Plenary
Physical Internet Applications in Urban Logistics

Physical Internet for hyperconnected urban spaces for adaptive and sustainable logistics planning:

A data-driven Superhero supporting cities in going faster and innovate

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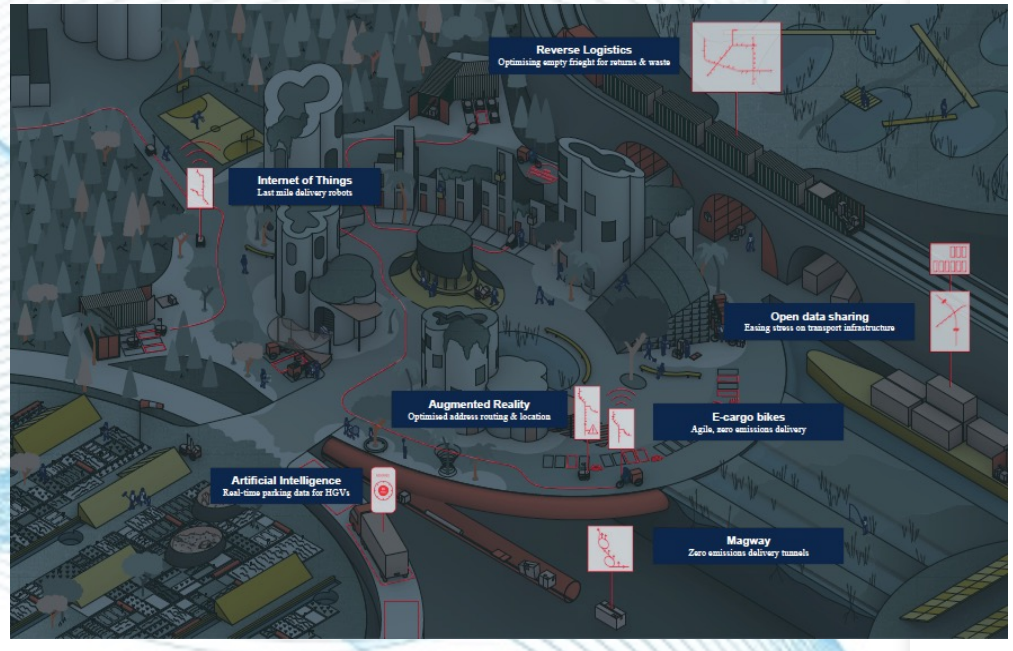
Digital and service-based urban ecosystem



Picture from ARUP: *the future of urban logistics 2022*

Pooling resources of the logistics industry, city planners and decision makers has potentials to accelerate a vibrant economy, while making urban space is well managed and equally accessible to all.

Data-driven ecosystems shall enable stakeholders to envision a more integrated and sustainable planning for urban logistics.

Dynamic decision making, by real-time data, can effectively perform with less resources and negative impacts, enabling different users and uses, planned the day and night, and by priorities, thinking to **«urban corridors of value»**.

New urban warehouses concepts and «proximity logistics» can turn the historic trend of locating logistics warehouses on the outskirts of cities.

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Setting the ground for PI-led transition in urban logistics

"When you send an email to someone across the world, it is usually received quickly and seamlessly. Your message passes through a network of servers until it reaches its destination. But you would not be aware of the route it took.
A Physical Internet would work in a similar way. Transport / logistics companies would be able to access a network of routes connected by hubs, and involving different modes of transport, which would allow them to streamline how goods are shipped from one place to another" (H2020 project MODULUSHCA).

"…The PI builds on the extensive and systemic consolidation of flows and the network of networks concepts. A full consolidation of logistics flows from independent shippers (e.g., extended pooling) in logistics networks. The PI proposes to pool resources and assets in open, connected, and shared networks (i.e., connecting existing networks, capabilities, and resources) so they can be used seamlessly by network users and partners. By pooling demand and resources to answer that demand, it is expected that the usage of resources is more efficient. …." Roadmap to PI – SENSE H2020 project

In short, urban logistics is increasingly influencing the evolution of the modern city.

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The «as a service» evolution, empowering citizens and business services for smarter cities

From the EC New Urban Mobility Framework (2021)

Voluntary urban freight data sharing for optimal use of space is fundamental to generate new value propositions and sustainable decision making.

Digital transformation in urban logistics has potential to support Europe to become trustworthy, data-empowered and decarbonized continent.

New generation of sustainable urban logistics plans (SULPs) integrated in urban planning (SUMP), co-designed by all stakeholders is fundamental for Adaptive and Smart Cities

The ambition is to accompany
the Physical Internet (PI) - led digital transition
process in urban logistics and land use planning.

This transition can be compared
to **discography industry evolution**:
from vinyl to streaming,
with music supplied as commodity
and mass adoption (uberization)
by digital devices.

We can call it ”Music-as-a-service”

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DISC

Topic
HORIZON-CL5-2022-D6-02-02

Type of action
HORIZON Innovation Actions

Granting authority
CINEA

Project starting date
1ST OF MAY 2023

This project has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No. 101103954

Project duration
42
months

47
Number of parners

24
Number of Key Results

40
Number of Key Achievement Indicators

929,20
Total Person Months

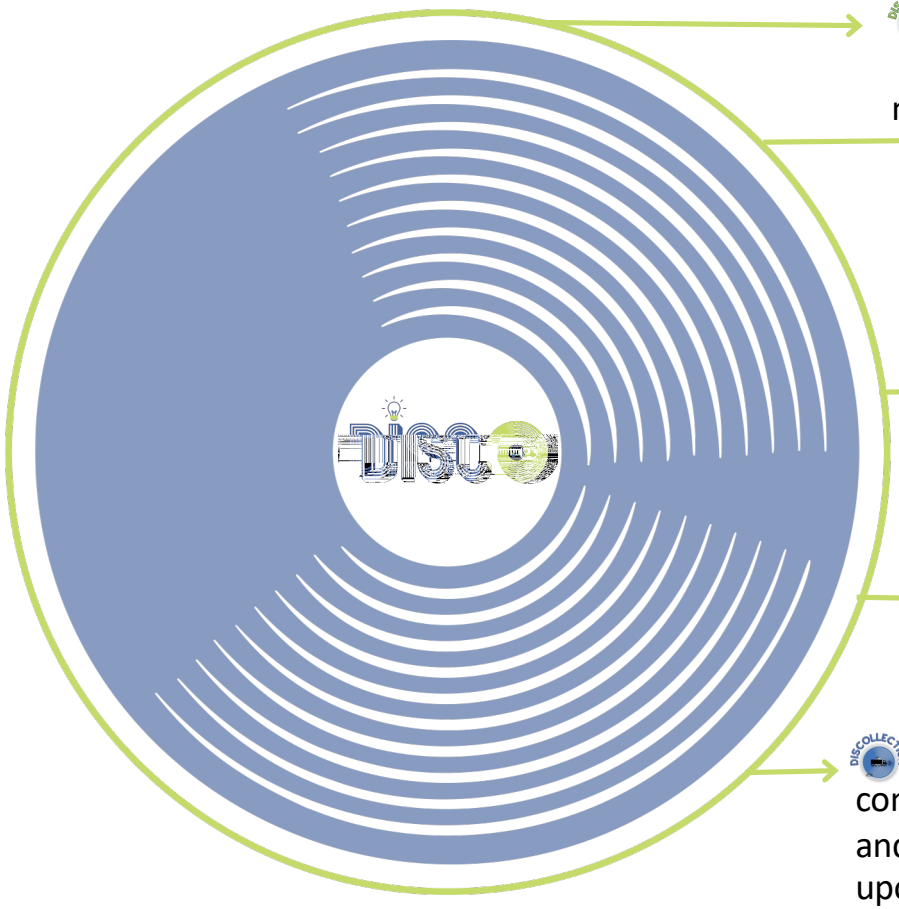
7 999 972.13 EURO
Maximum grant amount

8 891 584.83 EURO
Total eligible costs

8
Number of Demonstration Sites

4
Number of Follower Sites

DISCO IS A SUPER HERO SUPPORTING CITIES IN GOING FAST AND INNOVATE



DISCOCURB – Mixed use and dynamic streets space management Smart and flexible use of curb side, for parking slots, pick up points and network management

DISCOPROXI - Shared Lands - Urban corners or lockers for nearby deliveries and omnichannel shipments, to optimise multiple collection and delivery solutions

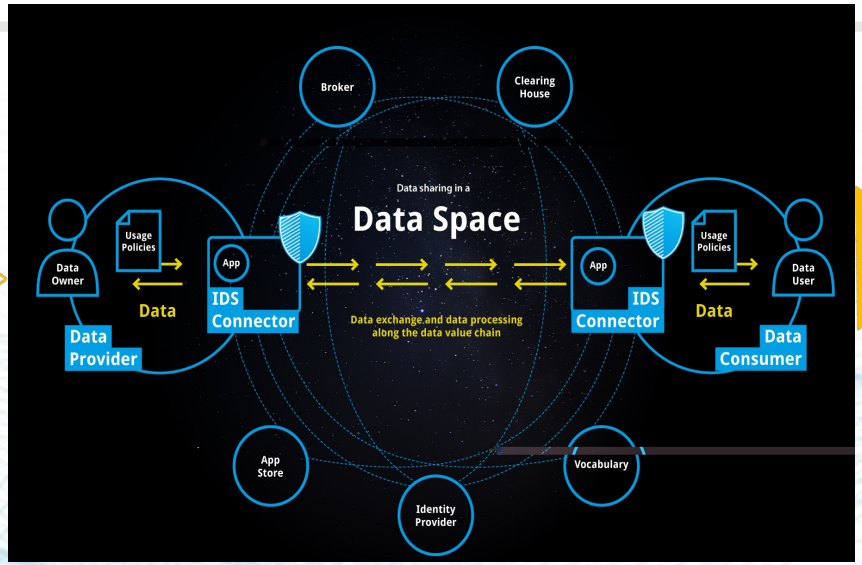
DISCOESTATE – Multi-purpose, flexible and temporary use of building space – Retrofitting building space for multi-tenant and temporary logistics use and enhance the reliability of last mile deliveries.

DISCOBAY - Multimodal bays - Mutualised and multimodal (e.g., rail/waterborne) distribution centres pooling green last mile delivery

DISCOLLECTION – Smart data collection methods - Advanced access control and real time routing for optimised and prioritized, incentivised and dynamic access permission enabling smart network management upon priorities and functional areas.

Data and its use makes the difference!

Picture: ICLEI – Local Governments for Sustainability 2022 - CityLife



Picture: The components of the IDSA Data Space

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DISCO

13 DISCO cities and regions supported in reaching 20% reduction in CO2 emissions, by demonstrating 23 zero-emission and data-driven urban logistics solutions

Showcase replicability of **> 15 implementation cases**, accelerating transferability in the Knowledge Hub

Enable **> 50 city authorities and business stakeholders** within the course of the project to take well-informed and dynamic decisions by adopting their UF Data Space

Engage **> 50 collaborating urban logistic communities** with a ready-to-use UF Data Space

Citizens' participation and inclusion **making > 1000 people actively involved** in urban logistics innovations

Best value for money with higher impact and shorter time-to-market of solutions and achievement of the EU Green Deal, and Mission targets, built on EU projects such as SPROUT, URBANE, NOVELOG, T-MAAS, SENATOR, TOKEN, etc.

GHENT

BE MOBILE · IMEC · VIL · CITY OF GHENT · OHB

#Public-Private cooperation for dynamic and data driven and automated communications, incentivising effective and zero-emission operations in last-mile deliveries

HELSINKI

FVH · A2B · ROLAN

#Multifunctional micro-hubs with network management and flexible use of space promoting use of zero-emission freight transport modes (bikes and vans) to implement Dynamic Low Emission Zones

COPENHAGEN

CITY OF COPENHAGEN · CAPITAL REGION OF DENMARK · IRTX

#Use of shared transport facilities as urban micro-hubs and open consolidation hubs by real time data collection from LSPs

THESSALONIKI

CITY OF TESSSALONIKI · TIF/ HELEXPO · ACS

#Multipurpose, multi-tenant and temporary use of building as a logistics hub, supported by optimally located smart data collection via road sensors, to help detect freight flows and zero-emission freight transport

SPANISH CLUSTER

VALENCIA PORT FOUNDATION · LAS NAVES · T-BOX

VALENCIA

ALIA · ZARAGOZA CITY COUNCIL · CITYLOGIN · ZARAGOZA CITY OF KNOWLEDGE FOUNDATION

ZARAGOZA

UPC · CITYLOGIN · BARCELONA CITY COUNCIL

BARCELONA

#Boosting advanced B2C/B2B last-mile for local commerce valorising micro-hubs in underused spaces, powered by smart predictive models, and operated by zero-emission vehicles and smart curb side use, generating green business opportunities.

PADUA

PADUA MINUCIPALITY · VIU · NEXT

#Dynamic urban space reallocation adopting modular lockers and coordinated network in real-time with logistics service providers

Central is the **genuine and dynamic integration** of the different (interoperable) users and uses, activated and governed by a city actively shaping its digital (data-driven) revolution

Urban players should all contribute in establishing balanced conditions for a well adapted city contexts, functional areas to be served and public space constraints. It is fundamental to adequately address spaces purpose to services, for well-focused investments in infrastructures (e.g. retrofitting and sharing existing assets – supported by regulations).

Thinking to a paradigm shift in urban logistics space use, hyperconnected spaces are «as-a-services assets». They need to host a wide range of interoperable users ans uses in the same space, and embed urban logistics in a strategic fully-fladged planning.

Due to increasingly scarce resources (mainly for residenatial purposes), infrastructures and assets should be adapted for continuously changing market requirements.

Ultra-urban logistics hub can establish specific communities and provides a work/life balance in a mixed-use environment

SPROUT is designed to be a retail and leisure destination and a logistics hub for last-mile delivery

http://pano.autodesk.com/pano.html?mono=jpgs/62702ca8-b9f2-4864-9b8d-9b35e926be6a

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Rome adopting a PI–led approach in Logistics Planning

CITTÀ METROPOLITANA DI ROMA CAPITALE
Per una sostenibilità diffusa

Rome Sustainable Logistics Metropolitan Plan

➢**Adopted**

The document has been published on the Metropolitan City website, as consultation process. The final plan for adoption will be formalised with stakeholders' agreement in September 2023

Monitoring/Tracking and data Sharing

- Purpose oriented data acquisition and sharing
  - ➢ Definition of minimum data set
  - ➢ Data sharing ecosystem
  - ➢ Agreement among logistics operators
- Permanent multi-actor working group oriented to Freight Quality Partnership
- Neutral Urban Distribution Platform
- Multi-brand Micro-hubs network
- Pick Up-Drop Off points network design

Collaboration

Matchmaking between supply and demand for seamless intermodality

- Harmonization and digitalization of intermodal services:
  - ➢ *Development of a harmonized Service Charter* among the main intermodal logistics operators and hubs
  - ➢ Development of ***Easyrailfreight*** platform, led by RFI – Multimodal Logistics Services Digitalisation
- Harmonized recognition scheme for accessing urban areas
- Development of Digital Twin for decisions making

Smart DSS and efficient modes utilization

Thank You!

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