



REPLICATION BOOKLET

ULaADS D7.5: Replication Booklet

Date: 27/02/2024

Authors: Arianna Americo, Marion Pignel, Kateřina Kührová (Eurocities)

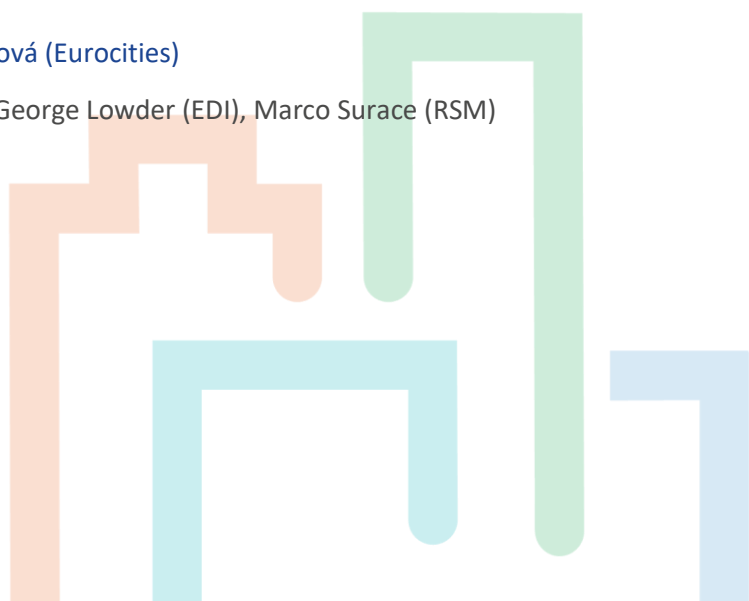
Co-authors: Liviu Stanciu (AIM), Lars Petter Klem (BER), George Lowder (EDI), Marco Surace (RSM)



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.



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
WP7	D7.5 Replication Booklet

Document history

Version	Date	Author(s)	Status*	Dissemination level**
V.1	26/01/2024	Marion Pignel (EUR)	Draft structure and text of the booklet	CO
V.2	09/02/2024	Marion Pignel, Kateřina Kührová and Arianna Americo (EUR)	Second draft with inclusion of input from Satellite cities	CO
V.3	14/02/2024	Amy McCreedy (BAX)	Revision and proofreading of the text	CO
V.4	20/02/2024	Arianna Americo (EUR)	Final version of the text shared with graphic designer	CO
V.5	27/02/2024	Amy McCreedy (BAX)	Final review and comments	CO
V.6	27/02/2024	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**: Demonstrator, 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 (SUMP). 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, booklet, replication, cities, trials, lessons learned.

Copyright statement

The work described in this document has been conducted within the ULaADS project. This document reflects only the views of the ULaADS Consortium. The European Union is not responsible for any use that may be made of the information it contains.

This document and its content are the property of the ULaADS Consortium. All rights relevant to this document are determined by the applicable laws. Access to this document does not grant any right or license on the document or its contents. This document or its contents are not to be used or treated in any manner inconsistent with the rights or interests of the ULaADS Consortium or the Partners detriment and are not to be disclosed externally without prior written consent from the ULaADS Partners.

Each ULaADS Partner may use this document in conformity with the ULaADS Consortium Grant Agreement provisions.

Executive summary

The D7.5 Replication Booklet operates as a manual, accessible in both digital and print formats, delineating replication methodologies employed by the ULaDS project. It also provides an overview of technologies, strategies, and business models trialled by the Lighthouse cities, assimilating insights and lessons learned from demonstration activities in Work Package 4 (WP4) and replication activities in Work Package 5 (WP5).

Developed collaboratively with insights from various work packages, including WP3 for technical aspects, WP4 for the trial learnings demonstrations, and WP6 for the link with SUMP/SULPs, the manual aims to engage readers by providing a user-friendly and captivating overview of ULaDS cities' experiences. It also outlines how the Satellite cities engaged in ULaDS replication activities, from the first replication training to the development of their implementation roadmaps.

The *D7.5 Replication Booklet* distils collective knowledge captured in the *D5.6 Implementation Roadmaps for Satellite cities*, serving as a communication and dissemination resource for stakeholders seeking inspiration and deeper insights into the solutions tested in ULaDS and their replication potential. It includes insights into the value cases of Satellite cities, offering practical guidance for urban planners, policymakers, and other stakeholders engaged in sustainable urban planning.

Table of contents

1.	Introduction	6
1.1	<i>Purpose of the document</i>	6
1.2	<i>Structure of the document.....</i>	6
2.	Replication booklet development	7
2.1	<i>Concept.....</i>	7
2.2	<i>Content</i>	7
2.3	<i>Dissemination</i>	7
3.	Replication Booklet Structure	8
3.1	<i>Brief introduction to the ULaDS trials and their objectives</i>	9
3.2	<i>Example of Lighthouse city lessons learned page</i>	10
3.3	<i>ULaDS replication activities and link to Implementation Roadmaps for Satellite cities.</i>	11
3.4	<i>Example of Satellite city measure for replication page</i>	12
4.	Conclusions	13
	Acronyms.....	14
	References	15

List of tables

Table 1: Replication Booklet structure	8
--	---

1. Introduction

Urban logistics challenges, including congestion, air pollution, CO2 emissions, noise, and safety, have spurred European cities to prioritise environmental goals and a higher quality of life. While the reduction of emissions has long been a focal point, the intricacies of regulating the logistics sector introduce additional complexities for city practitioners. Managing diverse stakeholders, swiftly changing players, and the escalating demand for same-day deliveries pose challenges in regulating flows within constrained urban spaces.

ULaADS acknowledges the hurdles in implementing urban logistics measures and solutions. Sharing the experiences, successes, and drawbacks of ULaADS becomes imperative to guide other cities in avoiding pitfalls and optimising the adaptation of solutions to different local contexts.

Replication, as envisioned by ULaADS, encompassed the process of verifying the feasibility of adapting solutions to different urban settings. The project's cornerstone involves the demonstration and validation of solutions in Lighthouse cities, namely Bremen (Germany), Groningen (The Netherlands), and Mechelen (Belgium), with subsequent transferability assessments carried out by the Satellite cities: Alba Iulia (Romania), Bergen (Norway), Edinburgh (UK), and Rome (Italy).

A peer-to-peer methodology underpins ULaADS replication efforts, allowing cities to exchange ideas, learn from best practices, and navigate challenges collectively. This booklet serves as a guide for cities, outlining the methodology and replication activities. Capturing collective knowledge from *D5.6 Implementation Roadmaps for Satellite Cities*, this manual serves as a communication and dissemination resource. It aims to inspire and inform stakeholders about tested solutions, their replication potential, and insights from the ULaADS Satellite cities' journeys, providing a user-friendly overview from the replication training to the development of Implementation Roadmaps.

Designed for urban planners, policymakers, and other stakeholders, this booklet facilitates informed decision-making in the realm of sustainable urban planning.

1.1 Purpose of the document

The objectives of this document are:

1. To provide an overview of the rationale and process adopted to draft the replication booklet.
2. To outline the structure of the booklet.
3. To provide additional resources.

1.2 Structure of the document

After providing a description of the development process for the replication booklet, this document outlines the structure of the booklet and its rationale and concludes with providing additional resources.

2. Replication booklet development

2.1 Concept

What inspired the development of the ULaADS Replication Booklet was the willingness to share the results and lessons learned from the ULaADS cities in an easy-to-digest format. The booklet makes use of the ULaADS visual identity and eye-catching graphic elements developed specifically for this publication, to take the reader on a journey.

Starting with the exploration of the three ULaADS Lighthouse cities trials and the learnings generated through the testing and demonstration of the ULaADS solutions, it then provides an overview of the replication activities carried out in ULaADS and concludes by zooming-in into some of the measures selected by the Satellite cities for their replication potential. It also provides plenty of interactive features, such as links and QR codes for additional resources and videos.

2.2 Content

The content of the ULaADS Replication Booklet has been developed by Eurocities, drawing upon knowledge from various ULaADS deliverables (see the list of references in this document) as well as insights gathered during the replication activities carried out in WP5.

The main body of the text was developed using and integrating content provided by the Satellite cities in the *D5.6 Implementation Roadmaps for Satellite cities*.

Eurocities drafted the text for the replication booklet, which was revised and proofread by Bax & Company. Eurocities also commissioned the development of the publication to an external graphic designer, who had previously worked on developing communication outputs for ULaADS, such as the "[Meet Uly!](#)" video and the ULaADS roll-ups, thus ensuring consistency with the ULaADS visual identity.

2.3 Dissemination

The ULaADS Replication Booklet was presented during the [ULaADS Final Webinar](#) on 28 February 2024. The Booklet in digital format was uploaded to the ULaADS website and disseminated via social media and through a final ULaADS newsletter in March 2024. The Booklet will also be shared with the CIVITAS community online and within the CIVITAS Urban Freight and Logistics cluster, both on Basecamp and during the Spring Cluster Meeting on 22 March 2024. Printed copies of the Booklet will be distributed during the Eurocities Annual Mobility Forum Meeting (18-20 March 2024, Utrecht) and at future events such as the CIVITAS Forum and the Urban Mobility Days.

3. Replication Booklet Structure

The table below outlines the structure of the Replication Booklet, while the following pages provide examples of the look and feel of the publication.

The full Replication Booklet is available online via [this link](#).

Table 1: Replication Booklet structure

Description	Page
Front page with title, ULaaDS Logo and CIVITAS Logo	1
Imprint and table of contents	2 & 3
Brief introduction to the ULaaDS trials and their objectives, interactive link to the ULaaDS final video	4 & 5
Overview of the Bremen trials and lessons learned during implementation	6 & 7
Overview of the Mechelen trials and lessons learned during implementation	8 & 9
Overview of the Groningen trials and lessons learned during implementation	10 & 11
Overview of the ULaaDS replication activities and link to the D5.6 Implementation Roadmaps for Satellite cities	12 & 13
Overview of the measures Alba Iulia is interested in replicating and zoom-in into one of them including timeline for implementation of such measure	14 & 15
Overview of the measures Bergen is interested in replicating and zoom-in into one of them including timeline for implementation of such measure	16 & 17
Overview of the measures Edinburgh is interested in replicating and zoom-in into one of them including timeline for implementation of such measure	18 & 19
Overview of the measures Rome is interested in replicating and zoom-in into one of them including timeline for implementation of such measure	20 & 21
Back page with link to Implementation Roadmaps for Satellite cities and disclaimer	22

3.1 Brief introduction to the ULaaDS trials and their objectives



ULaaDS insights at a glance

Delivering solutions for urban logistics in the on-demand economy.

3 municipalities committed to zero emissions city logistics - Bremen, Mechelen and Groningen - have joined forces with logistics stakeholders, and leading academic institutions to accelerate the deployment of innovative, feasible, shared and zero-emissions solutions addressing the challenges generated by the on-demand economy in urban logistics.

BREMEN

TRIAL 1 : Micro hubs and last-mile delivery

The first ULaaDS trial in Bremen focused on expanding the number of micro hubs and cargo bike freight transport.

The objectives of the trial were:

- To reduce the number of polluting vehicles entering the city centre
- To improve space management thanks to last-mile delivery by cargo bikes
- To increase efficiency in the interaction between long distance freight transport and urban freight transport

[Go to page 6](#)

TRIAL 2 : Private Micro-logistics

Logistics doesn't solely revolve around commercial operations; it's equally crucial for private households. This aspect can be labelled as private micro-logistics.

The objectives of the trial were:

- To avoid car trips for private logistics, thus reducing pollution and congestion
- To offer users the possibility to familiarise themselves with cargo bikes without having to purchase a privately owned one

[Go to page 7](#)

MECHELEN

TRIAL 1 : Collaborative urban freight transport model

In trial 1, the city of Mechelen worked to enhance logistics efficiency by developing a collaborative urban freight transport model among different logistics service providers.

The objectives of the trial were:

- To increase network efficiency as a result of higher load factors
- To increase synergies with other spatial developments
- To limit environmental emissions
- To increase flexibility and service availability

[Go to page 8](#)

TRIAL 2 : Cargo-hitching with an autonomous shuttle

In Trial 2, Mechelen experimented with the use of an autonomous vehicle. The focus was on how to integrate passenger and parcels mobility services, also known as cargo-hitching.

The objectives of the trial were:

- To test the efficiency and benefits of an autonomous vehicle with shared capacity (parcel and passenger)

[Go to page 9](#)

GRONINGEN

TRIAL 1 : On-demand shared vehicles for last-mile deliveries

The municipality of Groningen and the Groningen City Club (GCC) organised the development, implementation, and promotion of a platform for on-demand shared vehicles for last-mile deliveries. The objectives of the trial were:

- To increase the use of cargo bikes and other zero-emission vehicles (and decrease the use of polluting vehicles)
- To increase the efficiency/use of transport vehicles
- To increase liveability and safety through the use of smaller, silent, and clean vehicles
- To give more target groups the opportunity to use electric vehicles
- To reduce CO2 emissions

[Go to page 10](#)

TRIAL 2 : Policy framework for parcel lockers

The municipality of Groningen and the public transport organisation of the provinces Groningen and Drenthe (OVG) experimented with the addition of parcel lockers to multimodal mobility hubs for commuters. An overarching policy framework for parcel locker placement in the city was developed. The objectives of the trial were:

- To increase the use of existing multimodal hubs by adding logistics services
- To increase liveability and safety in neighbourhoods by decreasing the amount of delivery vans in these areas
- To reduce of CO2 emissions

[Go to page 11](#)

INTRODUCTION - Trials

4

5

3.2 Example of Lighthouse city lessons learned page



TRIAL 1.

In Groningen, the city and the Groningen City Club launched a platform to provide shared zero-emission vehicles for shopkeepers and entrepreneurs, enhancing collaborative delivery models.

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 regions. The vehicles were made available at different locations throughout the city and consisted of cargo bikes, light electric freight vehicles, and an electric van. The platform can also be used to organise the delivery of orders from multiple participating shopkeepers.

The focus was on rolling out a platform where local shopkeepers and entrepreneurs can organise using shared electric vehicles, which helped shopkeepers explore how these vehicles can be used in their operations while ensuring they maintained access to the city as the regulatory framework becomes increasingly stringent. This initiative aimed to facilitate access to various types of zero-emission vehicles stationed across the city, supporting the transition to a zero-emission zone by 2025.

LESSONS LEARNED

- Key lessons from the Groningen trial include the critical need for a highly functional platform with real-time vehicle availability and efficient booking systems, the importance of strategic vehicle location, and the role of partnerships in ensuring project success.
- The trial highlighted cost considerations for developing sustainable business models and the significance of user engagement and flexibility in addressing operational challenges.
- Distinctions between ad hoc and planned usage underscored the necessity for versatile logistics solutions. The trial's insights into cost vs. availability trade-offs informed a balanced pricing strategy, acknowledging the importance of supporting local businesses and promoting zero-emission mobility.
- Strong partnerships and community engagement were identified as crucial elements, alongside the need to consider environmental benefits and societal impacts in urban logistics solutions.



TRIAL 2.

This trial sought to experiment with the addition of logistics services to multi-modal mobility hubs. The municipality of Groningen 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.

During trial implementation, challenges emerged related to the permits for placing the parcel locker. These difficulties were due to the high pressure on public space in the city, the size of the lockers and their impact on existing views, greenery, and road safety, as well as accessibility issues for both delivery vans and customers. 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. 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.

The municipality of Groningen decided to broaden the trial's scope by examining parcel locker systems more comprehensively. Together with ULaDS partners Bax & Company and the University of Groningen, the municipality aimed to establish an overarching policy framework for parcel locker placement in the city. This resulted in the publication of the study ["Finding the Right Space for Urban Logistics: a Framework for Open Parcel Locker Systems"](#).

The city is now preparing a public tender to allocate public space for parcel lockers in the locations identified through the study.



FOCUS ON

Groningen

LESSONS LEARNED

- The trial led the municipality to examine parcel locker systems more comprehensively, 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 (e.g. logistics service providers, local shopkeepers, and civil servants from various municipal departments).
- The updated approach emphasises the use of parcel lockers for 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 underscored the importance of reduced operational costs for logistics service providers and the possibility for public authorities to bear investments for multiple logistics service providers 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.



3.3 ULaaDS replication activities and link to Implementation Roadmaps for Satellite cities

REPLICATION - ULaaDS

Replication in ULaaDS

Replication and scaling up are important objectives in ULaaDS: it is essential that other cities benefit from the Lighthouse cities experiences, challenges, and practices. Replication in the context of ULaaDS was intended as the path towards the exploitation of solutions by a wide range of cities, with four Satellite cities participating in the replication activities: Alba Iulia (Romania), Bergen (Norway), Edinburgh (the UK), and Rome (Italy).

Participants from Lighthouse cities, Satellite cities, and partners of the project took part in a three-year replication programme designed to foster knowledge exchange and capacity building, leading to assessing the transferability potential of selected solutions.

At the end of the replication programme, the Satellite cities selected ULaaDS solutions that could be adapted and replicated in their own local context.

3.4 Example of Satellite city measure for replication page

Bergen

IS LOOKING AT REPLICATING :

1.
Bremen Trials

2.
Mechelen Trials

1. 2.
Groningen Trials

ZOOM - IN ...

on shared mobility services for citizens and SMEs

Bergen is continuously 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 benefit local businesses. Bergen already has several car sharing operators, and the city should strive to further integrate these operators with small and medium-sized enterprises (SMEs).

The Bremen trial with cargo bikes for micro-logistics has effectively showcased the potential impacts of this vehicle type. Cargo bikes are currently underutilised in Bergen. The city has implemented two measures to promote the use of cargo bikes among both citizens and businesses.

- A financial grant scheme for cargo bikes, available to 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.
- Previously, the city bought 3 cargo bikes available for rent for up to three weeks for private individuals. This operation was discontinued due to organisational capacity constraints. The bikes were given to a non-profit organisation that lends equipment for free to citizens. Eventually, they had to be returned due to a lack of maintenance competence.

The city is now looking to revise its current public bike scheme, which is scheduled for tender in 2026. Therefore, Bergen is interested in understanding if and how cargo bikes could be part of a shared mobility fleet, catering to the needs of both citizens and businesses. This effort should also include reaching out to local businesses to explore how shared mobility services (bikes, cargo bikes, cars/vans) can support their operations, and reduce the reliance on private vehicle ownership.

Bergen was inspired by the works and knowledge gained from both trial 2 in Bremen and trial 1 in Groningen. The close collaboration with the local shop owner association in Groningen, as well as the impacts of the cargo bike rental scheme in Bremen, are particularly relevant for the Norwegian city. While Bergen does not intend to replicate these trials, it aims to build upon them and adopt the lessons learned to its own context.

TIMELINE

SPRING 2024

Knowledge assessment of other public cargo bike schemes

Department or stakeholder in charge of the action :
Agency for Urban Environment

Dialogue with local businesses to better understand how shared mobility services could help their activities.

Department or stakeholder in charge of the action :
Agency for Urban Environment

External stakeholder to be involved :
Chamber of Commerce in Bergen

Tender

Department or stakeholder in charge of the action :
Agency for Urban Environment

REPLICATION - Bergen

SPRING/SUMMER 2024

Call for market dialogue

Department or stakeholder in charge of the action :
Agency for Urban Environment

FALL 2024 / SPRING 2025

Main challenge identified

Bergen identified maintenance as the main challenge in the implementation of this solution. Tendering cargo bikes as part of the public bike scheme would shift maintenance responsibility to the service operator. The city should support the operator in building the capacity for cargo bike maintenance and ensure that the bikes are properly maintained.

2025

Participation in ULaaS has been truly insightful for the city of Bergen. Not only have we had the opportunity to join the study visits and see how the trial solutions are contributing to more sustainable logistics, but we have also had the chance to meet colleagues from across Europe and discuss how we can collaboratively develop policies that lead us towards a sustainable urban future.

Lars Petter Klem, Bergen Kommune

16

17

4. Conclusions

ULaADS, through its Replication Booklet, addresses the necessity of sharing lessons learned, experiences, successes, and drawbacks, providing guidance to cities in navigating pitfalls and adjusting solutions to diverse local contexts.

A fundamental aspect of the ULaADS project was its replication methodology, guiding Satellite cities in systematically verifying the adaptability of solutions across different urban settings. The Replication Booklet, designed with the aim of informing and inspiring practitioners and policy makers, utilises the project's visual identity and eye-catching graphics, guiding readers through the trials in the Lighthouse cities and the subsequent replication activities. With an emphasis on user-friendly content, interactive features, and a structure derived from insights gathered during the replication process, the booklet aims to facilitate informed decision-making in sustainable urban planning.

Crafted by Eurocities, the Replication Booklet is not a static document but a dynamic resource that consolidates knowledge from various ULaADS deliverables and integrates insights from the Satellite cities' Implementation Roadmaps. This comprehensive approach ensures a content base that is rich and informative, offering stakeholders with valuable insights into the tested solutions and their potential for replication.

The dissemination efforts for the Replication Booklet reflect a commitment to reaching a diverse audience. From its presentation during the ULaADS Final Webinar to its digital presence on the ULaADS and CIVITAS websites and social media, along with the distribution of printed copies at key events, the booklet is positioned to make a lasting impact. As a tangible outcome of collaborative efforts, the Replication Booklet serves not only as a guide for cities but as a tool for advancing sustainable urban logistics practices beyond the lifecycle of the ULaADS project.

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
ULaDS	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 D5.6: Implementation Roadmaps for Satellite cities. Available at: https://ulaads.eu/wp-content/uploads/2024/02/ULaADS_D5.6-Implementation-roadmaps-for-Satellite-cities.pdf [Last accessed: 27/02/2024]

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: 27/02/2024]

ULaADS D6.6: Best practices for implementation and application guidelines for Industry, Operators and Cities