



LEAD: Low-Emission Adaptive last mile logistics supporting on demand economy through Digital Twins

20th of October 2021
CIVITAS FORUM Aachen



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 861598. LEAD is a project under the CIVITAS Initiative. Read more - civitas.eu



THE CIVITAS INITIATIVE
IS CO-FUNDED BY
THE EUROPEAN UNION

Context

- Rise on-demand logistics = stress last mile delivery systems
- Customer: responsive system for customised products
- Industry: instant delivery
- Cities: possible negative consequences.

Urban planner + city authorities + stakeholder = prediction, evaluation, new business models

- **LEAD**: develop logistic solutions ↔ Low emission operations, adaptive model & Digital Twins models

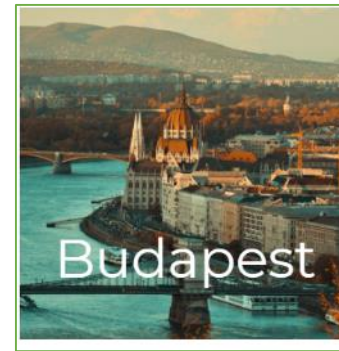
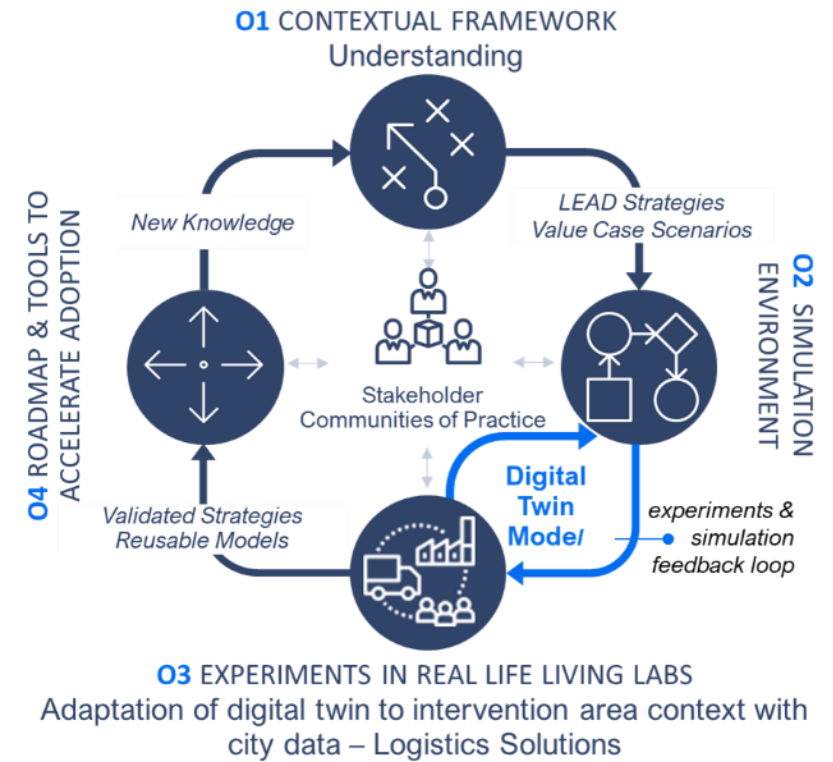


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What is LEAD?

- LEAD – Digital Twins creation in 6 cities (TEN-T urban nodes)
- Solutions & use case scenarios



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Madrid

Living Labs

Transforming a Parking Lot to an Urban Consolidation Centre



Lyon

Validation of last mile distribution models



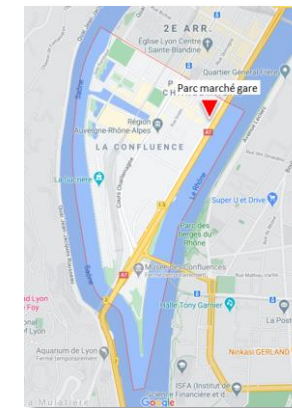
The Hague

Integrated last-mile logistics with demand-supply matching platforms



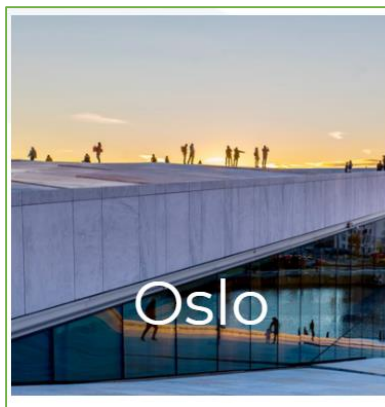
Budapest

Spatial Planning of Inner-City Loading Areas



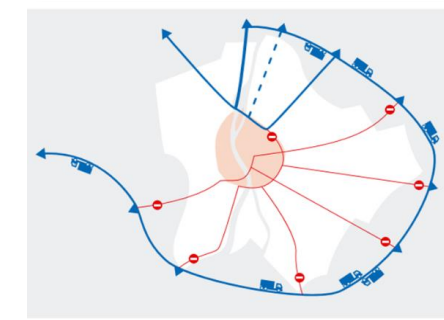
Porto

Turning retail stores to electric mobility nodes



Oslo

Green Crowdshipping through the mass transit network



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LEAD Strategies



1

Innovative business models

with a view to optimising the performance of last mile logistics (based on volatility of demand, delivery life cycles and costs) in response to the challenges posed by the on demand economy



2

Agile freight storage and distribution

Agile schemes for urban freight storage and last mile distribution, including crowdsourced shipping, capacity sharing, multi-echelon and Physical Internet inspired approaches



3

Low emission delivery vehicles

including Electric Delivery Vehicles (EDVs), hybrid and automated vehicles for freight delivery like cargo-bikes, delivery robots and droids -walkers will also be considered



4

Smart data-driven logistics solutions

for shared, connected and low-emission logistics operations, empowered by an adaptive modelling approach and Digital Twin models, applied in real-life environments



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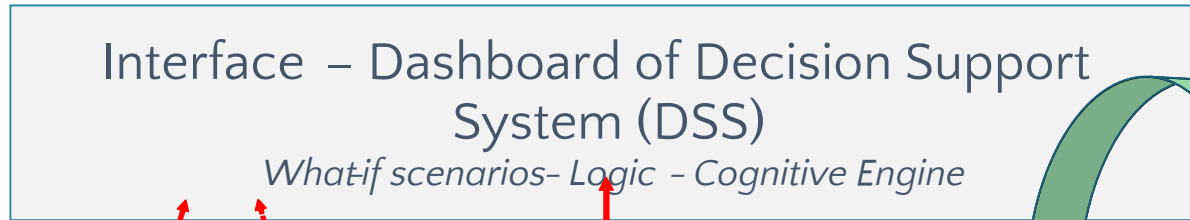


Concept



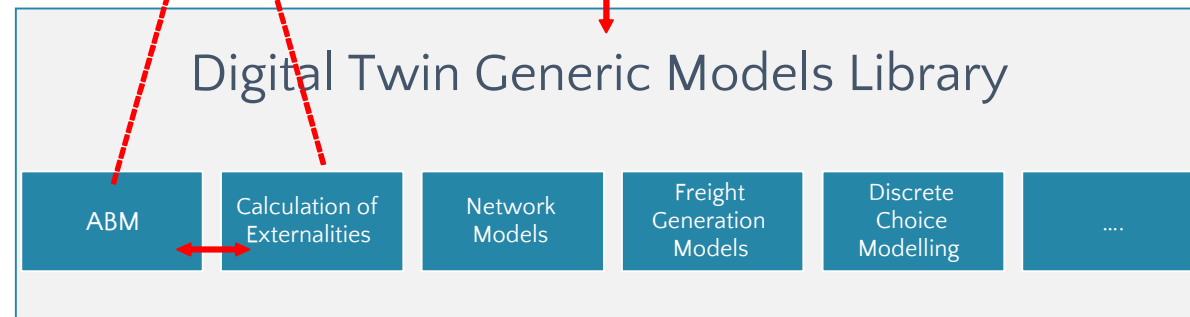
Authorities & Business Users

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RESPONSE

APIs



Living Labs (Physical World)

MADRID, BUDAPEST, HAGUE, LYON, OSLO, PORTO

Living Labs (Digital Twin)

MADRID, BUDAPEST, HAGUE, LYON, OSLO, PORTO



SENSING



DATA

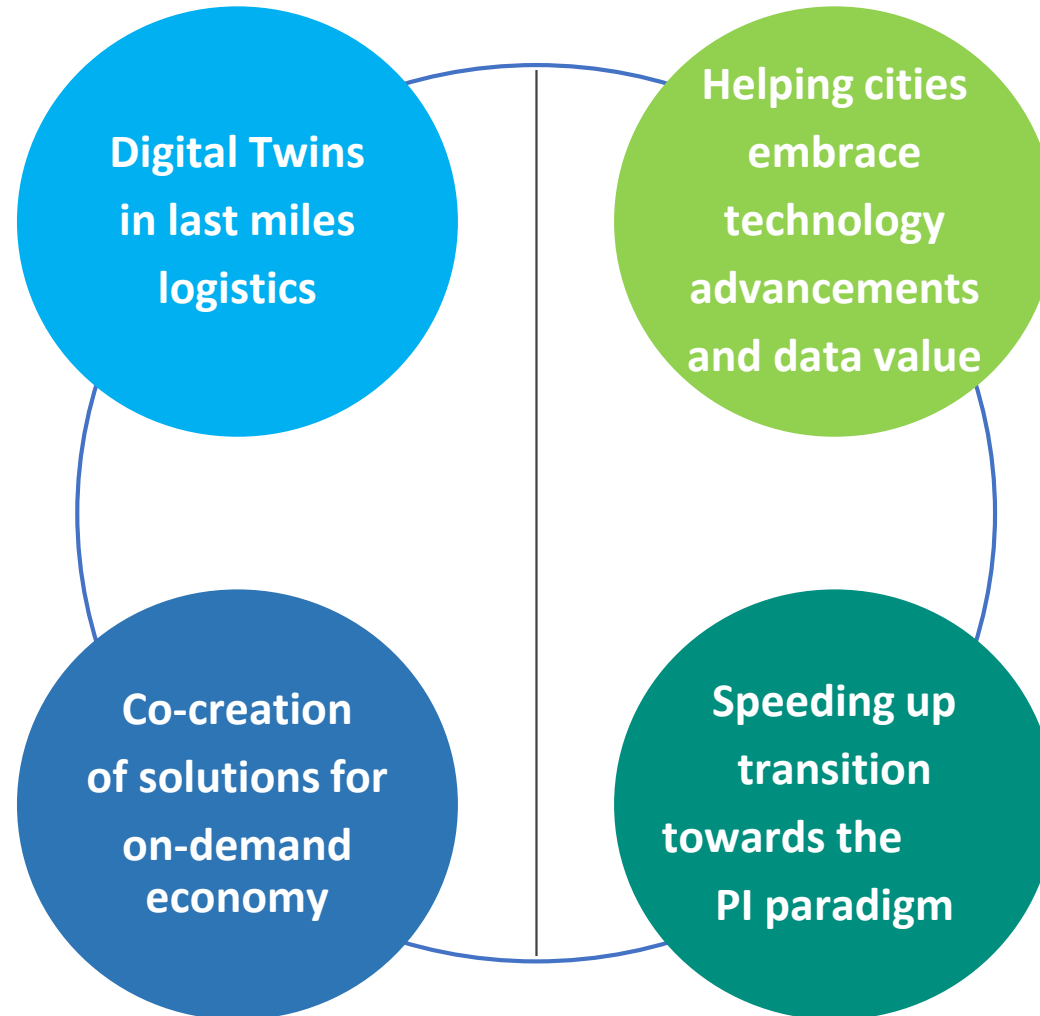
(CITY PLATFORMS, GEO DATA, OPERATIONAL SYSTEMS)



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LEAD Innovations



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Expected Impacts

Impact 1

- Clear understanding of cost-effective strategies, measures and tools to achieve essentially zero emission city logistics in major European urban centres by 2030.

Impact 2

- New tested, demonstrated practices and solutions for better cooperation between suppliers, shippers and urban/regions policy makers (planners)

Impact 3

- Clearly provide inputs for the preparation and implementation of SULPs, SUMPs and other planning tools (big data and real-time traffic management)

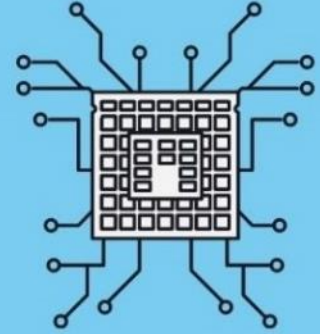


Where do we stand?

- Analysis of [City Logistics landscape in the era of on-demand economy](#)
- Communities of Practice
- KPI Definition
- Digital development
- Physical development
- Capacity Building

NEW TECHNOLOGIES

Technologic innovations are essential to make on-demand logistics more efficient and sustainable. Disrupting technologies have or will deeply positively impact the urban freight ecosystem (i.e. Intelligent Transport Systems, Driverless technology, Digital Twins, Augmented Reality, Physical Internet).



CONSUMER REQUIREMENTS

The market is increasingly becoming consumer and on-demand oriented. The level of importance consumers give to different aspects of delivery, such as their social impact, environmental sustainability, use of the data provided, is impacting the business models and creating new information platforms and information-driven businesses.



ECONOMIC & DEMOGRAPHIC FACTORS

Economic and demographic factors weight in on the urban logistics ecosystem. Economic factors are very relevant due to the strong relationship between economic development and freight activity. Demographics are also pivotal, mainly with the physical distribution of the population and its structure affecting the focus on the regional distribution system, typology and frequency of delivery.



MEET THE MEMBERS OF OUR TRANSFERABILITY PLATFORM

NOORD-BRABANT



SOUTHWARK



ANTWERP



TIMISOARA



MURCIA



HASSELT



ŠEMPETER VRTOJBA



LEUVEN



GORIZIA



NOVA GORICA



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10 cities and regions from seven countries have been selected to become members of the LEAD Transferability Platform.



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Partners



Den Haag



Molde University College
Specialized University in Logistics



CITIES AND REGIONS FOR TRANSPORT INNOVATION



Oslo



WABERER'S
SEEMERY
Logisztika Kft.



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Contact us!

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