



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 861598.

## **Digital Twins lead the future of urban logistics: *why offline urban logistics need to be mirrored online***

**9<sup>th</sup> June 2020 – IRT SystemX joins 26 high-level partners in the H2020 funded LEAD Project: *Low-Emission Adaptive last mile logistics supporting 'on Demand economy' through digital twins*. LEAD will create Digital Twins of urban logistics networks in six cities, to support experimentation and decision making with on-demand logistics operations in a public-private urban setting.**

Last mile delivery systems are facing many challenges associated with the dawn of on-demand logistics, struggling to accommodate citizen's expectations for responsive logistics systems, that deliver products at low or even zero cost. This is the case for both small and large-scale consumer platforms, pledging swift delivery times, albeit with little market economic incentives for the creation of sustainable systems.

This so-called 'Uberisation of logistics' is putting a strain on cities, which are faced with the potential negative consequences of this phenomena, alongside the unpredictability of market developments. Cities are aware of these challenges and have begun addressing them, with an increasing number of logistics living labs, complementing the old 'predict and provide' paradigm. Digital Twins are fairly new concepts in the sphere of urban logistics, consisting of a digital reproduction of a complex real-world urban environment, representing the different processes, actors, and their interaction(s), which are being employed to tackle this and other challenges.

The recent COVID-19 crisis has demonstrated the importance of the resilience of the logistics chain, which sees the most complex stretch in the last urban mile. It is also changing the way citizens buy, increasingly turning to online, on-demand platforms. This pressure on the system must therefore be efficiently mitigated.

**LEAD** will create **Digital Twins** of urban logistics networks in 6 cities (Madrid, The Hague, Budapest, Lyon, Oslo and Porto), to test and represent different innovative solutions for city logistics, to address the requirements of the on-demand economy while aligning competing interests and creating value for all different stakeholders.

This will allow for the development of a variety of logistics solutions for shared, connected, and low-emission logistics operations, empowered by an adaptive modelling approach and Digital Twin models. Agent-based (ABM) models will be used to enable city logistics stakeholders to recognise their roles and business models, including all relevant operational, tactical, and strategic decisions in the Digital Twin, mirroring value cases in the reality of city life.

The long-term vision of **LEAD** is to design an Open Physical Internet-inspired framework for Smart City Logistics that incorporates the created Digital Twins, laying the foundations for the development of large-scale city Digital Twins.

**EMT Madrid coordinates** the LEAD consortium, providing its expertise coordinating EU funded projects such as CIVITAS ECCENTRIC or MOMENTUM, and valuing its experience as a manager of facilities that



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can potentially play a key role in the field of urban logistics, acting as consolidation centers and providing additional services for low-emission mobility (i.e. providing charging infrastructure for electric vehicles). Likewise, EMT is also developing a new mobility model for the city, which aims to be as complete as possible, including also something as fundamental as urban logistics, which is key to the mobility of our cities.

The **LEAD** project was launched during an online Kick-Off Meeting, over two days from 8-9 June 2020. IRT SystemX is one of 27 partners involved, from 9 European countries, the USA, and China, with a complete value chain of actors capable of achieving the project's objectives, including City and Logistics stakeholders, Research organisations and SMEs.

**ENDS.**

## Notes

### About LEAD

LEAD operates under the Research and Innovation Actions funding scheme, as facilitated by Horizon 2020 and the 'Mobility for Growth programme and it will run until May 2023. This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 861598.

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