ULaaDS
URBAN LOGISTICS AS AN ON-DEMAND SERVICE

CIVITAS
Sustainable and smart mobility for all | 2030

THE CIVITAS INITIATIVE
IS CO-FUNDED BY
THE EUROPEAN UNION

Navigating urban logistics: challenges, innovations, and realities

With the rise of e-commerce, urban logistics has become a pressing concern for cities across Europe. The Horizon 2020 project ULaaDS (Urban Logistics as an on-Demand Service) introduces innovative solutions, while revealing challenges in the competitive market landscape.

ULaaDS takes action in three bike-friendly cities: **Bremen** (DE), **Groningen** (NL), and **Mechelen** (BE), all of which have Sustainable Urban Mobility Plans in place. Bremen, a bustling harbour city in North-West Germany, stands out with 570k residents, a quarter of whom choose bicycles for their daily travels, earning it the title of Germany's most cycle-friendly city. Groningen, a university city in the North-East Netherlands, is well-known for its cyclist-friendly infrastructure, benefiting its 200k inhabitants. Mechelen, a historically rich city just North-East of Brussels with 87k residents, has committed to achieving zero-emission city logistics by 2030, chronicled in its covenant with 33 logistics service providers and interest organisations. These three cities, in collaboration with their local governments, logistics communities, and research partners, lead the way for ULaaDS: a range of cargo-bikes, micro-

hubs, and parcel lockers trials showcased their viability and added value.

Moreover, by testing cargo-hitching and autonomous vehicles, ULaaDS reveals the potential of these solutions while finding framework conditions and limitations that might hinder further exploitation. Besides, ULaaDS does not just focus on commercial freight, but also delves into private micro-logistics, a significant component of urban transport.

Additionally, four satellite cities - **Alba Iulia** (RO), **Bergen** (NO), **Edinburgh** (UK), and **Rome** (IT) - selectively adopt ULaaDS solutions, marking a significant step forward in urban logistics.

Explore the journey of the
ULaaDS Satellite Cities

SULP is not a SUMP

For municipalities, the high expectations towards SULPs do not always align with the reality of dealing with a competitive commercial market. Balancing the demands of that market requires fair and unbiased interventions – e.g., when it comes to ceding public space for parcel-lockers, micro-depots and micro-hubs. Frequently, white label solutions are unavailable, unprofitable or lack a neutral operator. National regulations add another layer of complexity, for example limiting local governments' tools for managing loading zones or access regulations. These constraints have a ripple effect, influencing the relationship between city centres and suburban shopping hubs. Moreover, as e-commerce continues to grow, city centres must redefine their role, having to evolve beyond shopping destinations into vibrant spaces for hospitality, leisure, and urban living.

Cooperation with the business community

In ULaaDS, stakeholder engagement was paramount. The three lighthouse cities proactively shared their challenges and solutions with (potential) implementation partners, comprising representatives from public authorities, logistics service providers, shop keepers, experts, and other relevant parties. Some of the main tools to retrieve the stakeholders' inputs and experiences were the establishment of local stakeholder fora, the application of the collective target system, as well as online surveys.
The results yielded dual benefits, fine-tuning trials for better long-term outcomes and acceptance, while deepening the understanding of the business community's needs for economically sustainable solutions.

"

Governmental support can facilitate urban logistics innovations, but companies are resistant if it dilutes their corporate identity.

Street space organisation: follow the rules

In many urban centres, the issue of delivery vans parking illegally persists – whether on cycle lanes, sidewalks, or even double-parked on main roads. Dedicated loading and unloading zones have been helping in addressing this issue. However, their effectiveness hinges on strict enforcement to safeguard their purpose.

Freight transport dynamics: a delicate dance

Unlike passenger transport, the domain of freight movement encompasses a wide spectrum, ranging from agile local start-ups to global industry leaders. Competition is fierce, and cooperation between competitors is rare. Proper regulation is crucial, as it should avoid any privileges for a single operator and ensure a fair playing field. While passenger transport is mostly (semi-)public and in direct dependency of public grants, logistics is mainly a private sector (except for postal services), being steered by regulatory frameworks. Fostering trust without overstepping antitrust boundaries is a delicate balance. Companies are more inclined to explore innovative solutions with public support – for example in research projects – though they're cautious about preserving their unique corporate identity.

Turning SULPs into actionable frameworks: the case of parcel lockers in Groningen

Parcel lockers, touted as a cost-effective alternative to home delivery, are gaining ground across cities, regardless of their effectiveness in achieving sustainability goals. In Groningen, the city takes a proactive approach towards parcel locker placement in public spaces. Engaging in robust public-private dialogues and benchmarking solutions, the city mapped the existing out-of-home delivery network and potential optimal parcel locker locations for an open system. This comprehensive approach factored in sustainability, accessibility, and operational models, leading to a policy framework for parcel lockers in public space.

The ULaaDS trials led to regulatory advancements in all three cities related to the use of autonomous vehicles, and the placement of parcel lockers and micro hubs.

Cargo-Hitching for optimized passenger and freight transport

Cargo-hitching, the integration of goods and passenger transport within a single vehicle, holds significant promise for enhancing transportation efficiency. ULaaDS explored this concept in two distinct ways:

Mechelen's autonomous shuttle trial

In Mechelen, an autonomous shuttle was tested for two months in a business park, transporting both people and parcels. This setup showed potential, but revealed the need for enhancements. Specifically, the self-driving technology requires further testing and development to make smarter decisions to maintain a respectable driving speed. Moreover, policies and a regulatory framework for the implementation of self-driving vehicles will need to be created. Additionally, the operational delivery service should be upgraded to ensure the availability and user-friendliness of the lockers in the vehicle.

Bremen's simulation of cargo-hitching with on-demand passenger services

In Bremen, a simulation was conducted to explore the delivery of parcels alongside passenger services during non-peak hours. The simulation revealed promising aspects such as potential savings in costs and emissions. However, it was observed that this approach might lead to increased waiting times for passengers. As the speed of passenger transport is a prime concern in the service offering of on-demand passenger transport, it will receive priority over parcel delivery. The ULaaDs trials show that accurate forecasting of passenger and parcel demand is an important aspect of developing an efficient cargo hitching scheme.

Private micro-logistics

Logistics isn't only done by commercial operations. Every household engages in 'micro-logistics' regularly. In Germany, a significant 30% of all trips are related to shopping. Within urban areas, the average shopping distance is approximately 4 km. This constitutes about 17% of the total mileage driven and contributes to roughly 10% of transport-related CO2 emissions. Given these needs and the relatively short distances involved, there is a substantial potential for substituting car trips with cargo-bike journeys. The ULaaDS trial conducted in Bremen demonstrates the significant impact of cargo-bike sharing. A survey of trial users found that a remarkable 55% of cargo-bike trips by respondents would have otherwise been undertaken by car.

55% **of cargo-bike trips replaced car journeys in Bremen**

ULaaDS
URBAN LOGISTICS AS AN ON-DEMAND SERVICE

CIVITAS
Sustainable and smart mobility for all

THE CIVITAS INITIATIVE
IS CO-FUNDED BY
THE EUROPEAN UNION

ULaaDS key recommendations:

Optimize urban space allocation:

Ensure that public spaces in urban areas are allocated fairly, considering logistics too. This includes addressing any regulatory limitations on loading zones and access regulations, and implementing dedicated zones for efficient logistics operations. Enforcement is necessary to avoid misuse.

Engage stakeholders for success:

Engage relevant stakeholders in early planning to ensure long-term success of urban logistics solutions. This involves seeking input from various parties and understanding the needs of the business community to ensure economically sustainable solutions.
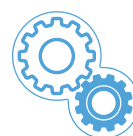
Promote fair competition in freight transport:

Encourage fair competition in freight transport by maintaining a level playing field for all operators. This means avoiding granting privileges to specific operators and providing support, such as governmental backing, to incentivize company participation in trials and innovations.

Understand technological solutions and embed them in the right context:

Embrace technological advancements to improve urban logistics, but keep a critical eye. Consider sustainable, accessible, and open systems for parcel lockers. Test new solutions to manage the curbside, deter illegal parking, and enable strict enforcement. Explore technological solutions like autonomous vehicles in mixed traffic or cargo hitching, but be mindful of their limitations as stand alone solutions. Technology can deliver the expected impacts only when integrated in the societal, functional and legal frameworks.

www.ulaads.eu