

# Adaptive last-mile, low-emission logistics in support of the on-demand economy through "digital twins."

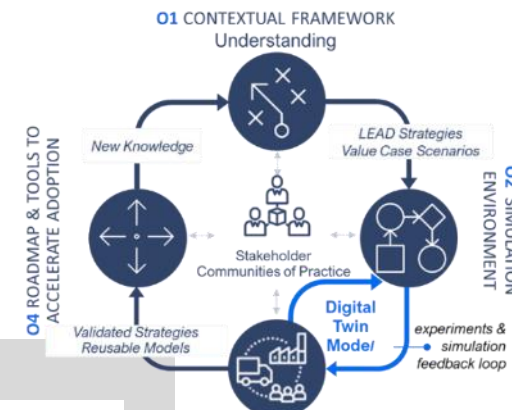


1  
Innovative business models

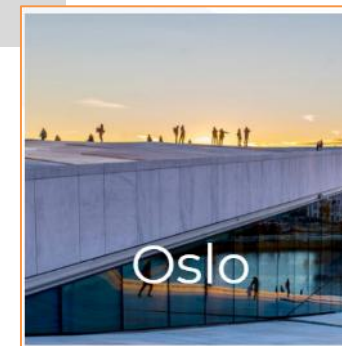
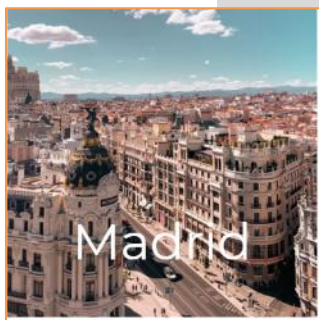
2  
Agile freight storage and distribution

3  
Low emission delivery vehicles

4  
Smart data-driven logistics solutions



03 EXPERIMENTS IN REAL LIFE LIVING LABS  
Adaptation of digital twin to intervention area context with city data – Logistics Solutions





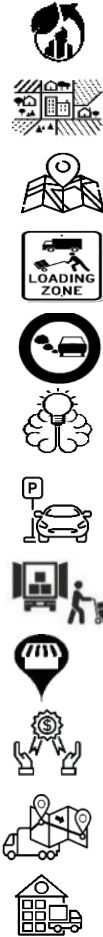
# Digital Twin platform

The screenshot shows the LEAD Digital Twin platform dashboard. On the left is a dark sidebar with navigation options: Dashboard, Users, Data Assets, Model Library, Scenarios, and Simulations. The main content area is light blue and features a top navigation bar with a user profile for 'LEAD Administrator' and a notification bell. Below the navigation bar, a central header says 'Hello, LEAD Administrator' and 'You have 6 running simulations'. This is followed by four summary cards: '7 Models', '1 Connectors', '6 Scenarios', and '6 Simulations'. The 'Simulations' section contains a table with columns for Name, Public, User, Runtime, and Status. The 'Scenarios' section below it contains a list of scenarios: Echelon v2, Parcel Generation, ST, Echelon v1, and COPERT. A red triangle points to the 'Echelon v1' scenario in the list.

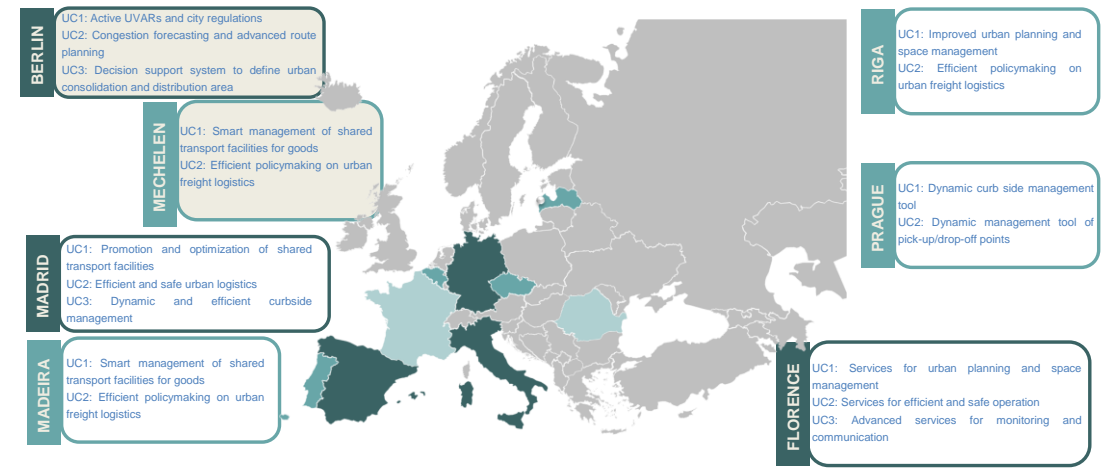
Name	Public	User	Runtime	Status
Echelon v1 baseline 1 Echelon v1	●	LA	Fri Sep 23 2022 11:55:2...	⋮
LL1-Madrid: Echelon v1 b... Echelon v1	●	LA	Fri Sep 23 2022 11:55:2...	⋮
Parcel Generation Parcel Generation	●	LA	2022-09-20T08:17:54...	✓ ⋮
LL1-Madrid: COPERT ba... COPERT	●	LA	Fri Sep 23 2022 11:55:2...	⋮
LL1-Madrid: Echelon v2 ... Echelon v2	●	LA	Fri Sep 23 2022 11:55:2...	⋮

Name	Public	Flow #	Models	User
Echelon v2				
Parcel Generation				
ST				
Echelon v1				
COPERT				

Design a ready-to-use framework and open, scalable Digital Twinning capability for smart city logistics, to facilitate the comprehension of the dynamics of logistics networks and support experimentation and data-driven decision-making.



1. SUMP's and SULP's guidance tool (VMZ)
2. Freight-efficient land use strategy (IBV)
3. **UCC location and integrated planning KIT (VMZ)**
4. On-street loading zones planning tool (VMZ)
5. Active UVARs and city regulations tools (MUNI)
6. Knowledge powerhouse for urban logistics (EITUM)
7. Dynamic curb side management (ETRA)
8. Dynamic management of pick-up/drop-off points (MUNI)
9. **IT Pop-Up delivery points management tool (ETRA)**
10. Logistics operator monitoring system and incentives tool (MUNI)
11. Congestion forecasting and safe route planning (ETRA)
12. **Advanced Management IT Cockpit of Shared Facilities (ETRA)**





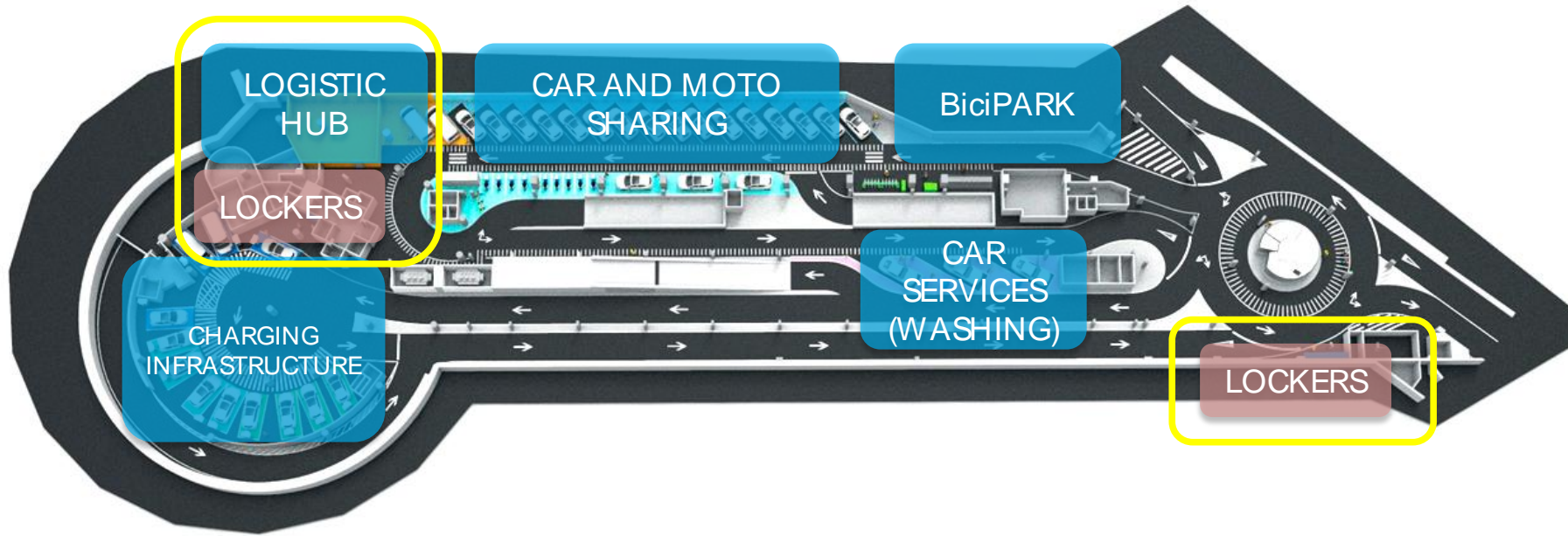
# The Madrid 360 SUMP includes 10 strategic axes, 32 measures and 121 actions ...



## 7. Promoting technological change and optimizing urban logistics

- Promotion of microhubs for sustainable last-mile delivery
- Creation of lockers for e-commerce in intermodality hubs
- Smart reserve system for loading and unloading
- Encouraging the shift to cleaner vehicles
- Restriction of access for polluting vehicles (LEZ)







# Smart reserve system for loading and unloading: DUM360

The City Council has implemented the first strategy for the **Urban Distribution of Goods (UDG) 360**. The strategy comprises ten measures to promote a more **efficient and sustainable logistics model** that allows a **greater agility** for the operators.

- 1** The development of an **App** to know in real time the **occupancy levels** of the cargo areas.
- 2** The installation of **reservation sensors** to obtain better usage information.
- 3** The increase in the **number of cargo areas** for the distribution of goods.
- 4** The **extension** of the cargo operations schedule
- 5** **New signage** implementation.
- 6** The formation of a **new incident management team** to support the industry and control the correct functioning of the system.
- 7** The **enhancement of micro-hubs** by public and private collaboration and the promotion of night time distribution of goods.
- 8** The **installation of new lockers** for e-commerce.
- 9** The promotion of an environmentally friendly transition of the UDG vehicles.
- 10** The creation of an **UDG forum** to implement further initiatives coming from stakeholders engagement.



The new **App DUM Madrid 360** has been launched as a key measure of the strategy. It is exclusively developed for **professional users**, it **digitalises** the whole delivery system and **automatizes** the usage control of the cargo bays. The App has three objectives: **Optimise de usage** of the reservations, allowing a greater availability of them, **reduce pollution** by reducing unnecessary lengthen trips and **put an end** to parking breaches.

# THANK YOU!

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