



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



September 21st, 2021

Project LIFE ASPIRE

The demonstration in Lucca and the results obtained



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LIFE ASPIRE - INTERNATIONAL CONFERENCE: THE ROLE OF URBAN LOGISTICS IN THE ECOLOGICAL TRANSITION



With the contribution of the
LIFE financial instrument
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GRAD ZADAR

Stefan Guerra, LUCENSE



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The project vision: contribution to the goals of Lucca SUMP, Air Quality Plan and Agenda 2030

- SUMP, Air Quality Plan, Agenda 2030 of the City of Lucca aim to reduce the impact of traffic on air quality, to gradually phase out fossil-free transport and create a CO2-free logistics inside the urban area by 2030.
- Deliberations by the City Council n. 107 del 11 December 2018 and n. 18 of 15 March 2019; by the City Executive Board: n. 73 del 19 March 2019, n. 132 of 4 June 2019, n. 216 of 24 September 2019, and n. 103 of 15 June 2021.

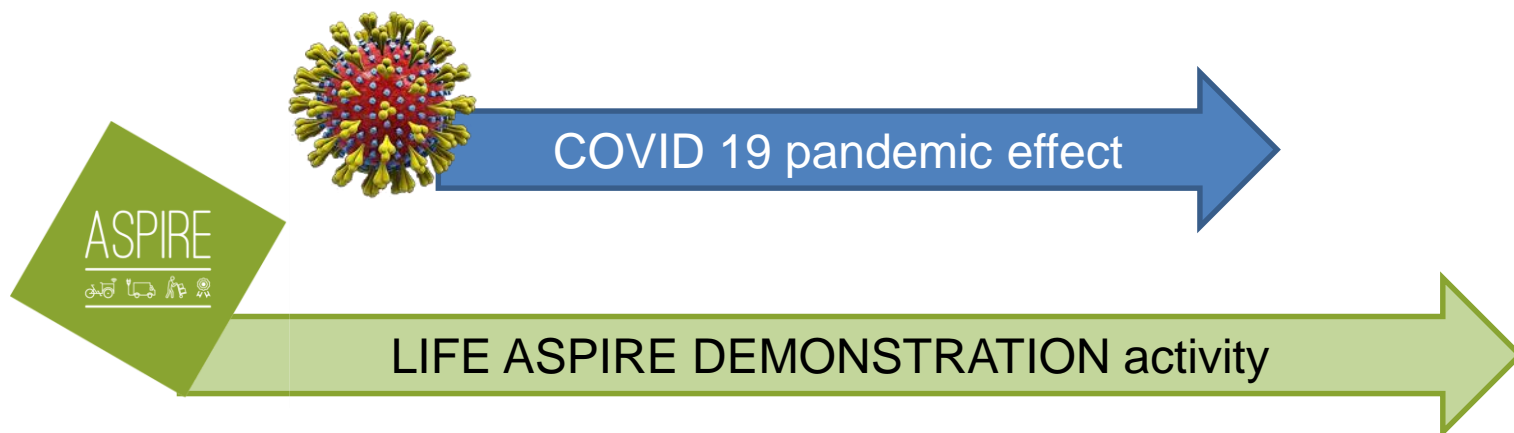


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IMPACT OF COVID-19 PANDEMIC ON CITY LOGISTICS IN LUCCA



2017	2018	2019	2020	2021
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START of the project
1st Oct 2017

END of the project
30th Sept
2021

Organization and validation of collected data is on going

- Round 2300 commercial vehicles monitored
- All vehicles equipped with an RTZ access permit provided with RFID
- 1600+ vehicles entering the RTZ each working day





LIFE ASPIRE LOCMAP and REWARDING POLICY

The innovative **Logistics Credit Management Platform (LOCMAP)** manages 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

Logistics Credit Management Platform - LOCMAP
 integrated management and control platform governing all the technological installed elements

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

Cargo bike sharing service



Smart monitoring of load/unload freight areas



Enhance access regulation for operators adopting sustainable behaviour



LIFE ASPIRE AWARD PROGRAMME definition

**LIFE ASPIRE is an AWARD PROGRAMME with a defined set of goals,
provided with monitoring technologies
to REWARD SUSTAINABILITY leaders
in city logistics in Lucca.**



OBJECTIVE: incentivize the logistics operators' change of behaviour, in order to optimize their activities in the historical centre in a more sustainable way and to reduce the environmental impact

Demonstrated technologies and procedures: contribution to overall results of the project

Cargo bikes sharing

- Interest shown by different user categories: sharing to be open for all users.
- Demonstrated unlock procedures in use are a barrier for a more extended use
- Contribution to greater attention toward zero-emission and low-carbon transport
- Incredible promotion tool for sustainable transport



Demonstrated technologies and procedures: contribution to overall results of the project

Smart Load/unload bays

- Occupation for more than 60% of the available time
- Limited appeal of the App and its use
- Accessibility by professional transport operators complicated
- Limited diffusion of the expected sustainable behavior associated to this measure, due to transport market needs and a complicated involvement of municipal police, to the local by-laws and national framework



Demonstrated technologies and procedures: contribution to overall results

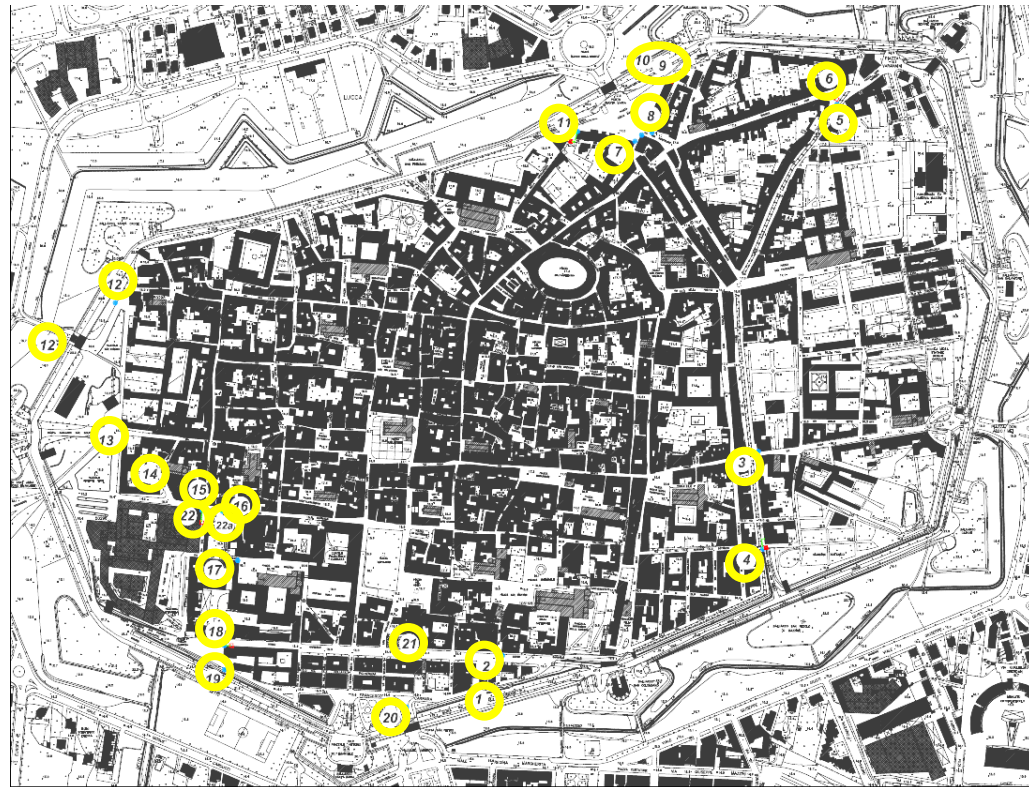
UHF RFID Antennas at the RTZ boundary

- information on the commercial vehicles accessing and exiting the RTZ
- Strong interest in the extension of the system to other user categories
- Compliance with privacy rules: system do not access to the vehicles data which are maintained elsewhere
- The LIFE ASPIRE technology associates score to each detected RFID according to sustainability rules, defined by the city regulation.



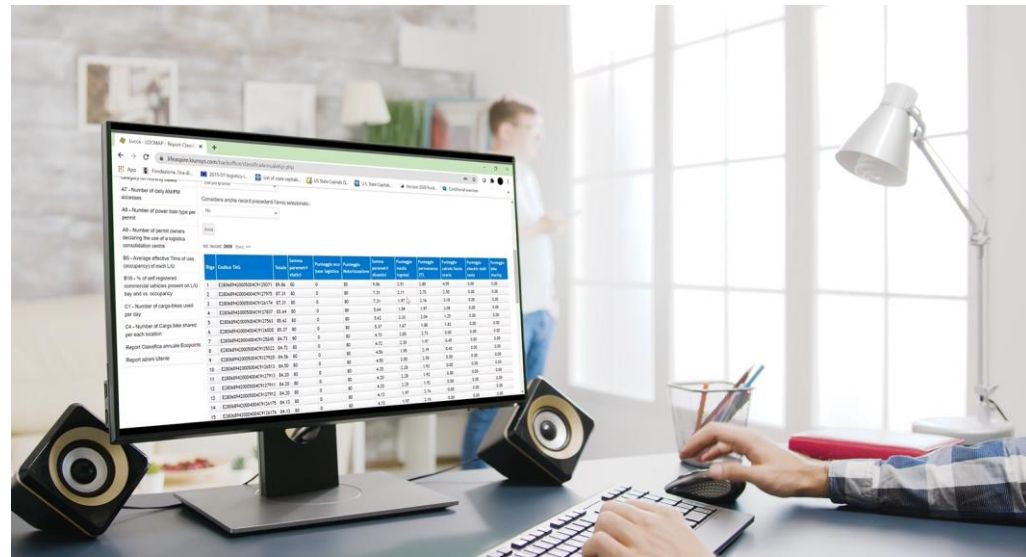
Demonstrated technologies and procedures: contribution to overall results

- Complex deployment of RFID technologies applied to traffic monitoring inside urban area of an historic town
- RTZ: possible integration of RFID and Optical cameras for a better monitoring.
- Changes to the extension of the monitored area are always possible



Demonstrated technologies and procedures: contribution to overall results

- Back-office management and control of all the technological elements of the system
- Demo led to the identification of several possible simplification
- Interaction required with the company managing RTZ access permits (Metro srl)



Demonstrated technologies and procedures: contribution to overall results

Ecopoints for awarding sustainable operators

Data acquired during the demo pave the way to an extended evaluation of the relevance and the contribution of different parameters

- Static parameters
 - *Emission standards are a the best parameter to score sustainability level*
- Dynamic parameters
 - *Use of cargo bikes and smart load/unload bays: open questions*
 - *Time spent inside the RTZ by the transport operators: may not catch completely the sustainability factor (full loaded vehicle for several deliveries VS for single/few deliveries)*
 - *Time of RTZ entrance/exit (relevance data also to understand the whole mobility scenario)*
 - *Open to further improvement to identify sustainable transport behaviour (which parameter to score the role of small optimized delivery fleet Vs single vehicles, changes to more sustainable vehicle, ..) and to reduction of its complexity.*

Demonstrated technologies and procedures: contribution to overall results

Rewarding to encourage the transformation toward more sustainable city logistics

- Rewarding approach is the big challenge of LIFE ASPIRE and its most relevant legacy
- Interest and suggestions registered from the transport companies
- Rewarding requires communication to effective communication campaigns
- Can help the ecological transition of the cities more than any coercive measure
- Requires the involvement of the targeted operators and stakeholders

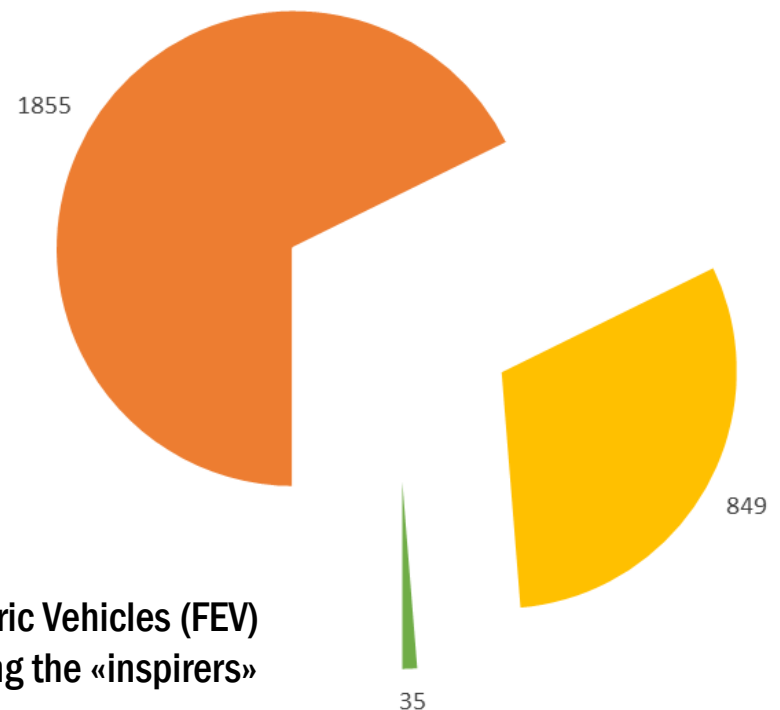


Demonstrated technologies and procedures: contribution to overall results

Building the LIFE Aspire rewarding approach

- Life ASPIRE assigns to each vehicle a certain number of ecopoints according to static and dynamic parameters
- Distribution of vehicles/operators according to the assigned number ecopoints
- Inspirers are the rewarded operators that can prompt change an innovation among the operators in the transition phase

- Fossils, ecopoint 0-20
- In transition: ecopoints 21-49
- Inspirers, ecopoints 50+



NOTE: Full Electric Vehicles (FEV)
are the all among the «inspirers»



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Rewarding mechanism and collaboration with the Inspirers

The City will start after the final elaboration of the data acquired by the LIFE ASPIRE to call the inspirers companies for collaboration with the less green companies in order to find solution useful also for the companies in the transition phase

Rewarding at the moment is a promotional immaterial price

Rewarding mechanism are **consistent with the Position paper on city logistics of the Italian Ministry of Sustainable Infrastructures and Mobility**, released in december 2020 (and with several plans and papers of the EU).

Also consistent with the request of the italian private transport operators (see Freight Council book n. 29, 2021, p 32, indication to the local public administration).

LIFE ASPIRE contributes to the ecological transition of the city of Lucca

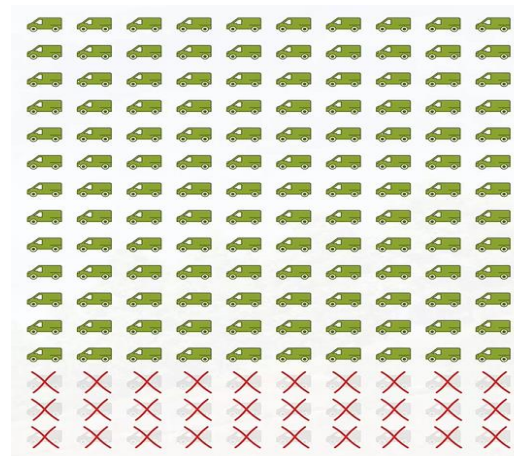
In terms of:

- reduction of the number of vehicles circulating in the RTZ
- Increase of the number of zero-emissions vehicles accessing the RTZ
- provision of services streamlining city logistics processes.

Before LIFE ASPIRE

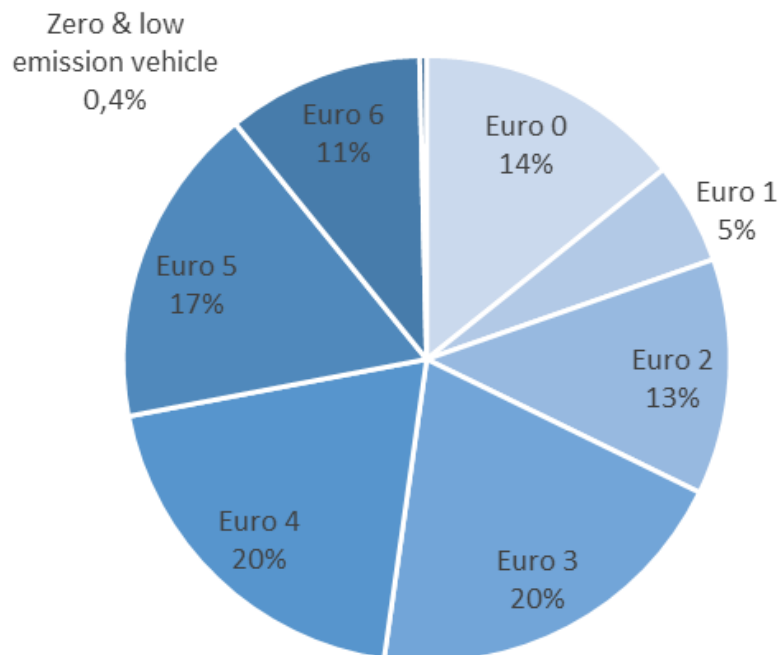


After LIFE ASPIRE

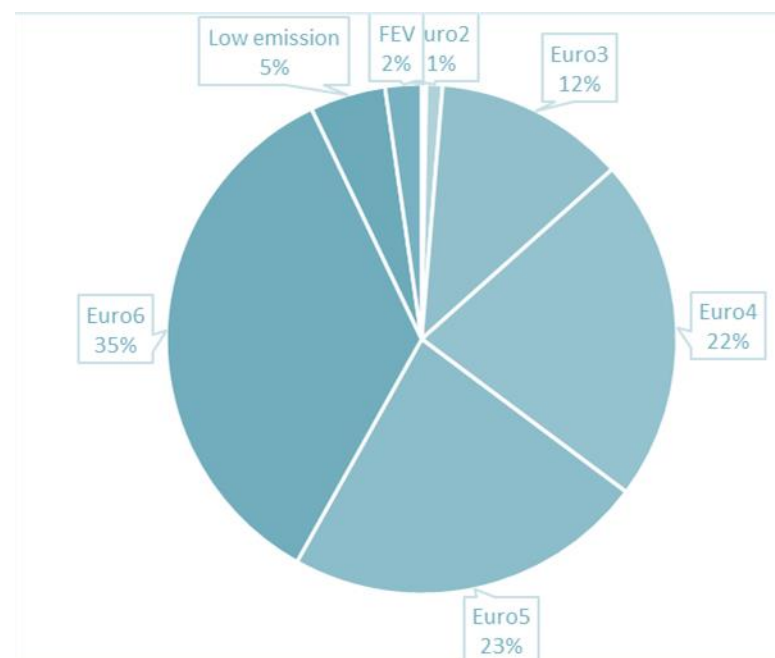


Impact of RTZ regulations and LIFE ASPIRE measures on the average emission standards of logistics operators' fleet

Light commercial vehicles' fleet
circulating in the area of the
Municipality of Lucca, outside
the RTZ



Light commercial vehicles' fleet
circulating in the RTZ of the city of
Lucca





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LIFE ASPIRE contribution for improved air quality

Impact evaluations developed on the basis of validated collected data. Provisional estimations

Reduction of several pollutants emissions, with a relevant contribution to the air quality goals set in the regional AQP (e.g. Particulate Matter: not less than - **8%** with respect to overall foreseen PM reduction for the demo area)

ASPIRE



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Thanks for your kind attention!

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