



**SMART**  
Logistics Partnership  
**SLP alliance**

## Smart.Urbs project

### Smart.Urbs

**Seamless ModulAr inteRoperable disTribution of Urban and  
in-city Regenerative approach to Bio-waSte  
Innovation-oriented Approach (IoA) for Innovative Action  
with Conclusive Proof of Concept (cPoC)**



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### Current consortium:

**SLP Alliance** – SMART Logistics Partnership

**Recyclo** – *compost in city*

Undisclosed for now – Poly-Technic University of Helsinki

Undisclosed for now – IT EPCIS developer

Undisclosed for now – City Porter Operator (3x CPO distribution)

Undisclosed for now – Urban farm coop collection of in-city distribution

Undisclosed for now – City Hub Operators (Brussels)

Undisclosed for now – Whole-sales

Undisclosed for now – Large Food & Beverage producer

Undisclosed for now – Large distribution operator in Belgium, France, and Finland

### Looking for:

- Project Coordination and principal applicant for HEU program call
- Communication & Dissemination + reporting to EU Commission and Executive Agency in charge
- Manufacturer of trikes + trailer – has to adapt to set standards and measures and participate in conclusive Proof of Concept (cPoC), with potential for mass-production of the Physical Handling Interfaces (5



# Smart.Urbs project proposal outline

standards to be developed, prototyped, tested, and homologated – TRL8 level delivery, with design and engineering BoM by SLP Alliance)

- Additional CPO's
- Any company interested to participate, relative to HORECA in-city distribution of their products

## Theme:

- Knowledge and optimisation of resource flows between urban and rural cities and within cities
- Urban circular economy and regeneration
- In-City distribution, temporary storage, consolidation of cargo and operational optimisation of deliveries, equipment, and other resources

## Introduction

Staging renewed proposal for Smart.Urbs project under **ALICE-etp call CL5-2024-D5-01-06: New designs, shapes, functionalities of Light Commercial Vehicle (2ZERO Partnership)**.

Alternatively, this project proposal could also be applied towards **Call CL5-2024-D6-01-07: Scaling up logistics innovations supporting freight transport decarbonisation in an affordable way**.

Total Project Costs	4,5 mio €	Requested funds	3,5 mio €
Duration of the Project	36months	Expected start:	before end of 2024
Total Effort in Person Months:	420 P-M	Expected end: (MM.YYYY)	<b>end of 2027</b> (dependent on start date)

**Main area of scope: Brussels region, Belgium: in-city & urban distribution** (pick-up of horeca waste and delivery of fresh and other products for the HORECA sector) and **trike+trailer physical Handling interface prototyping**.

The project will have multiple LivingLabs in:

- **Belgium, Brussels:** city distribution and collaboration amongst CPO's – City Portage Operators, related to in-City HORECA products distribution + orchestration of City Hubs and micro and mobile hubs
- **Finland, Helsinki and/or Espoo:** prototyping and conclusive Proof of Concept for in-City & Urban distribution, together with multiple types of SMART boxes)

## Abstract

Regenerative methods for agrifood and waste management, using circular economy principles for pick-up and recycling of in-city generated virgin waste, combined with fresh produce deliveries to restaurants and other sectors, using adapted best-fit standardised equipment for routing and handling across operations.

At the core of the Smart-Urbs project (play on sub-urbs) is Recyclo.coop, established in Brussels since 2017, strategically located at the city-edge, close to the Brussels access ring-road and Port of Brussels, with direct access to the city centre, alongside the vibrant co-creative centre Be-Here. Recyclo.coop facilitates urban metabolism of in-coming, outgoing, and circular flows in larger cities, through basic but challenging missions, essentially: collecting and composting waste for different markets, as blending component for construction industry and as natural fertilizers for agri sector. Thus

# Smart.Urbs project proposal outline

“closing the loop” of returning natural energy from food production and consumption released as waste, back to its natural peri-urban agri environment.

Plenty of physical, economic and distribution challenging restrictions exist in the development of circular economy principles, such as missing conditions pursuing industrial extraction for regenerating and valorising used materials through available composting techniques, matching expected standards and legal requirements, scaling up operations at a reasonable competitive level, compared to virgin matter, supplied at lower prices. Collection efforts and associated cost of distributed small quantities of waste in densely populated city centres and urban areas, require effective equipment and city-adapted effective fresh produce deliveries.

## Clarifying the project's goals

The cost to collect disseminated matter from densely populated areas is very high, requiring lots of efforts to sort and collect smaller quantities of waste in order to realise up-scaled industrial processes. For years our societies have been relying on the informal sector to proceed. While much needed professional operators are now developing ‘urban mining’ activities, they quickly face the limits of paying wages to workers producing lower added value. Recyclo.coop has addressed these challenges by mitigating operation costs in an entrepreneurial environment, thus collecting waste, and delivering goods on the same itineraries. This return supply-chain logistics is currently under development and is facing its own challenges.

While this abstract focus on the essential IN-SCOPE parts of the overall Supply Chain Segments – this in-scope is defined as the focus on only the City Distribution, engaging all parties involved in those scenarios, reviewing their current business models and create use-cases for testing in the planned LivingLabs of the Smart.Urbs project. Out-of-scope are all activities across the supply chain from maritime, to port terminals and the long-distance crossborder multimodal hinterland transport and logistics activities. With this project we start from the independent city hubs.

We can provide reference to more inclusivity of the interoperability criteria of the entire supply chain (SLP Alliance and ALICE-etp can provide full expectations setting of the purpose of achieving Physical Internet across supply chain segments, logistics nodes and transport modes. This will be explained to all parties and stakeholders involved in the Smart.Urbs project.

To cope with the complex distribution requirements, Recyclo.coop has surrounded itself with expert service providers of independent city hub operators, first/last-mile distribution equipment developers, logistics and supply chain experts, and digital solutions providers, facilitating the regenerative approach and circular economy principles for deliveries, waste collection and processing, with innovative distribution technologies from/to city and urban areas, being at the core of this Smart-Urbs project:

- pick-up and recycling of in-city generated virgin waste from food residues,
- combined with perishable fresh produce and other product deliveries,
- from/to restaurants, hotels, hospitals, and other sectors, possible combined with distribution activities from other in-city distribution operators to enable optimal synchronisation in the distribution chains - collaboration in a healthy competitive environment,
- extended multimodal access from curbside indoors and back with independently loaded and unloaded mPODs and special loading equipment capable to be mounted on multiple light vehicle types

# Smart.Urbs project proposal outline






- utilising adapted best-fit standardised equipment
  - standardised dedicated mPODs (modular containers and boxes (explained in more details in the final submission and currently part of the WP definitions, adaptable to the changing business models and use cases, as further explained)
  - larger city-permitted to micro vehicles (e-vans, e-trikes + trailer, drones, ...), equipped with standardised innovative interface technology (CONTAI) for handling in-city  $\mu$ -mobility, including handling of deliveries, returns and pick-ups at city hubs, curbside, dedicated parking space, pick-up points/shops, and/or micro-hubs),
- handled through a city-web of well-organised independent city and micro hubs, for distribution into city and urban areas and/or across routing and operations (transshipment from / into larger vehicles),
- realising physical and digital connectivity for Pi-readiness (Physical Internet).

## Conclusive Proof of Concept

All equipment used in the city/urban areas across countries and cities, should be as much as possible standardised, but we will have to deal with adapting for example to current trikes, scooters, and bike trailers on the market or in use by our clients. Multiple implementations will surface for which that idea is feasible.

For this to happen the SLP Alliance developed the rule of “Least Common Denominators” to make the trike and trailer load platform architecture as adaptive and scalable as possible, to allow for decision criteria in the design and engineering phases and adapts to possible changes and new requirements in the future for different locations, business models and use cases. SLP Alliance partner CONTAI has developed a foundation framework of 5 different interfaces, which can deployer in any situation with light adaption or modifications necessary to coop with specific situations in city hubs and for trike and e-van operators. This will also provide potentials with big advantages for the CEP & COP sectors (Courier, Postal and Express Operators as well as City-based local trike and van operators). Such an approach warrants that the solutions would be scalable well beyond the original project implementations.

*Additional information will be made available to interested parties to strengthen the consortium for this project.*

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