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# BOOSTLOG

## Urban Logistics Cloud Report

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*This project BOOSTLOG-Boosting impact generation from research and innovation on integrated freight transport and Logistics system has received funding from the European Union's Horizon 2020 research and innovation programme under the grant agreement No 101006902*

# Challenges

- EU funded project results (including products, services and solutions) are difficult to find and valorize.
- Regulation, market fragmentation and resistance to change are barriers that slow down the uptake of R&I results by companies and hinder impact generation.
- Attribution of impact as a result of R&I projects and funding is challenging and not well communicated.

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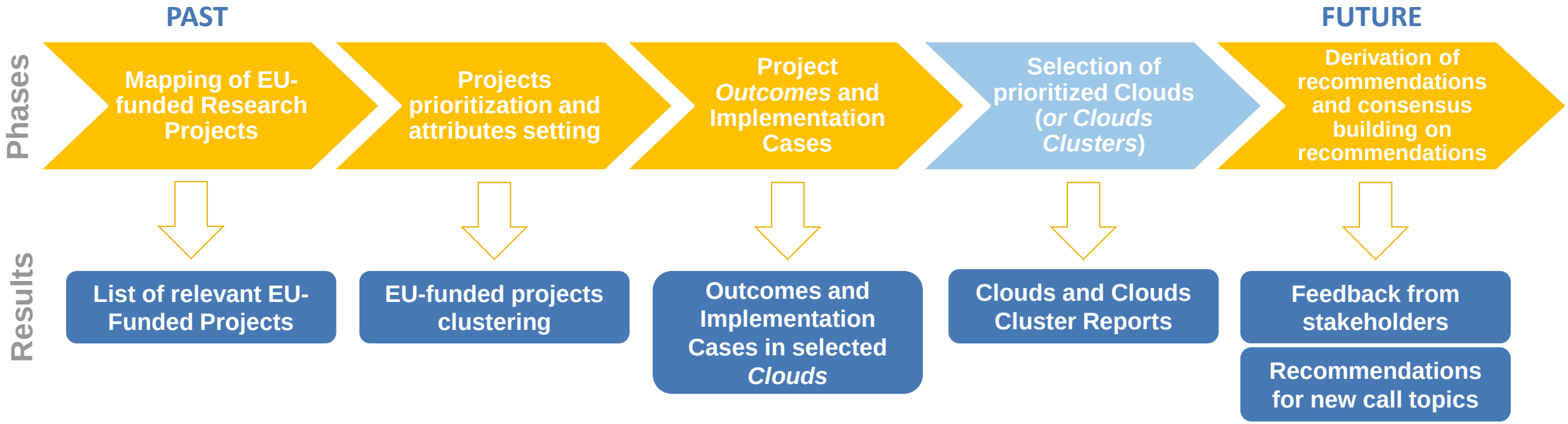
# BOOSTLOG approach

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# The Cloud report on Urban Logistics

## Executive summary



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# Over the years, Urban Logistics had several definitions:

"The **movement of things (as distinct from people)** to, from, within, and through urban areas." (Ogden – 1992)

"A process for totally **optimizing** the logistics and transport activities **by private companies with the support of advanced information systems** in urban areas considering the traffic environment, the traffic congestion, the traffic safety and the energy savings **within the framework of a market economy**". (Taniguchi – 2001)

"Coordination process of all the flows within urban areas—**freight and passengers" ;** "a set of practices related to the movements of things and people and **their management**, which plans, organizes, implements, and controls the efficient flows and related information **in order to meet ALL urban transport system stakeholders**' demands. Additionally, these practices aim to reduce or prevent commercial traffic and its adverse external effects" (Cherrett, Quak, Marcucci, Muñuzuri, Rose, Gammelgaard – from 2012 to 2017)

## TODAY, the Urban Logistics definition takes its inspiration from the

EC's New Urban Mobility Framework (Dec 2021), in which the active **engagement and collaboration between local authorities, companies and civil society is a turning point** to optimising urban logistics from **economic, social and environmental** perspectives.

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# Mapped EU R&I projects on Urban Logistics

SIXTH FRAMEWORK PROGRAMME

SEVENTH FRAMEWORK PROGRAMME

HORIZON 2020 THE FRAMEWORK PROGRAMME FOR RESEARCH AND INNOVATION

MOSCA

Instant Mobility

STRAIGHTSOL Strategies and measures for smarter urban freight solutions

CityLab

NeTrUst sustainable trusted collaborative networks

CityMove Multi-role Optimized VEhicle

Smartfusion

FRevue

eDRUL

TURN NEW MODEL FOR URBAN FOOD TRANSPORTATION

VITAL NODES

FIDEUS

OPTICITIES ENHANCING SMART MOBILITY

FURBOT

2020 CiViTAS Cleaner and better transport in cities

ECCENTRIC

V-FEATHER

deliver

citylog sustainability and efficiency of city logistics

SUCCESS

novelog

CITY FREIGHT

1998

2002

2006 - 2007

2011

White paper on transport “achieve essentially CO2-free city logistics in major urban centres by 2030”

2013 - 2014

Urban Mobility Package: creation of the SUMP concept

2020

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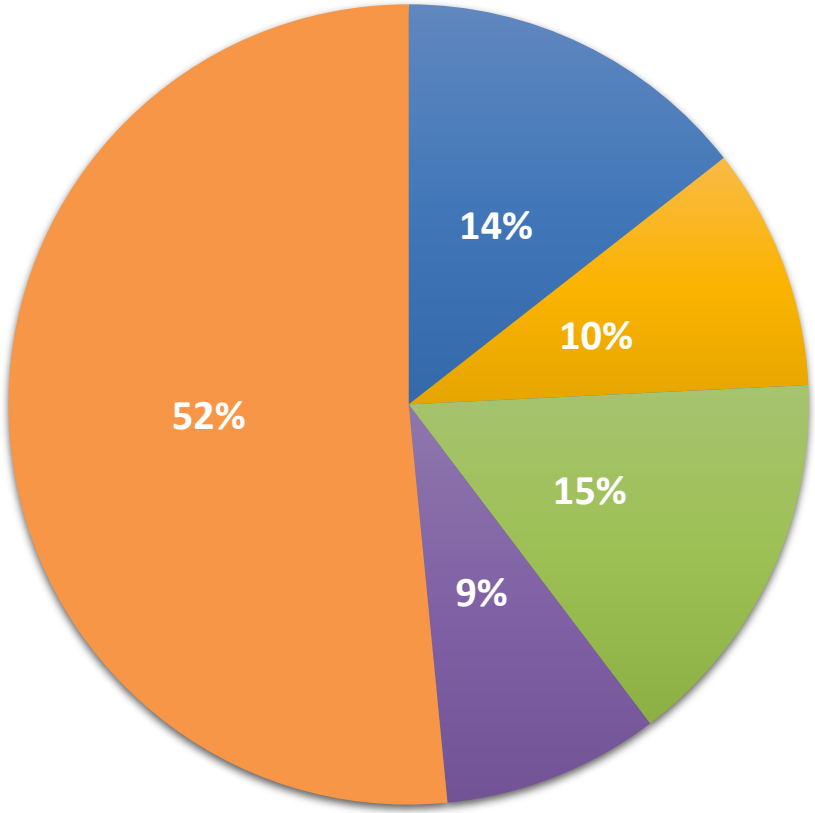
# Organisations in R&I projects on Urban Logistics




- Public Bodies
- Research Organisations
- Secondary and higher education establishments
- Other Entities
- Private for profit companies

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# UL projects expected impacts and KPIs (1/2)

| Expected Impact | KPIs | Projects |
|---|---|---|
| **Decrease of environmental impact** | CO2 emissions | CITYLAB, NEXTRUST, NOVELOG, SUCCESS, U-TURN, MOSCA, CITY MOVE, DELIVER, CIVITAS ECCENTRIC, FREVUE, FURBOT, OPTICITIES |
| | Local pollutants | CITYLAB, NEXTRUST, NOVELOG, SUCCESS, U-TURN, MOSCA, CITY MOVE, DELIVER, CITY FREIGHT, FREVUE, FIDEUS, FURBOT, SMARTFUSION, STRAIGHTSOL, V-FEATHER, VITALNODES |
| **Increase transport and logistics efficiency** | Increase load factors | CITYLAB, NEXTRUST, NOVELOG, SUCCESS, CITYLOG, DELIVER, FIDEUS, FURBOT, STRAIGHTSOL, , V-FEATHER |
| | Reduce empty trips/kms | NEXTRUST, FURBOT, eDRULS |
| | shorter delivery routes | CITYLAB, NOVELOG, SUCCESS, U-TURN, MOSCA, FURBOT, INSTANT MOBILITY, OPTICITIES |
| | Reduce failed deliveries | CITYLAB, U-TURN, CITYLOG, CITY FREIGHT, FIDEUS, INSTANT MOBILITY, eDRULS |
| **Reduction of congestion on the road network** | Reduced vehicles movements /Nr. of vehicles | CITYLAB, NEXTRUST, NOVELOG, SUCCESS, U-TURN, MOSCA, CITYLOG. CITY FREIGHT, FREVUE, FIDEUS, OPTICITIES, VITALNODES |
| | Reduction of average trip time | CITYLAB, MOSCA, FURBOT, OPTICITIES, eDRULS |
| | Increase in average travel speed | CITYLAB, DELIVER |

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# UL projects expected impacts and KPIs (2/2)

| Expected Impact | KPIs | Projects |
|---|---|---|
| **Achieving and increase in modal shift to rail freight/waterways transport** | Create new intermodal connections | NEXTRUST |
| **Decrease of overall transportation and logistics cost** | Cost/unit of transport | CITYLAB, NOVELOG, SUCCESS, U-TURN, NEXTRUST, CITY MOVE, FREVUE, FURBOT, STRAIGHTSOL |
| **Increased transport reliability and responsiveness** | On time delivery | CITYLAB, MOSCA, CITYLOG, INSTANT MOBILITY |
| | Better customer service | CITYLAB, NEXTRUST, NOVELOG, MOSCA, CITY MOVE, CITYLOG, DELIVER, CIVITAS ECCENTRIC, FREVUE, FURBOT, INSTANT MOBILITY, OPTICITIES, SMARTFUSION, STRAIGHTSOL, EDRURBAN LOGISTICS |
| **Decreased Travel Times** | Reduced Travel time | CITYLAB, NEXTRUST, SUCCESS, MOSCA, CITY FREIGHT, CIVITAS ECCENTRIC, FURBOT, INSTANT MOBILITY, STRAIGHTSOL, V-FEATHER |
| **Improve energy consumption** | Energy consumption/unit of transport | CITY MOVE, CITYLOG, DELIVER, CIVITAS ECCENTRIC, FREVUE, FURBOT, SMARTFUSION, V-FEATHER |
| **Improve long distance-city distribution connectivity** | % Decrease in operational handling | NEXTRUST, CIVITAS ECCENTRIC, SMARTFUSION, STRAIGHTSOL, VITALNODES |

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# Urban Logistics target impacts and implementation levels

| Targeted Impact | Nr. of projects | Status * |
|---|---|---|
| Decrease of environmental impact in terms of GHG emissions, pollutants, and noise | 18 | IML |
| Increase transport and logistics efficiency (load factors, empty trips, shorter delivery routes, reduce failed deliveries) | 16 | IML |
| Reduction of congestion | 15 | IMS |
| Achieving and increase in modal shift to rail freight/waterways transport | 1 | ND |
| Decrease of overall transportation and logistics cost | 9 | ISS |
| Increased transport reliability and responsiveness | 15 | IMS |
| Decreased Travel Times | 12 | ISS |
| Improve energy consumption | 7 | POC |
| Improve long distance-city distribution connectivity | 5 | TD |

**Not demonstrated (ND), Theoretical Demonstration (TD), Proof of Concept (PoC), Implemented Small Scale (including Niche Markets) (ISS), Implemented Medium Scale/Several Companies (IMS), Implemented Large Scale/Mainstream in Industry (ILS)*

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# Barriers and guidelines to achieve optimized and sustainable urban logistics

| BARRIERS | Key existing global roadmaps and white papers on urban logistics in the last four years | | | | |
|---|---|---|---|---|---|
| | **POLIS-ALICE Guide for advancing towards zero-emission urban logistics by 2030** | **Urban logistics faced with economic and environmental challenges** | **The Future of the Last-Mile Ecosystem. Transition Roadmaps for Public- and Private-Sector Players** | **Zero Emission Urban Freight** | **How-to Guide on Zero-Emission Zones for Freight** |
| **FEAR OF SHARING DATA BETWEEN COMPANIES AND CITIES** | • Data driven urban freight<br>• Develop and implement data governance models<br>• Pan European urban freight data spaces: data sharing principle and protocols<br>• Information based policies decision making<br>• Dynamic planning and access to urban spaces/resources | | • First, private-sector players – especially automotive OEMs, logistics players and infrastructure providers – need to embrace the shift from hardware to an increasing number of software solutions and accelerate their efforts in the analytics sphere, enabling the use of real-time routing and tour-planning solutions, smart load-pooling, flexible pricing offerings etc.<br>• Second, cities need to embrace their role as vital and central players in urban mobility. Gone are the days when cities courban logisticsd focus on fixing potholes and building yet another bypass. | • Neutral, trustworthy platform for data sharing<br>• Freight transport delivery mapping | |
| **LACK OF COOPERATION AMONG ACTORS** | | Strengthening cooperation between stakeholders to create a more efficient logistics ecosystem | Firms and cities to accelerate pragmatic intervention pilots, especially in mid-sized cities that do not have the innovation and traffic management budget of forward-thinking metropolises such as New York and London. This could include projects based on multi brand parcel lockers and night-time deliveries. Also, we believe new financing models beyond conventional public procurement will become relevant need for city platforms or forums in which public-sector players of all sizes can exchange the most effective methodologies, report back from successful last-mile pilots, interact with businesses and discuss which evolutionary interventions can be implemented now and which revolutionary measures must be prepared to accelerate implementation in the upcoming decade. | • Regional consolidation centre<br>• Green Deals between companies, civil society organisations and local and regional government | |

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# BOOSTLOG - Urban Logistics Cloud

## Projects time distribution, relevant milestones and main focus

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1998 | 2002 | 2006 - 2007 | 2011 | 2013 - 2014 | 2020

White paper on transport "achieve essentially CO2-free city logistics in major urban centres by 2030"

Urban Mobility Package: creation of the SUMP concept

ICT for planning, coordinating, controlling logistics

Switch to sustainable vehicles

Collaboration and network

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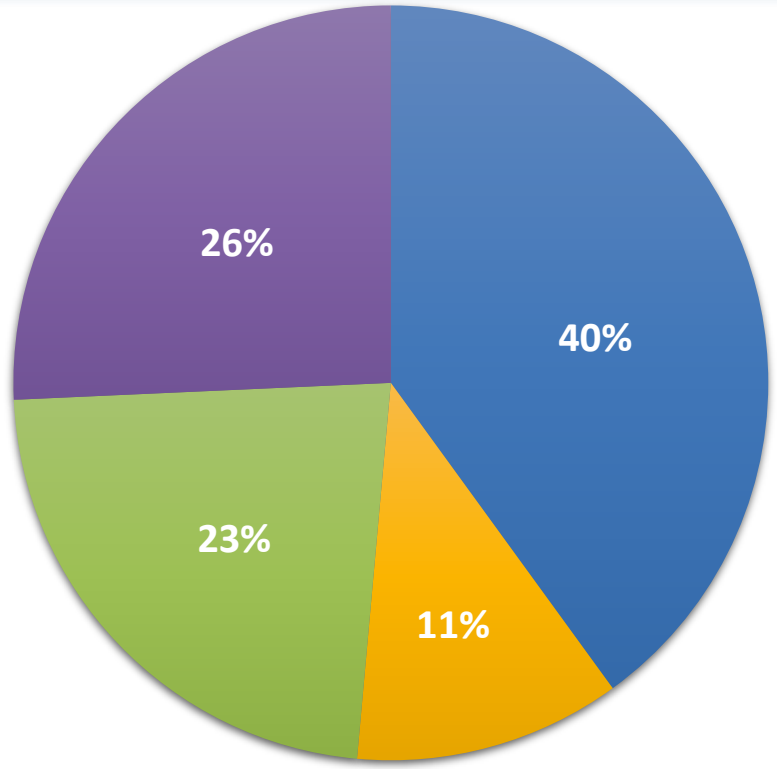
# Urban logistics R&I Projects Outcomes

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# From Project outcomes to Implementation cases

European R&I project:
**MOSCA – FP5**

European R&I project:
**FREVUE – FP7**

European R&I project:
**CITYLAB – H2020**

European R&I project:
**NOVELOG – H2020**

## Interviews with experts and Implementation cases owners

- Padova Cityporto
- VISEVA-W – PTV
- SEUL - UPS
- Declaration of Intent: Call for zero emission freight vehicles
- Rome Logistics Living Lab
- SULP Topic Guide
- Emilia Romagna Permit Portal

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# Implementation cases clusters

| Urban logistics Clusters | Implementation case identified in URBAN LOGISTICS cloud report |
|---|---|
| **Co-creation with key stakeholder** | • Rome Logistics Living Lab |
| **Smart Governance and Regulations** | • SULP topic guide |
| **Logistics operations** | • Padova Cityporto,<br>• VISEVA-W – PTV<br>• Emilia Romagna Permit Portal |
| **Clean and alternative fleet and energy** | • Declaration of Intent: Call for zero emission freight vehicles<br>• SEUL |

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# Implementation cases owners

## Companies

- SEUL – UPS
- VISEVA-W – PTV

## Cities/Local authorities

- Rome Logistics Living Lab
- Padova Cityporto
- Emilia Romagna Permit Portal

## Civil Society

- Declaration of Intent: Call for zero emission freight vehicles

## Special Achievements

- SULP topic guide

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# Main barriers to implementations and Potential implementation paths

## Barriers

- Lack of relevant **data** for urban logistics and frequency of data collection
- Poor **involvement of the industry** and the market players

## Implementation paths

- Some experts interviewed stressed the need to have a concrete **plan of data collection** to be done systematically for freight.
- Logistics operators need to see their **priorities reflected** in the initiatives and policies adopted by local authorities
- R&D projects to be more **market oriented** (this also enhances **transferability**) of the best practices tested in other cities

## Success factor: collaboration between private and public stakeholders

- **Alignement on challenges in the city**
- **Industry priorities to be identified, supported and integrated into policy making**
- **Data sharing and collection with trust (on a regular basis)**

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# Thank you!

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Moving innovation

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