



ADVANCED LOGISTICS
PLATFORM WITH
ROAD PRICING AND
ACCESS CRITERIA TO
IMPROVE URBAN
ENVIRONMENT AND
MOBILITY OF GOODS

25 June 2019
Grillska huset, Stortorget 3. Gamla Stan,
Stockholm

LIFE ASPIRE short presentation

Urban Logistics Innovation in a Mid-size Historic Town in Italy



With the contribution of the
LIFE financial instrument
of the European Commission



Città di Lucca



Kiunsys
Move on!



Stockholms
stad



GRAD ZADAR

2° Annual Workshop «Smart logistics solutions in Gamla stan»

Mauro Di Bugno, Luca Falsiroli: City of Lucca
Stefan Guerra, LUCENSE



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GENERAL INFORMATION ON THE PROJECT

LIFE ASPIRE is funded under the LIFE+ Programme: “LIFE Environment and Resource Efficiency”:

- 5 partners from 3 countries: City of Lucca, LUCENSE, Kiunsys/Municipia SpA Group Engineering and MemEx (Italy), City of Stockholm (Sweden), Grad Zadar (Croatia)
- Start: 1st October 2017 – End: 30rd September 2020

The goal of LIFE ASPIRE is the implementation of a set of measures - regulatory, organizational, operational and technological - which extends/integrates the ones already implemented in Lucca, in order to achieve higher standards of energy efficiency and urban air quality and, consequently, improving the quality of life of people (in particular of residents).



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LIFE ASPIRE PROJECT CONSORTIUM

CITY OF LUCCA

- Project Coordinator

LUCENSE (Lucca, IT)

- Design and demonstration site management

MEMEX (Livorno, IT)

- Technical support and environmental impact evaluation

KIUNSYS (Pisa, IT) / Municipia SpA Group Engineering

- ITS producer, delivering RFID system, management and booking of load unload bay + cargo bike station

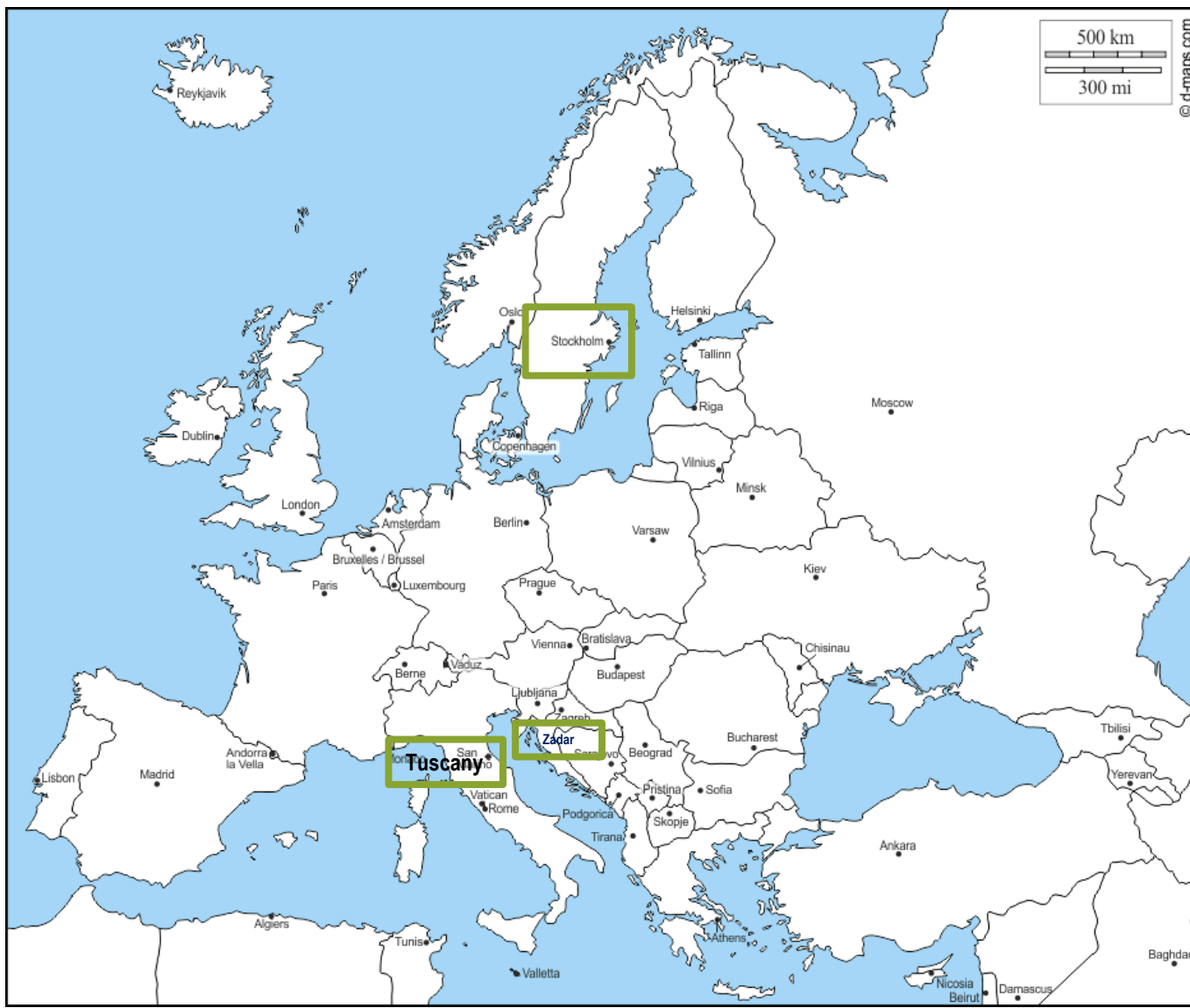
CITY OF STOCKHOLM (S)

- Logistics schemes evaluation + transferability and scalability to metropolitan areas

CITY OF ZADAR (HR)

- Logistics schemes evaluation + transferability and scalability to other European small - & mid size historic towns

GEOGRAPHICAL DISTRIBUTION OF PARTNERS



URBAN CONTEXT, DEVELOPMENT AND IMPLEMENTATION OF CITY LOGISTICS IN LUCCA



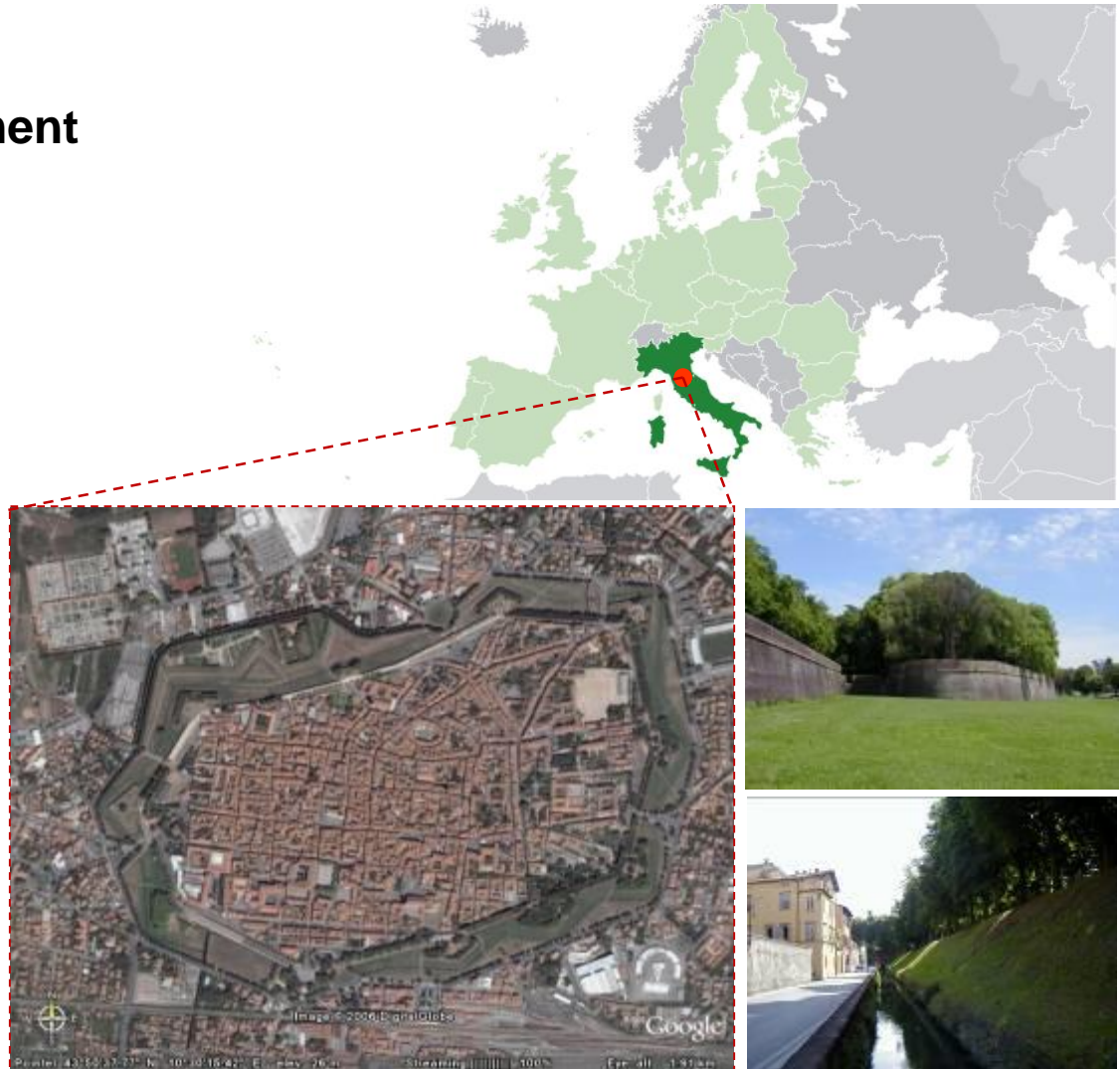
URBAN CONTEXT, DEVELOPMENT AND IMPLEMENTATION OF CITY LOGISTICS IN LUCCA

Preservation and development of the city centre

High quality of life

High level of touristic flows:

- City of Puccini
- Many and various festivals
- Well preserved historic environment
- Surrounding green Tuscan environment





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URBAN CONTEXT, DEVELOPMENT AND IMPLEMENTATION OF CITY LOGISTICS IN LUCCA

Some relevant data on city centre economy and goods mobility:

- ✓ Historic mid-size town with about **80.000** inhabitants (round 10.000 inside historic centre)
- ✓ Business activities mainly based on **commerce, services and tourism sectors.**
- ✓ A relevant **number (1600+)** of **shops, restaurants, commercial activities** in the historic centre (inside the ancient walls) and close surrounding urban quarters.
- ✓ About **27% of business** located in the city centre, use their **own means for goods transport.**
- ✓ About **1680 commercial vehicles** (round **93% below EURO 6**) entering the area each day with **low load factor** (<30% available capacity).

URBAN CONTEXT, DEVELOPMENT AND IMPLEMENTATION OF CITY LOGISTICS IN LUCCA

Local impacts of city logistics processes

- ✓ High levels of **congestion** due to commercial and freight traffic (high number of vehicles in the historic centre, non-optimized loads and delivery routes).
- ✓ High levels of **environmental pollution** (PM10) with several exceedances of law limit values (in particular PM10, PM2.5 Nox)
- ✓ **Noise** pollution and risk for historic buildings due to vibrations resulting from freight traffic.
- ✓ Pedestrians (tourists) **safety hazards**.



CURRENT MEASURES FOR MOBILITY MANAGEMENT AND FREIGHT DISTRIBUTION IN LUCCA

REGULATIONS AND ITS FOR MOBILITY AND FREIGHT TRANSPORT

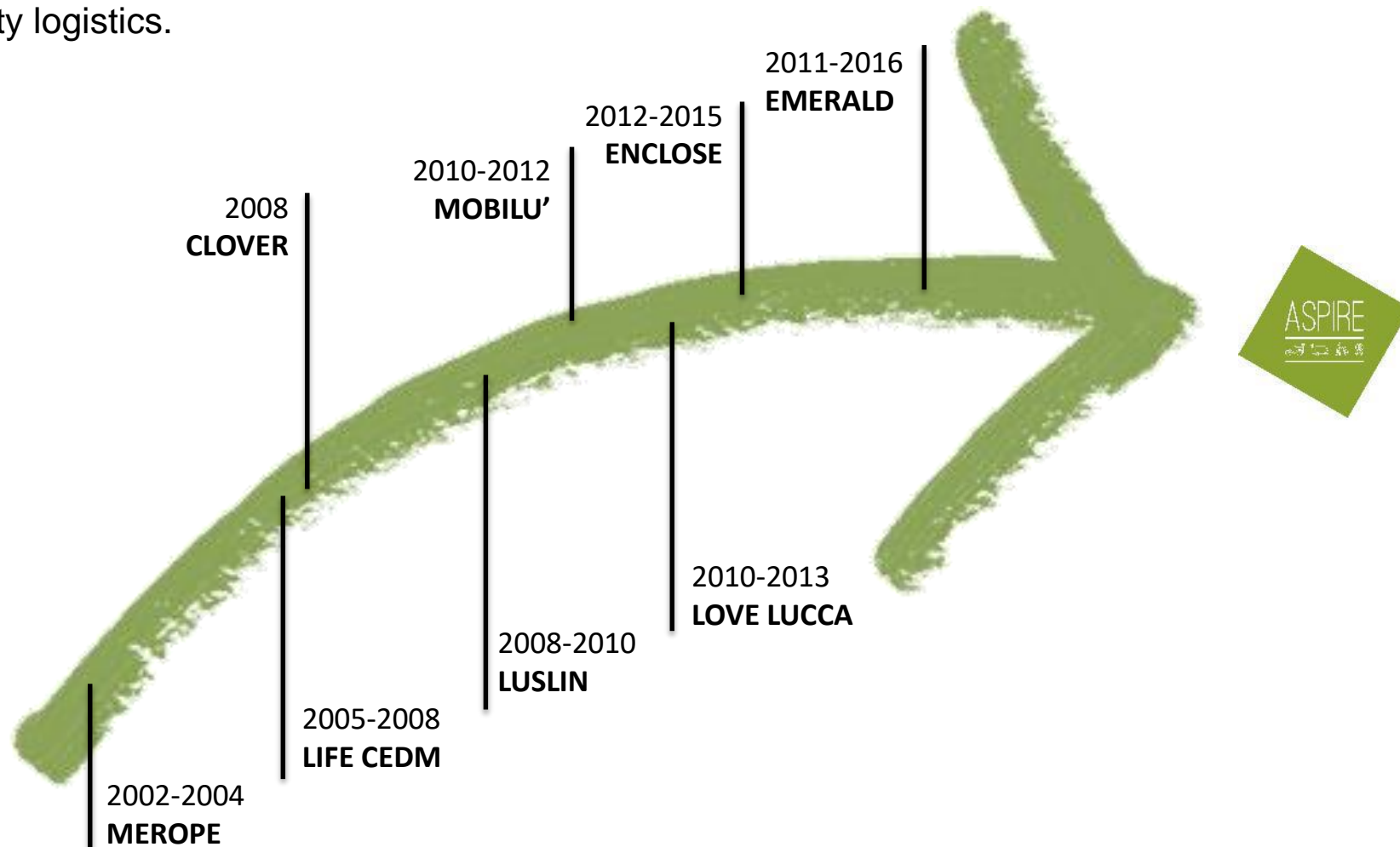
- ✓ Access regulations, by-laws and plans, leveraging on:
 - ✓ Level of Emissions (EURO 1, .., 5, FEV)
 - ✓ User category
 - ✓ Time windows
 - ✓ Focus on freight transport

- ✓ Historic centre is a Limited Traffic Zone (LTZ) with Access Control System
- ✓ Historic centre inside a wider Environmental Zone
- ✓ Development of pedestrian area since 1976
- ✓ Further implementation on going of access control system for mobility management
- ✓ Environmental Zone covering a large part of the town
- ✓ Planning action through short term operational traffic plans, sustainable urban mobility plan, sustainable urban logistics plan, city air quality plan, new

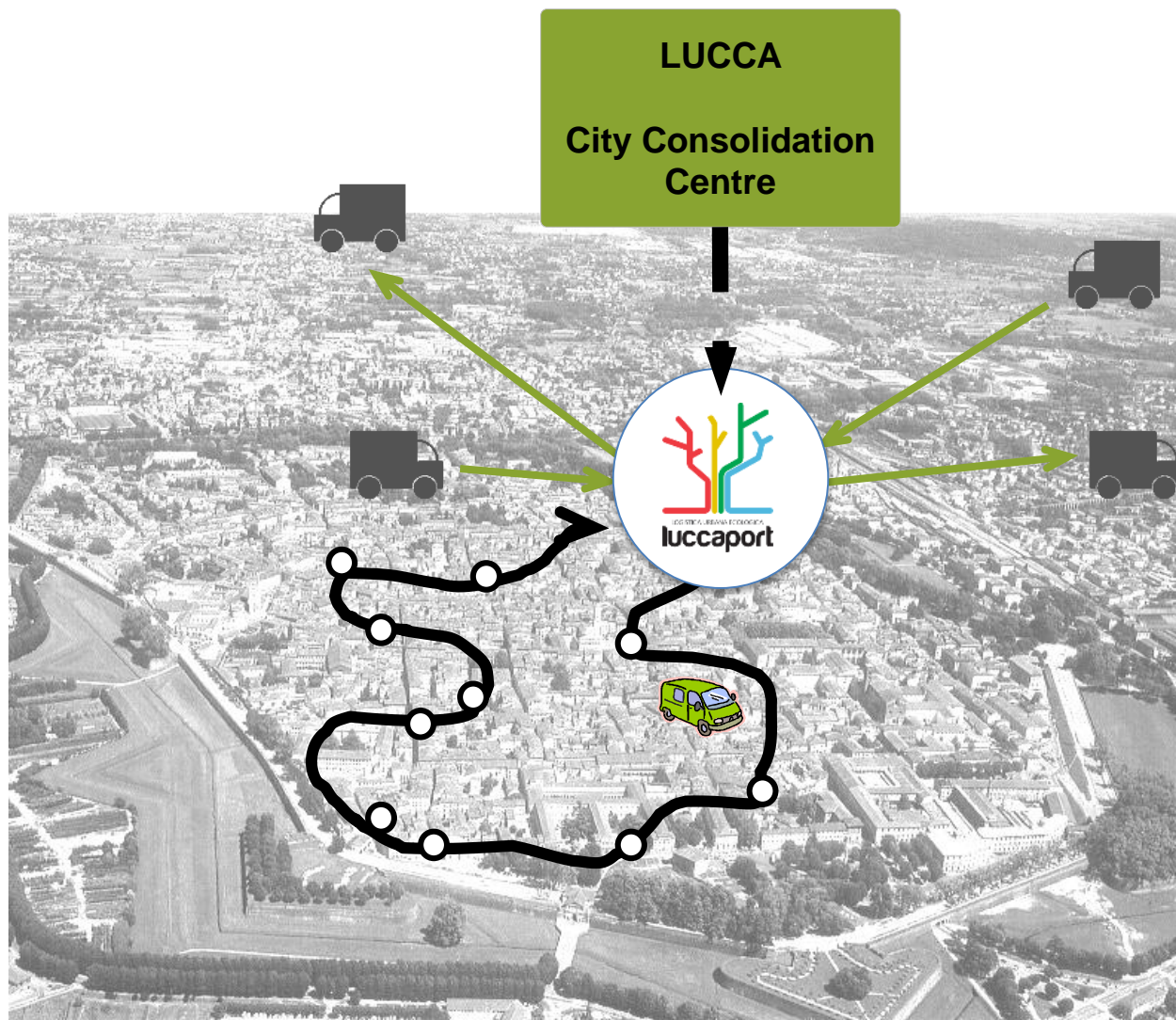
Type of goods	Permit area(s)	Time and other limitations
Perishable goods	LTZ, A Area, B Area	7:00-10:30, 15:00-16:30 and 18:30-20:00
Medicines & drugs	LTZ	Any time of the day (max. 20 mins parking)
	A Area, B Area	7:00-10:00, 12:00-13:00, 16:00-17:00, 18:30-19:30 (max. 20 mins parking)
Fuels	LTZ	Any time of the day
	A Area, B Area	8:30-13:00, 14:30-15:30
Sales representatives (yearly duration permit)	LTZ	Any time of the day. Parking allowed only in dedicated yellow marked lots
	A Area, B Area	8:00-14:00, 14:30-15:30, 19:30-20:00
Tobacco and state monopoly goods (yearly duration permit)	LTZ	Any time of the day. Parking allowed only in dedicated yellow marked lots
	A Area, B Area	8:00-12:00

CURRENT MEASURES FOR MOBILITY MANAGEMENT AND FREIGHT DISTRIBUTION IN LUCCA

Since 2002 the municipality of Lucca has developed and implemented several experimental activities aiming to research, development and innovation on sustainable city logistics.



AN EXAMPLE OF CITY LOGISTICS PROJECT CARRIED OUT IN LUCCA. THE LIFE CEDM PROJECT





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Study visit from Sweden, May 2012

SERVICE SUSPENDED

2018

- Long term economic sustainability unsure
- Weak support from transport operators (new ones with optimized logistics base nearby town, new ones with eco vehicles)
- National operational framework unclear (i.e. Italian National Logistics Plan turned down)
- Unclear legal framework
- Lack of coordination among municipalities and among municipalities and higher level entities
- Three failed attempts to involve private operators in the management through public tenders
- Emerging consensus on new and different ways of managing city logistics flow (LIFE ASPIRE)

LIFE ASPIRE LOCMAP and REWARDING POLICY

Monitoring freight urban transport in Lucca through the installation of **RFID system** at the access and exit points of the RTZ



The innovative **Logistics Credit Management Platform (LOCMAP)** will manage the **whole technology system**, reporting on the several logistics factors considered in ASPIRE purposes.



Encouragement of sustainable behaviour of logistics operators

Improvement of urban air quality due to reduction of urban logistics impacts in the city of Lucca

Cargo bike sharing service



Smart monitoring of load/unload freight areas



Logistics Credit Management Platform- LOCMAP:

integrated management and control platform governing all the technological installed elements

Incentive access regulation for operators adopting **sustainable behaviour**



LIFE ASPIRE RFID access/exit control system

Monitoring freight urban transport in urban areas through the installation of **24 RFID gates** at the access and exit points of the



LTZ entrance



LOCMAP platform

Access regulation management

Credits management

LTZ exit



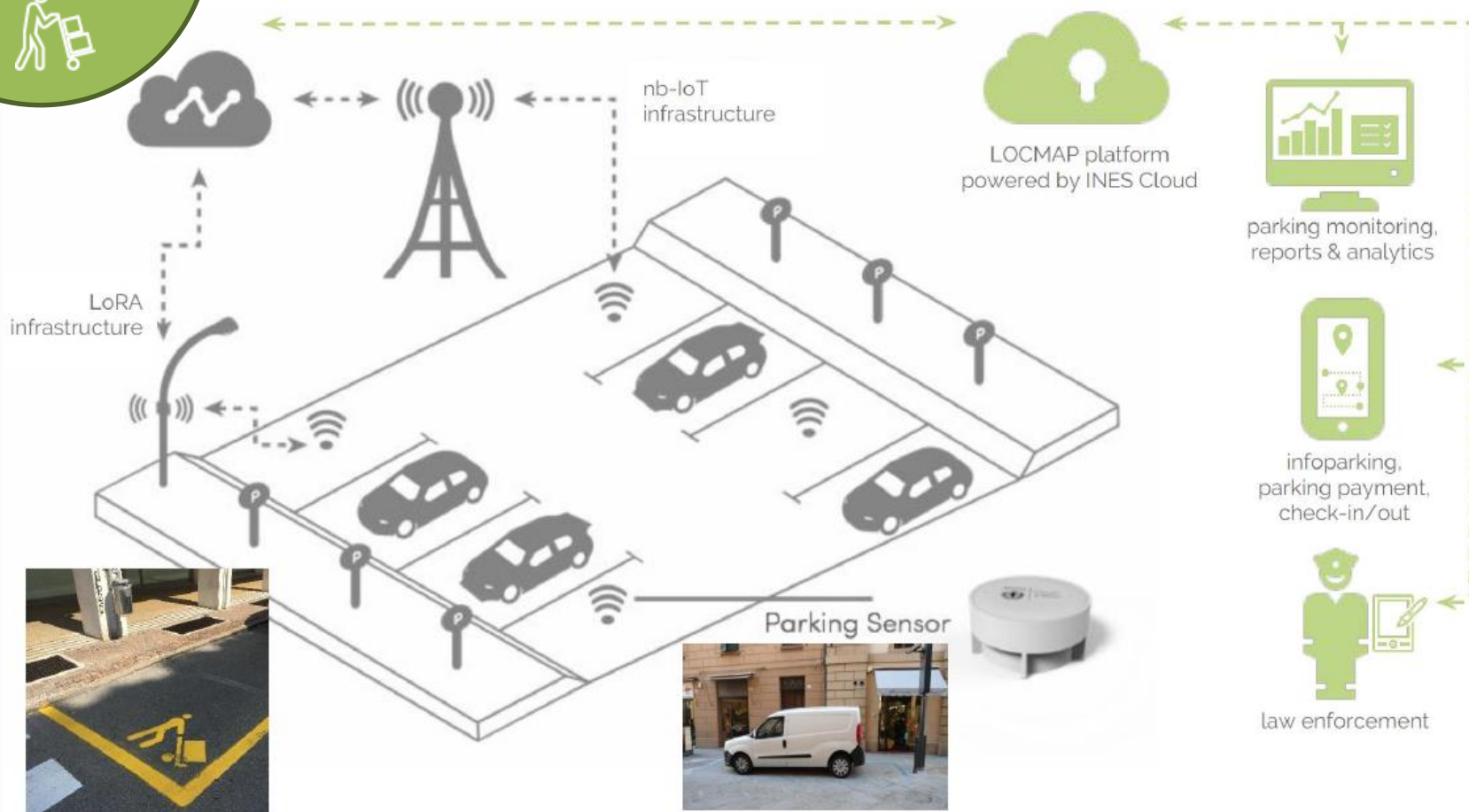


LIFE ASPIRE smart load unload area

Smart monitoring of
load/unload freight
areas

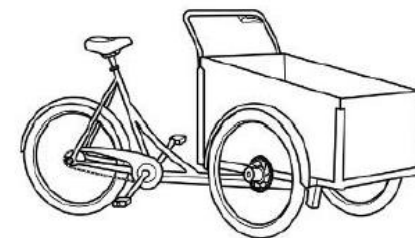


- 34 L/U lots equipped with sensors



LIFE ASPIRE cargo bike sharing system

Cargo bike
sharing
service



LIFE ASPIRE «REWARDING» POLICIES MODEL

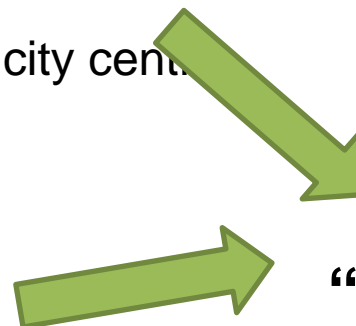
2 different categories of PARAMETERS

Static parameters:

- vehicle technical characteristics: typology of Engine/Fuel and dimensions/GVM category.
- Use of a consolidation centre nearby the city centre.

Dynamic parameters

- Frequency of daily trips
- Duration of the stay inside the RTZ
- Utilized time window
- Use of L/U parking lots services
- Use of Cargo-bike sharing services



“Eco Point score”





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A CASH-ON-ROAD
SYSTEM TO
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LIFE ASPIRE expected impacts

➤ **City logistics operation efficiency improvement**

Reduction of the number of circulating freight vehicles and promote the use of less polluting vehicles

➤ **Overall urban mobility improvement**

Reduction of traffic congestion

Reduction of unauthorized parking

➤ **Enviromental improvement**

Reduction of polluting emission (CO, PM , NOx, VOC, noise)

Reduction of heavy traffic externalities (e.g. health/safety hazard, cutural heritage damage)

Life quality Improvemnet for resident, turists, and vistoris

A possible future evolution of the LIFE ASPIRE technologies?





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LIFE ASPIRE Replication and Transfer: from Zadar and Stockholm to other European cities



Lucca

Stockholm

Zadar

Other
EU cities



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Thanks for your attention

Mauro Di Bugno, Luca Falsiroli: City of Lucca
Stefan Guerra: LUCENSE



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LIFE16 ENV/IT/000004