Key points to be monitored
Knowledge assessment of other public cargo bike schemes	Spring 2024	Agency for Urban environment		Knowledge assessment report submitted
Dialogue with local businesses to better understand how shared mobility services could help their activities	Spring/summer 2024	Agency for Urban environment	Chamber of Commerce in Bergen	Meetings with local businesses Needs assessment analysis
Market dialogue	Fall 2024/ Spring 2025	Agency for Urban environment	Call for market dialogue	
Tender	2025	Agency for Urban environment		Tender prepared and published

6.3 Measure 3: Analyse current availability of Pick-up and drop-off locations (PUDOs) in the city centre of Bergen

The City of Bergen has several pick-up and drop-off (PUDO) locations in the city centre. All of these are currently located on private ground, and the City of Bergen currently has decided to not allow placing parcel lockers on municipal ground.

Based on the knowledge and experiences from the trial project of Groningen, the city of Bergen wants to do an analysis of the PUDO-network in the city – to learn and understand better if the city actually should intervene to improve the network grid, or whether this should be left to the market.

Bergen is also paying attention to the work of both Mechelen (who previously has tendered parcel lockers for their city), as well as the municipality of Bærum (NO), who joined ULaaDS as a follower city, that is planning a regional tender for parcel lockers in Norway.

6.3.1 Measure 3: Transferability potential

Analyse current availability of Pick-up and drop-off locations (PUDOs) in the city centre of Bergen - Transferability potential assessment			
Conditions for implementation	**Scoring criteria**	**Score**	**Justification for answer**
Staff availability	1 – No staff available 5 – There are available staff	5	The analysis will be performed in February 2024.
The time needed for implementation	1 – The time needed to set up the scheme is not realistic to my context 5 – The time needed to set up the scheme is perfectly fine	5	
Governance related efforts	1 – The Municipality doesn't have the experience or capacity to undertake all the coordination needed with stakeholders 5 – The Municipality can undertake all the coordination needed to set up this scheme	5	
Technical conditions required	1 – The Municipality does not have the technical knowledge to set up the scheme and is not able to build capacity or get external support 5 – The Municipality has all the technical knowledge necessary to set up the scheme	5	
Financial framework	1 – There are no funds available to set up the	5	

	scheme, and no perspective of change 5 – The funds to set up the scheme are available		
Legislative/regulatory framework	1 – There are no regulations, market maturity, or other frameworks in place to set up the scheme in my context 5 – Framework to set up the financing scheme is already in place	5	
Communication	1 – The Municipality does not have the experience or capacity to establish communication with stakeholders, citizens, etc. 5 – The Municipality can properly communicate with all stakeholders and citizens	5	

** 1 being low transferability potential and 5 high transferability potential in your specific context*

6.3.2 Measure 3: Main challenges expected

The City of Bergen did not identify any immediate challenges for implementation of Measure 3. The city is ready to perform the analysis.

6.3.3 Measure 3: Implementation roadmap

Step	Timeline	Responsible department/organisation	External stakeholder to be involved	Key points to be monitored
Analyse PUDO-	Spring 2024	Agency for Urban environment	-	The analysis will be performed in February

network in Bergen.				2024. The results of the analysis will be reported in spring.

7. Edinburgh implementation roadmap

Measures selected

Each city selects the set of ULaaDS measures they are interested in in replicating.

In a second step it describes them shortly in the table below.

Measure name and description	Solution	Scheme	Related Lighthouse city trial
Low Emission Zone	N/A	N/A	Groningen
First and last mile delivery by cargo bike/trolley	Collaborative delivery models to enhance logistics efficiency and multimodal mobility in cities	Transport vehicle capacity sharing	Bremen, Mechelen, Groningen
Parcel Lockers	Collaborative delivery models to enhance logistics efficiency and multimodal mobility in cities	Location and infrastructure capacity sharing	Groningen

Each city carries out a short transferability assessment of each measure listed above based on the information provided by the related city and the information gathered during the replication activities (Technical webinars, Study visits, Peer-learning webinars).

Each Satellite city reflects on the conditions that made the measure successful in the Lighthouse city, where the measure was first implemented: time, resources, legal framework, etc… It assesses whether those conditions can be replicated in their specific context with points ranging from 1 to 5, 1 standing for low transferability potential and 5 being high transferability potential.

7.1 Measure 1: Low Emission Zone

City of Edinburgh Council (CEC) Staff have conducted the preliminary consultation and work to implement and subsequently enforce a City Centre Low Emission Zone (LEZ). CEC Staff are also signposting the limits of the LEZ and have procured Automatic Number Plate Readers (ANPR) to be installed to enforce the LEZ.

The City of Edinburgh will use the experience of Groningen acquired during the ULaaDS project to finetune the plans for LEZ from the perspective of urban logistics.

7.1.1 Measure 1: Transferability potential

Low Emission Zone - Transferability potential assessment			
Conditions for implementation	**Scoring criteria**	**Score**	**Justification for answer**
Staff availability	1 – No staff available 5 – There are available staff	4	The City of Edinburgh already has staff allocated to the task of LEZ implementation
The time needed for implementation	1 – The time needed to set up the scheme is not realistic to my context 5 – The time needed to set up the scheme is perfectly fine	4	The LEZ was introduced on 31 May 22, with a 2 year "grace" period. Enforcement will commence on 1 June 2024. Signposting and enforcement measures are being put in place and although time is tight this is currently on schedule.
Governance related efforts	1 – The Municipality doesn't have the experience or capacity to undertake all the coordination needed with stakeholders 5 – The Municipality can undertake all the coordination needed to set up this scheme	5	In progress and currently on schedule to begin enforcement from 1 June 2024.
Technical conditions required	1 – The Municipality does not have the technical knowledge to set up the scheme and is not able to build capacity or get external support 5 – The Municipality has all the technical knowledge	4	The enforcement measures, particularly the signposting of the edge of the LEZ and ANPR cameras are being installed. An enforcement vehicle will also be procured and deployed, to provide a mobile enforcement capability. This must continue to

	necessary to set up the scheme		be on schedule for enforcement to commence on 1 June 2024.
Financial framework	1 – There are no funds available to set up the scheme, and no perspective of change 5 – The funds to set up the scheme are available	5	Appropriate funding has been allocated within the CEC budget.
Legislative/regulatory framework	1 – There are no regulations, market maturity, or other frameworks in place to set up the scheme in my context 5 – Framework to set up the financing scheme is already in place	5	Scottish Government legislation has been passed to allow CEC to establish and implement the LEZ. Scottish Regulations using European Standards have been produced to determine criteria and exemptions.
Communication	1 – The Municipality does not have the experience or capacity to establish communication with stakeholders, citizens, etc. 5 – The Municipality can properly communicate with all stakeholders and citizens	5	Communications are being delivered via the CEC website and all other channels. The communications plan has been live since 2022 when the scheme was approved and introduced. https://www.edinburgh.gov.uk/roads-travel-parking/lez-works/3

** 1 being low transferability potential and 5 high transferability potential in your specific context*

7.1.2 Measure 1: Main challenges expected

The City of Edinburgh did not identify any immediate challenges to the implementation of Measure 1.

7.1.3 Measure 1: Implementation roadmap

Step	Timeline	Responsible department/organisation	External stakeholder to be involved	Key points to be monitored
Low Emission Zone has been agreed by City of Edinburgh Council (CEC) following consultation.	LEZ agreed 19 May 2022. Commenced 31 May 2022.	City of Edinburgh Council (CEC).	Residents and Visitors.	Reports to Transport & Environment Committee.
Signposting on edge of LEZ.	October 2023	City of Edinburgh Council (CEC).	Residents and Visitors.	Signposting in place
Enforcement cameras procured and installed.	January 2024	City of Edinburgh Council (CEC).	-	Cameras in place
Enforcement vehicle to be procured and deployed.	LEZ enforced from 1 June 2024. The vehicle will be procured before this date.	City of Edinburgh Council (CEC).	-	Enforcement vehicle delivered and in action

7.2 Measure 2: First and Last Mile Delivery by Cargo Bike or Trolley

The City of Edinburgh has some experience with the implementation of cargo bikes in the territory for various purposes.

One cargo bike/trolley project has been delivered as part of the Tram to Newhaven Project. Cargo bike was used for last-mile delivery during the time of the construction. This is now closed due to the completion of the project. Lessons identified from the successful scheme will inform future schemes and construction projects. More information on the project can be found here.

This Project is likely to be replicated for further CEC construction projects that are likely to cause disruption to businesses. No similar projects that would merit the first/last mile delivery by cargo bike/trolley are currently being delivered or planned.

Other projects are being delivered by CEC and are dependent on the continuation of funding:

- Shared cargo bike available for use by CEC staff.
- Cargo bikes made available for Pentland Hills Rangers.
- Cargo bikes used by kindergartens to transport outdoor classroom equipment at the start and end of the day.
- Cargo bikes available from libraries for short loans.
- Cargo Bike Movement - Scotland's First Dedicated Cargo Bike Hub, supported by the CEC.
- One SESTran Surflough trial completed with Zedify.

The results of the projects will inform future policy and plans to deliver City Centre Transformation and the City Mobility Plan 2030. More information available here.

The city will use the ULaaDS experience in cargo bike delivery implementation to outline and finetune future projects on the use of cargo bikes for first and last mile delivery in the city.

7.2.1 Measure 2: Transferability potential

First and Last Mile Delivery by Cargo Bike or Trolley – Transferability Potential Assessment			
Conditions for implementation	**Scoring criteria**	**Score**	**Justification for answer**
Staff availability	1 – No staff available 5 – There are available staff	3	CEC funding has provided resources for CEC staff and external organisations to retain staff to deliver pilot projects and trials. This funding is, however, reviewed annually and funding pressures mean that there is no certainty of future funding.
The time needed for implementation	1 – The time needed to set up the scheme is not realistic to my context 5 – The time needed to set up the scheme is perfectly fine	3	The city has experience with the implementation of cargo bike projects and can realistically assess the time needed for implementing them.

Governance related efforts	1 – The Municipality doesn't have the experience or capacity to undertake all the coordination needed with stakeholders 5 – The Municipality can undertake all the coordination needed to set up this scheme	3	CEC is using pilot projects and trials with Partners and through provision of funding to external partners to better understand what will work best for the city. Building understanding through experience. This is being coordinated through the CEC Place Directorate. Whilst there is experience within the Place Directorate there are no CEC Staff currently dedicated to delivering a first/last mile cargo bike scheme.
Technical conditions required	1 – The Municipality does not have the technical knowledge to set up the scheme and is not able to build capacity or get external support 5 – The Municipality has all the technical knowledge necessary to set up the scheme	3	CEC is developing technical knowledge and understanding from several pilot projects, projects and trials. CEC has reasonable technical knowledge to establish a scheme, but there are significant funding pressures that will likely impact set up.
Financial framework	1 – There are no funds available to set up the scheme, and no perspective of change 5 – The funds to set up the scheme are available	3	Limited funding has been made available for pilot projects and trials. This remains under threat and annual revue due to significant budget pressures. Noting the experience from the ULaaDS trials it is judged that such a scheme will require funding and are not capable of self-financing.
Legislative/regulatory framework	1 – There are no regulations, market maturity, or other frameworks in place to set up the scheme in my context	3	These are not considered impediments to establishing a scheme, but funding will be required to support schemes.

	5 – Framework to set up the financing scheme is already in place		
Communication	1 – The Municipality does not have the experience or capacity to establish communication with stakeholders, citizens, etc. 5 – The Municipality can properly communicate with all stakeholders and citizens	4	The CEC Communications Team supports CEC Officers and Elected Members in communicating current initiatives on all available channels. Internal communications are disseminated via the Council's intranet and website.

7.2.2 Measure 2: Main challenges expected:

The City of Edinburgh didn't identify any immediate challenges hindering the implementation of Measure 2. The annual allocation of funding and the uncertainty connected with it remains a continuous challenge for any cargo bike scheme implemented in the city.

7.2.3 Measure 2: Implementation roadmap

Step	Timeline	Responsible department/ organisation	External stakeholder to be involved	Key points to be monitored
Continue to lobby for funding and resources to support schemes for first/last mile delivery by cargo bike and trolley. Mindful that these schemes are unlikely to be wholly self-financing.	As part of the annual budget setting process.	*CEC*	Transport Scotland SUSTrans	• Annual budget and funding allocations. • Monitor external funding sources, particularly Transport Scotland and SUSTrans and submit bids

				whenever possible.
Advocate that CEC construction projects adopt the Logistic Hubs approach that was successfully implemented for the Tram to Newhaven Project.	By 2030 as part of City Centre Transformation and City Mobility Plan.	*CEC*	Contracted construction companies	Include funding for Logistic Hubs and first/last mile cargo bike/trolley deliveries in future CEC construction Projects.
Continue to work with Partners to deliver first/last mile cargo bike schemes, to continue to build understanding.	By 2030 as part of City Centre Transformation and City Mobility Plan.	*CEC*	SUSTrans, Zedify, Cargo Bike Movement, Thistle Foundation.	Partnerships to deliver these schemes require funding through the annual budget and funding allocations.
Continue to promote cargo bikes internally with CEC for use by CEC Teams and Staff.	Every year through annual budget setting and Active Travel and other Action Plans.	CEC	CEC staff	-
First/Last Mile delivery by cargo bike/trolley scheme implementation	By 2030	City of Edinburgh Council with Partners.	Cargo Bike Movement. Sustrans. SEStran. Zedify. Edinburgh Napier University.	Reports to Transport and Environment Committee on City Mobility Plan and 5 Action Plans to deliver it.

7.3 Measure 3: Parcel Lockers, Parcel Collection and Delivery

In the context of Edinburgh, parcel lockers are predominantly managed by parcel delivery agents – InPost and Amazon. There are no current plans for a CEC white label service to replace the current service. The ULaaDS trials would, however, inform a CEC scheme if services were withdrawn and CEC decided to replace the service, assuming that funding could be secured. The ULaaDS experience on siting, IT and other practical consideration will be particularly helpful.

7.3.1 Measure 3: Transferability potential

Parcel Lockers, Parcel Collection and Delivery – Transferability Potential Assessment			
Conditions for implementation	**Scoring criteria**	**Score**	**Justification for answer**
Staff availability	1 – No staff available 5 – There are available staff	4	This measure is being predominantly delivered by In Post and Amazon parcel lockers in Edinburgh. Commercial details have not been shared with CEC.
The time needed for implementation	1 – The time needed to set up the scheme is not realistic to my context 5 – The time needed to set up the scheme is perfectly fine	4	There are no current plans for a CEC white label service to replace the current service.
Governance related efforts	1 – The Municipality doesn't have the experience or capacity to undertake all the coordination needed with stakeholders 5 – The Municipality can undertake all the coordination needed to set up this scheme	3	Lockers are currently on private, not public land, situated at supermarkets or garages. The ULaaDS Project guidelines for establishing parcel lockers on public land will be helpful if CEC decide to adopt this approach.

Technical conditions required	1 – The Municipality does not have the technical knowledge to set up the scheme and is not able to build capacity or get external support 5 – The Municipality has all the technical knowledge necessary to set up the scheme	2	If this service was to be delivered by CEC, staff would be required to procure, administer, and maintain the service. It is anticipated that commercial agents would deliver to sites, but they would have to be cleaned and maintained by CEC. A function currently undertaken by hosts with InPost and Amazon.
Financial framework	1 – There are no funds available to set up the scheme, and no perspective of change 5 – The funds to set up the scheme are available	1	Current arrangements without public funding appear to be meeting demand. Consequently, no public funding has been allocated for parcel lockers by CEC.
Legislative/regulatory framework	1 – There are no regulations, market maturity, or other frameworks in place to set up the scheme in my context 5 – Framework to set up the financing scheme is already in place	1	If parcel lockers were to be placed in the public realm Edinburgh Design Guidance would have to be followed regarding siting and set up.
Communication	1 – The Municipality does not have the experience or capacity to establish communication with stakeholders, citizens, etc. 5 – The Municipality can properly communicate with all stakeholders and citizens	1	This would be an additional task for CEC Communications, not currently resourced for this.
Demand	1 – Factor is a barrier in your context 5 – Factor is easy to address	1	Demand is being met by current arrangements with no current aspiration for the service to be delivered by CEC.

** 1 being low transferability potential and 5 high transferability potential in your specific context*

7.3.2 Measure 3: Main challenges expected:

The demand for parcel lockers in Edinburgh is currently met by the provision of lockers managed by delivery services without the assistance of public authority. Thus, the implementation of this measure would take place only in case of the delivery companies removing their current service, which would create a need for the city's intervention. As this is not the case at the moment, the City of Edinburgh did not identify any immediate challenges to tackle. However, the situation remains under monitoring from the side of CEC in case intervention would be needed.

7.3.3 Measure 3: Implementation roadmap

Step	Timeline	Responsible department/organisation	External stakeholder to be involved	Key points to be monitored
Monitoring of the current Parcel Lockers service	Ongoing	City of Edinburgh Council Place Directorate	In Post Amazon	Reports on Action Plans, City Centre Transformation and Mobility Plan 2030 to Transport and Environment Committee.

8. Rome implementation roadmap

Measures selected

Each city selects the set of ULaaDS measures they are interested in in replicating and described the selected measures in the table below:

Measure name and description	Solution	Scheme	Related Lighthouse city trial
Containerised urban last-mile delivery - Logistics micro-hubs for last-mile delivery in the city centre - Dedicated container space - Deliveries made by cargo bikes	Collaborative delivery models to enhance logistics efficiency and multimodal mobility in cities	Containerised urban last-mile delivery, combined with storage points for cargo bike service	Bremen Trial 1
Logistics services to multi-modal mobility hubs for commuter	Effective integration of passenger and urban freight mobility services and networks	Location and infrastructure capacity sharing	Groningen Trial 2

8.1 Measure 1: Containerised urban last-mile delivery

Rome draws inspiration from the trial of Bremen on containerised urban last-mile delivery.

Rome's SULP (Sustainable Urban Logistics Plan) is currently in the process of approval. One of the measures envisaged in the SULP concerns the identification of micro-hubs that will mainly serve the city centre and may have spaces dedicated to containers. Deliveries will also be made by cargo bikes, replicating the measure tested by the Municipality of Bremen.

8.1.1 Measure 1: Transferability potential

Containerised urban last-mile delivery - Transferability potential assessment			
Conditions for implementation	**Scoring criteria**	**Score**	**Justification for answer**
Staff availability	1 – No staff available 5 – There are available staff	2	Only RSM (Rome Mobility Agency) internal staff is available supporting the Municipality.
The time needed for implementation	1 – The time needed to set up the scheme is not realistic to my context 5 – The time needed to set up the scheme is perfectly fine	2	Due to bureaucratic and technical barriers, the required timeframe is unrealistic. For example, the creation of micro-hubs requires 10 years for full start-up, as stated in the SULP.
Governance related efforts	1 – The Municipality doesn't have the experience or capacity to undertake all the coordination needed with stakeholders 5 – The Municipality can undertake all the coordination needed to set up this scheme	4	The Municipality is supported by RSM (through the Service Level Agreement) and Logistic Living Lab for the coordination with stakeholders.
Technical conditions required	1 – The Municipality does not have the technical knowledge to set up the scheme and is not able to build capacity or get external support 5 – The Municipality has all the technical knowledge necessary to set up the scheme	3	The technical knowledge to set up the scheme are ensured by RSM.
Financial framework	1 – There are no funds available to set up the	2	Funds will be defined for this measure, but the prospect of

	scheme, and no perspective of change 5 – The funds to set up the scheme are available		change will happen once the SULP is approved.
Legislative/regulatory framework	1 – There are no regulations, market maturity, or other frameworks in place to set up the scheme in my context 5 – Framework to set up the financing scheme is already in place	2	The framework for establishing the financing scheme needs to be set up.
Communication	1 – The Municipality does not have the experience or capacity to establish communication with stakeholders, citizens, etc. 5 – The Municipality can properly communicate with all stakeholders and citizens	4	The municipality, also thanks to the experience gained during the drafting of the SUMP (involvement of citizens and stakeholders through online platform and participation processes), is able to properly communicate.

** 1 being low transferability potential and 5 high transferability potential in your specific context*

8.1.2 Measure 1: Main challenges expected

The city of Rome identified the following conditions for implementation as the main challenges hindering the implementation of the measure:

- **Staff availability**: lack of technical staff due to the difficulties on turnover of personnel.
- **The time needed for implementation**: identification of suitable areas and obstacles to authorisation in the case of public areas.
- **Financial framework:** adequate financial tools and funds availability for the implementation of the measure depend on the SULP.
- **Legislative/regulatory framework:** the framework for defining the financing scheme will have to be drawn up for this specific measure.

The identified challenges are further analysed in the table below:

Staff availability	
Practical steps to take:	Set up regular meetings with the Department's staff and stakeholders to share the implementation steps of the measure
Timeline:	To be arranged with the Mobility Department
Key points to be monitored:	To be defined

Time needed for implementation	
Practical steps to take:	Set up the different phases for the implementation of the measure and related Gantt
Timeline:	The implementation of the measure will follow the timeline of the micro-hub realisation (three phases already defined 1st year, 5th year and 10th year)
Key points to be monitored:	Compliance with the implementation schedule of the three phases

Technical conditions required	
Practical steps to take:	To share technical knowledge between the Mobility Department and the RSM
Timeline:	To be defined
Key points to be monitored:	To be defined

Financial framework	
Practical steps to take:	Defining the financial instruments and amount in accordance with the SULP
Timeline:	To be defined
Key points to be monitored:	To be defined

8.1.3 Measure 1: Implementation roadmap

Step	Timeline	Responsible department/organisation	External stakeholder to be involved	Key points to be monitored
Approval of SULP	February 2024	Sustainable Mobility Department, RSM		SULP Approved
Implementation of the measure in synergy with the realisation of proximity logistics spaces	The implementation of the measure will follow the timetable for the realisation of the micro-hub (three phases already defined 1st year, 5th year and 10th year)	Sustainable Mobility Department, RSM	Logistic Operators	Key Performance Indicators (some already identified and included in the SUMP)

8.2 Measure 2: Logistics services to multi-modal mobility hubs for commuters

Second measure to be replicated by the City of Rome is inspired by the Trial 2 from Groningen concerning the addition of logistics services to multi-modal mobility hubs. In Rome, the installation of parcel lockers has already started and involved the main metro stations. To allow citizens and public transport users to receive goods more easily, the measure will also be proposed in mobility hubs (interchange car parks).

8.2.1 Measure 2: Transferability potential

Logistics services to multi-modal mobility hubs for commuters - Transferability potential assessment			
Conditions for implementation	**Scoring criteria**	**Score**	**Justification for answer**
Staff availability	1 – No staff available 5 – There are available staff	4	Public and private partners have already been identified for the

			implementation of similar measures in urban areas.
The time needed for implementation	1 – The time needed to set up the scheme is not realistic to my context 5 – The time needed to set up the scheme is perfectly fine	3	The time needed to set up the scheme reflects the context of the city.
Governance related efforts	1 – The Municipality doesn't have the experience or capacity to undertake all the coordination needed with stakeholders 5 – The Municipality can undertake all the coordination needed to set up this scheme	4	The Municipality is supported by private and public actors.
Technical conditions required	1 – The Municipality does not have the technical knowledge to set up the scheme and is not able to build capacity or get external support 5 – The Municipality has all the technical knowledge necessary to set up the scheme	3	The technical knowledge to set up the scheme are ensured by Public Transport Operator and Logistic Operators.
Financial framework	1 – There are no funds available to set up the scheme, and no perspective of change 5 – The funds to set up the scheme are available	4	As these are private funds, we have no information on them, but the specific market trend will boost the number of parcel lockers.
Legislative/regulatory framework	1 – There are no regulations, market maturity, or other frameworks in place to set up the scheme in my context	4	A framework for the creation of the funding scheme has already been put in place for a similar measure and can be replicated.

	5 – Framework to set up the financing scheme is already in place		
Communication	1 – The Municipality does not have the experience or capacity to establish communication with stakeholders, citizens, etc. 5 – The Municipality can properly communicate with all stakeholders and citizens	4	The municipality, also thanks to the experience gained during the drafting of the SUMP (involvement of citizens and stakeholders through online platform and participation processes), is able to properly communicate.

8.2.2 Measure 2: Main challenges expected

The city of Rome identified the time needed for implementation as a challenging aspect in the implementation of Measure 2:

The time needed for implementation	
Practical steps to take:	Set up the different phases for the implementation of the measure and related Gantt, within the time horizon of the SULP
Timeline:	To be defined by PTO and Logistic Operators
Key points to be monitored:	To be defined

8.2.3 Measure 2: Implementation roadmap

Step	Timeline	Responsible department/organisation	External stakeholder to be involved	Key points to be monitored
The implementation of the measure will be decided between	The timing will be decided by the PTO and Logistics Operators and	Sustainable Mobility Department, RSM, PTO	Logistic Operators	Key Performance Indicators (some already

PTO and Logistic Operators	the municipality will monitor the measure			identified and included in the SUMP)

9. Targets

The key indicators and related targets that have been identified in the proposal stage to measure the impact of the ULaaDS replication activities are indicated in table 9 below.

Table 9: ULaaDS indicators and targets

N. of urban mobility plans (SUMPs / SULPs) incorporating ULaaDS guidelines:

Short term - 2024	Medium term - 2027	Long term - 2030
All ULaaDS cities: Bremen, Mechelen, Groningen, Bergen, Rome, Alba Iulia, Edinburgh **Target: 7**	ULaaDS cities plus Follower cities and additional European cities **Target: 25**	Additional >15% of Eurocities Members **Target: >50**

This target refers to the number of cities incorporating the knowledge acquired either through ULaaDS replication activities or the ULaaDS D6.2 *Guidelines, methods & policy recommendations to integrate ULaaDS in SUMP and SULP processes*. In ULaaDS, we estimate that in the long term (2027-2030) at least 30-50 cities will take inspiration from the solutions designed and tested in ULaaDS and apply the ULaaDS recommendations in their city context. This target will be measured through action plans developed by external cities after the participation in ULaaDS replication activities. Additionally, the target includes other follow-up actions (e.g., request for further information, email exchanges, follow-up calls or meetings, replication of solutions, etc.) undertaken by external cities as a result of participating in the ULaaDS replication activities or Eurocities Mobility Forum activities.

10. Conclusion

In this document, the ULaaDS Satellite cities – Bergen, Rome, Alba Iulia, and Edinburgh – conducted a comprehensive assessment of the transferability potential of the solutions tested in Bremen, Groningen, and Mechelen to inform their future urban logistics implementation strategies.

Logistics micro-hubs and containerised last-mile delivery emerged as the measure with the highest replication potential, showcasing the widespread interest into exploring the use of micro-hubs as a viable solution for last-mile deliveries in cities across Europe. Alba Iulia is currently envisioning the incorporation of micro-hubs and last-mile delivery into its logistics infrastructure. Bergen is planning on using the lessons learned from Bremen to address the specific situation the city is facing with the reallocation of the distribution facilities of logistic service providers. In Rome SULP, identification of logistics micro-hubs serving the city centre with delivery services done by cargo bikes is one of the measures envisioned. While Edinburgh plans to monitor the availability of funding for logistic hubs and first/last-mile cargo bike/trolley deliveries in future construction projects.

The second Bremen trial (private micro-logistics with a cargo-bike sharing scheme) was chosen by Alba Iulia for replication. While Bergen decided to use the concept of this trial in combination with lessons learned from the Groningen's experience of setting up a close cooperation with the local shop owner association for their trial. In this way, Bergen adapted both trials to their local context to outline a concept for shared vehicles to be used for logistics purposed by citizens and SMEs**.**

The ULaaDS experiences on parcel lockers also proved to be of interest to many of the Satellite cities. However, open questions remain with regards to the approach municipalities should take when it comes to parcel-lockers placement and management, with some ULaaDS Satellite cities looking at taking a more proactive role in regulating the placement of parcel lockers in their cities and others currently satisfied with parcel-lockers being placed and managed on private ground.

While none of the Satellite cities expressed interest in replicating the Mechelen trials, the latter still provided extremely valuable lessons which should be considered by other municipalities as they look at urban logistics measures planning and implementation.

The first Mechelen trial highlighted the intricate nature of collaboration in the competitive logistics sector, where brand recognition and market share are fiercely protected. Real-world challenges, such as resistance from competitors, data sharing issues, safety concerns, subcontractor complications, and a lack of interest from retailers finally hindered the success of the trial. The key lessons for city practitioners looking at fostering collaboration and consolidation among competing logistics service providers include the importance of aligning perceived value with operational and competitive realities, emphasizing stakeholder engagement, and a realistic understanding of challenges in collaborative urban freight transport solutions. Mechelen recognised the need for flanking policies to drive sustainable and efficient changes in the mobility and logistics sectors. Ongoing communication and stakeholder engagement, acknowledging conflicts of interest and sensitivity to data sharing, were identified as crucial considerations to take into account when looking at how cities can

encourage logistics service providers to explore consolidation and collaborative urban freight transport solutions.

The autonomous shuttle trial in Mechelen, which specifically tested the cargo-hitching component, showed that the integration of passenger transport and parcel services within the same autonomous vehicle created considerable challenges rather than supporting synergies and efficiency gains. At the same time, the trial underscored the critical role of cooperation between different government levels to obtain necessary permits for operations. While the trial did not meet the initial value proposition, it provided valuable insights for future exploration of the business model, considering potential revisions to service offerings, target markets, or operating models. Stakeholder views on this service varied, with some users expressing a preference for the vehicle to be used either for passengers or for cargo and others highlighting concerns about competition with cycling or walking. Overall, the trial yielded mixed feedback, acknowledging the potential for reduced staffing costs and increased service availability but emphasising challenges related to social control, safety, and competition between passenger and freight transport. The insights obtained should guide future steps, emphasising considerations for infrastructure improvements, increased familiarity, safety enhancements, and optimised route planning in autonomous vehicle experiments in urban contexts.

Beyond specific measures, the ULaaDS project highlighted the importance of enabling regulatory frameworks and stakeholder engagement methodologies. The collaborative ULaaDS Stakeholder Fora methodology emerged as a valuable tool for all the Satellite cities, which will further use it to refine future trials and the development or revision of SULPs. Moreover, regulatory and policy frameworks were identified as an essential tool for municipalities to drive change in the logistics sector. A clear example of this is the adoption of Low Emission Zones (as highlighted in this document by the Satellite City of Edinburgh), which continue to prove as an effective measure to push the decarbonisation of urban logistics fleets.

Overall, key recommendations stemming from the ULaaDS project emphasise optimising urban space allocation, engaging stakeholders early for the long-term success of urban logistics solutions, promoting fair competition in freight transport, and embracing technological advancements to improve urban logistics. This includes sustainable options for parcel lockers and testing new solutions for curb-side management. Further testing is needed on self-driving technology to enhance cargo-hitching solutions. In conclusion, the ULaaDS project serves as a rich source of insights for cities navigating the complexities of urban logistics. The adaptability of measures, the importance of regulatory frameworks, and the delicate balance between private enterprise and public support underscore the need for collaborative, adaptive, and sustainable approaches in shaping the future of urban logistics.

Acronyms

Acronym	Meaning
AV	Autonomous Vehicles
CEC	City of Edinburgh Council
D	Deliverable
EC	European Commission
GA	Grant Agreement
LSP	Logistics Service Provider
O	Objective
ODD	On-demand Delivery
SUMP	Sustainable Urban Mobility Plan
SULP	Sustainable Urban Logistics Plan
T	Task
UCC	Urban Consolidation centre
UFT	Urban Freight Transport
ULaaDS	Urban Logistics as an on-Demand Service
WP	Work Package
ZEV	Zero Emission Vehicle

References

Cascade cities project: www.cascadecities.eu [Last accessed: 16/12/2020]

Covenant of Mayors: www.covenantofmayors.eu [Last accessed: 21/01/2023]

Green Digital Charter, Guidebook, January 2018. Available at: http://www.greendigitalcharter.eu/wp-content/uploads/2012/03/GDC-Training-guidebook-web.pdf [Last accessed: 10/11/2020]

ULaaDS D2.2: Local ecosystem stakeholders´ needs and requirements & prioritization of use cases. Available at: https://ulaads.eu/wp-content/uploads/2022/01/D2.2-Local-ecosystem-stakeholders-needs-and-requirements-priorisation-of-use-cases-first-version.pdf [Last accessed: 25/02/2024]

ULaaDS D3.5: Final validated business/operating models

ULaaDS D4.7: Summary of practical research trials

ULaaDS D6.2: Guidelines, methods & policy recommendations to integrate ULaaDS in SUMP and SULP processes. Available at: https://ulaads.eu/wp-content/uploads/2023/11/ULaaDS-D6.2.pdf [Last accessed: 25/02/2024]

ULaaDS D7.3: Training materials for the workshops. Available at: https://ulaads.eu/wp-content/uploads/2023/12/ULaaDS_D7.3-Training-materials-for-the-workshops.pdf [Last accessed: 25/02/2024]

Annex 1 - ULaaDS Replication Training Agenda

ULaaDS Replication Training, 28 October 2021, 09:30 - 13:00 CET

Concept

The training is meant to be a steppingstone in the establishment of a community of practice within ULaaDS. The purpose of this training will be to present the replication objectives and the peer-learning methodology of ULaaDS, collect the necessary information about each of the trials in the Lighthouse cities and the status quo and expectations of the Satellite cities. The partners will agree on the replication approach and set the timeline for the replication activities. Based on the results of this meeting, Eurocities will draft the replication strategy that will be also used to engage with Follower cities.

Agenda

Time	Presentation	Description	Speaker
09.30 – 09.35	Connecting and technical check		All
09.35 – 09.45	Building a community of practice in ULaaDS	What is a community of practice? What do we want to achieve with it?	Arianna Americo, Eurocities
09.45 – 10.05	Peer-learning methodology and activities timeline proposal	What is in the pipeline for the ULaaDS replication strategy	Arianna Americo, Eurocities
10.05 – 10.15	Q&A		All
10.15 – 11.15	Satellite cities in the spotlight	Each Satellite city will present: 1) their current urban logistics context; 2) good - or bad - practices that are worth sharing with others in the course of the	Alba Iulia (10') Bergen (10') Edinburgh (10') Rome (10')

		project; 3) their learning needs Each presentation will be followed by 5' Q&A.	
11.15 – 11.30	*Coffee break*		
11.30 – 12.15	Lighthouse cities: deep dive into the trials and solutions (an update)	Each Lighthouse city will provide an update on the trials and solutions they will demonstrate during the project	Bremen (15') Mechelen (15') Groningen (15')
12.15 – 12.25	Q&A		
12.25 – 12.40	Matching learning needs and expectations	Open discussion & slido	All
12.40 – 13.00	Next steps and wrap up	We will agree on a timeline for the replication activities and jointly define the next steps	Arianna Americo, Eurocities

Annex 2 – Mechelen Study Visit Agenda

16 - 17 May 2022

Agenda – Day 1 – 16 May 2022

Time	Presentation	Description	Location
10:00 – 12:00	Guided tour of the city	Walk in the historical city centre with emphasis on the city's mobility themes	**Meeting point**: **Mechelen Town Hall** (Grote Markt 21, 2800 Mechelen)
12:00 – 13:00	***Lunch***		**Zeeridder building, Panorama Room**. (Befferstraat 25, 2800 Mechelen). **See instructions below the agenda on how to reach this location**.
13:00 – 13:20	Welcome and introduction	Arianna Americo (Eurocities) & Lorena Axinte (Bax & Compaʃny) will give a short introduction to the study visit and the ULaaDS project	**Zeeridder building, Panorama Room**. (Befferstraat 25, 2800 Mechelen). **See instructions below the agenda on how to reach this location**.
13:20 – 14:00	Icebreaker – getting to know each other	We will use this slot to connect with each other and discover what each participant is working on in their respective cities	**Zeeridder building, Panorama Room**. (Befferstraat 25, 2800 Mechelen). **See instructions below the agenda on how to reach this location**.
14:00 – 14:30	Ride to Mechelen-Noord, one of Mechelen's business parks	We will grab bikes and cycle to the business park where the ULaaDS autonomous vehicle trial will take place	We will move together to get the bikes
14:30 – 15:15	Visit of the business park	Visit of the business park and presentation on the autonomous vehicle transporting passenger and parcels (Cargo-hitching)	
15:15 – 15:30	Ride to ECOkoeriers	Back to our bikes, we will ride to the ECOkoeriers depot	
15:30 – 16:15	ECOkoeriers depot	Visit of the ECOkoeriers depot with presentation on their operations and ULaaDS trial – with coffee and refreshments	

16:15 – 16:30	Ride back to Mechelen centre	We will then ride back to Mechlen city centre following one of the delivery vehicles of ECOkoeriers	
16:30 – 16:50	ECOkoeriers pick-ups	We will see the ECOkoeriers operation in action while they perform pick-ups in the city	
16:50 – 17:10	Ride to bpost in Mechelen-Zuid, the other business park	And continue the journey to the bpost depot	
17:10 – 18:00	bpost depot	Visit of the bpost depot and explanation on the packages flows that is being sorted and that we will then see going out for deliveries the morning after	
18:00 – 18:30	Ride back	Cycle back to the centre	
19:00	***Dinner***		***Sava Mechelen (Grote Markt 13, Mechelen 2800)***

Agenda – Day 2 – 17 May 2022

Time	Presentation	Description	Location
07:00	Meet up in the centre	Meeting in Mechelen central square and back on our bicycles	**Meeting point**: **Mechelen Town Hall** (Grote Markt 21, 2800 Mechelen)
07:00 – 07:20	Ride to bpost	Ride to the bpost depot	
07:20 – 08:20	bpost visit	Following up on the last visit of the previous day we will see bpost fleet in action and their final preparation for the deliveries of the day	
08:20 – 08:40	Ride back	Ride back to the city centre	
08:40 – 09:30	***Breakfast***	*A well-deserved breakfast and networking session*	**Zeeridder building, Panorama Room**. (Befferstraat 25, 2800 Mechelen). **See instructions below the agenda on how to reach this location**.
09:30 – 11:00	Follower cities in the spotlight	Deep dive into some of the urban logistics solutions the follower	**Zeeridder building, Panorama Room**. (Befferstraat 25, 2800 Mechelen). **See instructions**

		cities (Milan, Gdynia and Leuven) are implementing	**below the agenda on how to reach this location**.
11:00 – 12:30	World café style discussion	We will create different tables and discuss challenges and solutions together	**Zeeridder building, Panorama Room**. (Befferstraat 25, 2800 Mechelen). **See instructions below the agenda on how to reach this location**.
12:30 – 13:15	***Lunch***		**Zeeridder building, Panorama Room**. (Befferstraat 25, 2800 Mechelen). **See instructions below the agenda on how to reach this location**.
13:15 – 14:00	Walking tour of the Ecozone	We will tour the area of the city where the Ecozone parcel lockers are in place and discuss how the access restrictions of the zone are helping in making logistics more sustainable	We will move together from the meeting room location.
14:00 – 15:30	Future scenarios for last-mile logistics workshop	Workshop organised by the University of Groningen where we will explore future last-mile logistics scenarios and discuss key themes policy makers should consider in addressing the uncertain future of last-mile logistics	**Zeeridder building, Panorama Room**. (Befferstraat 25, 2800 Mechelen). **See instructions below the agenda on how to reach this location**.
15:30 – 15:45	***Coffee break***		**Zeeridder building, Panorama Room**. (Befferstraat 25, 2800 Mechelen). **See instructions below the agenda on how to reach this location**.
15:45 – 16:45	Transferability session	During this session we will discuss together what we have learned during the visit and what approaches, solutions or measures could be transferred and adapted to other contexts in the participating cities	**Zeeridder building, Panorama Room**. (Befferstraat 25, 2800 Mechelen). **See instructions below the agenda on how to reach this location**.
End of the visit			
19:30	***Dinner***		***De Vleeshalle*** (***Huidevettersstraat 7 in 2800 Mechelen)*** ***https://www.devleeshalle.be/nl/home/***

Annex 3 – Groningen Study Visit Agenda

11 – 12 October 2022

Agenda – Day 1 – 11 October 2022

Time	Presentation	Description	Location
10:00 – 11:30	Guided tour of the city	Visit of the historical city centre	**Gedempte Zuiderdiep 98 Groningen municipality office** (Gedempte Zuiderdiep 98, 9711 HL Groningen).
12:00 – 12:15	***Official start of the visit***		**Gedempte Zuiderdiep 98 Groningen municipality office** (Gedempte Zuiderdiep 98, 9711 HL Groningen).
12:15 – 13:00	Bus ride to Park & Ride facility – Location of one of the ULaaDS Groningen trials	Transfer by bus from main station to the Park & Ride Hoogkerk	**We will move together by bus**
13:00 – 13:45	***Lunch***		**Van der Valk Hotel Groningen – Hoogkerk** (Borchsingel 53, 9766 PP Eelderwolde)
13:45 – 15:00	Parcel Lockers workshop – Part 1: Policy and location finding	Introductory talk by Ruurd Dobber (Royal Haskoning DHV) followed by interactive workshop moderated by Paul Buijs (University of Groningen)	**Van der Valk Hotel Groningen – Hoogkerk** (Borchsingel 53, 9766 PP Eelderwolde)
15:00 – 15:30	Visit of the Park & Ride Hoogkerk – Including the ULaaDS Parcel Lockers		Peizerweg, Groningen
15:30 – 16:00	***Coffee break***		**Van der Valk Hotel Groningen – Hoogkerk** (Borchsingel 53, 9766 PP Eelderwolde)
16:00 – 17:00	Parcel Lockers workshop – Part 2: Ensuring sustainability of Parcel Lockers	Introductory talk by Rudy Niemeijer followed by an interactive workshop moderated by Paul Buijs (both University of Groningen)	**Van der Valk Hotel Groningen – Hoogkerk** (Borchsingel 53, 9766 PP Eelderwolde)
19:00	***Dinner***		**Block & Barrels, Hoogstraatje 3-5 (city centre)**

Agenda – Day 2 – 12 October 2022

Time	Presentation	Description	Location
09:00 – 10:15	Discovering Groningen SULP by boat	The boat tour will cross Groningen city centre, while we'll learn about the city SULP and its concrete measures.	**Rondvaartbedrijf Kool** (Stationsweg 1012, 9726 AZ Groningen)
10:15 – 12:00	Walking tour of Groningen Zero Emission Zone	The group will be split in three smaller teams which will be guided through the city for an in-depth description of the Zero Emission Zone measures	**Starting point: Rondvaartbedrijf Kool** (Stationsweg 1012, 9726 AZ Groningen)
12:00 – 13:15	***Lunch*** ***Transfer by train from Central Station to Europapark (3 minutes), tickets will be provided***		**Harm Buiterplein 1, Canteen**
13:15 – 14:15	Zooming in on the whole mobility picture	In this session we will hear from different mobility experts from the city of Groningen. Presentations will cover: SUMP, SULP, cycling city Groningen, active mobility, public transport, shared mobility, smart mobility, charging infrastructure, 10-minute deliveries etc…	**Harm Buiterplein 1, room 12/13**
14:15 – 15:00	Follower cities in the spotlight	Deep dive into some of the urban logistics solutions the follower cities (Kadikoy and Elbasan) are implementing	**Harm Buiterplein 1, room 12/13**
15:00 – 15:20	***Coffee break***		**Harm Buiterplein 1, room 12/13**
15:20 – 16:30	Shared urban logistics solutions for inner city businesses	This session will focus on the second ULaaDS trial that Groningen is implementing, which covers collaborative delivery models to enhance logistics efficiency and multimodality	**Harm Buiterplein 1, room 12/13**
16:30 – 17:30	Transferability session	During this session we will discuss together what we have learned during the visit and what approaches, solutions or measures could be transferred and adapted to other contexts in the participating cities	**Harm Buiterplein 1, room 12/13**
End of the visit			
19:00	***Dinner – at your own expenses***		**De Prael Groningen** (Boterdiep 75, 9712 LL Groningen, Netherlands)

Annex 4 – Bremen Study Visit Agenda

27 – 28 March 2023

Agenda – Day 1 – 27 March 2023

Time	Presentation	Description	Location
10:00 – 12:00	Guided tour of the city	Walk in the historical city centre with emphasis on the city's mobility themes	Meet at Marktplatz, Roland-Statue
12:00 – 13:00	***Lunch***		***Handelskammer Bremen, Am Markt***
13:00 – 13:15	Welcome and introduction	Arianna Americo (Eurocities) & Lorena Axinte (Bax & Company) will give a short introduction to the study visit and the ULaaDS project	Handelskammer Bremen, Am Markt 13, "Börsensaal"
13:15 – 13:45	Icebreaker – getting to know each other	We will use this slot to connect with each other and discover what each participant is working on in their respective cities	
13:45 – 14:20	SUMP; SULP and the ULaaDS pilots in Bremen – challenges mastered and unmastered	Michael and Karsten (BRE) will host/lead a panel discussion with Kristian (RYT), Thomas (TBN), and Bonnie (ADFC)	
14:20 – 14:40	Cargo-hitching – The virtual trial in ULaaDS	Koen (VIA) sharing approach of VIA´s virtual trial design (using simulation) and implementation plan; Q+A	
14:40 – 15:00	***Coffee Break***		
15:00 – 15:30	Keynote Prof. Christoph von Viebahn, UAS Hannover	"Collecting ´UseFul´ data for urban logistics: simulating different approaches"; Q+A	
15:30 – 16:30	Breakout session	Moderated small group discussions on * Limited space and regulation (BRE) * Data-collection vs. market competition (TOI) * Insights from simulation approaches (BRE)	
16:30 – 17:30	ULaaDS Follower Cities in the spotlight	Deep dive into some of the urban logistics solutions the follower cities (Madrid, Varna, Baerum, Turku) are implementing	

17:30	End of sessions	(Optional) pre-dinner networking of SURFLOGH and ULaaDS partners [no reservation made] over a beer or so	Schüttinger Gasthausbrauerei, Hinter dem Schütting 12-13
19:00	***Dinner for ULaaDS Project Partners and Follower Cities (by invitation of Bremen; covering non-alcoholic beverages only); - SURFLOGH project organizes dinner meeting for themselves***		Achim's Beckshaus, Carl-Ronning-Straße 1

Agenda – Day 2 – 28 March 2023 - Morning

Time	Presentation	Description	Location
08:00 – 08:20	Meet-up at Jakobikirchhof, location of 1st ULaaDS Bremen trial	Short introductory round	Jakobikirchhof, 28195 Bremen
08:20 – 08:50		Arrival of truck from shipping company, unloading, preparation of last mile delivery (tours) on Rytle cargo bikes	Jakobikirchhof, 28195 Bremen
08:50 – 09:00		10 minute walk (850 m) walk to the office of the Ministry for Climate Protection, the Environment, Mobility, Urban and Housing Development (SKUMS)	Contrescarpe 72 ("Siemens Hochhaus")
09:00 – 09:30	Water / Bathroom break	Warm-up, get to know another, short introduction to morning session/excursion	Contrescarpe 72 ("Siemens Hochhaus")
09:30 – 09:45	Bike tour starts (1.5 km)	Rental bikes provided by BRE; ADFC to bring along ULaaDS cargo bikes; passing "mobil.punkt" car-sharing station along the way	Contrescarpe 72 ("Siemens Hochhaus")
09:45 – 10:05	Stop at location of 2nd ULaaDS Bremen trial	Introduction to ADFC "Fietje" cargo bike sharing station and rental system	Café "klein aber fein" Humboldtstraße 112, 28203 Bremen
10:05 – 10:20	Cycle on (0.5 km) to short stop at location of second micro-hub	Cambio car-sharing-Station Lübeck; E-Mobil and site of second micro depot	BrePark parking lot Lübecker Straße 43, 28203 Bremen
10:20 – 11:00	Cycle on (1 km) along Weser river; drop off bikes	Get aboard and transfer to cellumation by electric city bus	Weserstadion, parking lot P2A
11:00 – 11:50	Site visit cellumation	Presentation of "celluveyor" (modular conveyor technology for application in micro depots) and tour of pilot site/operations	cellumation GmbH Kleiner Ort 5, 28357 Bremen

12:00 – 12:40	Return to inner city	10 minute walk (800 m) walk to tram station; tram 4 to Domsheide (27 min ride, tickets provided by BRE)	
13:00 – 13:45	***Lunch***	Catering lunch (finger food)	Handelskammer Bremen, Am Markt 13

Agenda – Day 2 – 28 March 2023 - Afternoon

Surflogh – ULaaDS joint event

14:00 – 14:15	Welcome and Introduction		Handelskammer Bremen, Großer Saal
14:15 – 15:00	Surflogh project presentation	Presentation of the results of the Surflogh project	
15:00 – 15:30	Panel on stakeholder engagement	Panel discussion with cities from both projects, focus on stakeholder engagement	
15:30 - 15:45	***Coffee Break***		
15:45 – 16:05	Key challenges in urban logistics	Plenary presentation of pre-defined / selected challenges in Urban Logistics (presented/moderated by duos from SURFLOGH and UlaaDS): 1. From 'an innovative pilot' to a commercial viable project/service 2. Selecting the right locations / setting up hubs and micro-hubs (real-estate, land use) etc. 3. Effective public policy (carrot/stick) and soft controls (story-telling etc.) to set up the right framework for sustainable urban logistics 4. Cooperation with (large) logistics service providers in a local setting (and with local partners) – in a pilot project and beyond	
16:05 – 17:10	Discussing solutions and transferability potential	In a co-creation style workshop, we will collectively try to find suitable solutions to the challenges presented in the	

		session above and identify their transferability potential.	
17:10 – 17:30	Wrap-up session	A summary of the key output of the discussion will be presented in plenary	
End of the event and study visit			
19:30	***Dinner (paid individually / through travel allowances; choice among four pre-selected meals, incl. vegetarian and vegan)***		***Ratskeller Bremen, Am Markt (old town hall)***