Setting up an integrated ICT Platform to improve city logistics: first insights from the SENATOR Project

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Senator

https://www.senatorproject.eu/

University College Dublin
Ireland's Global University

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 861540

Challenges

- The freight distribution sector has significant **impacts on urban environment** due to last mile delivery disruption and supply processes to meet the demand.

- The shift in consumer trends towards shared and connected services, e-commerce call for **new approaches** to improve and optimize this part of the supply chain.

75%
of the total EU population live in cities

70 b€
global cost of last mile deliveries

25%
urban freight is responsible for CO2 emissions

40%
road space taken up by delivery networks

Challenges

SENATOR provides a solution to these logistic challenges for cities, towns and peri-urban districts, such as:

- The increasing demand for products by users/citizens.
- The increase in associated costs and the fragmentation of the logistics sector.
- The congestion caused by the distribution of goods in urban centres.
- The resulting environmental consequences such as the pollution that affects air quality in cities.

SENATOR project is aligned with the following Sustainable Development Goals (SDG's):

SDG 8 Decent work and economic growth

SDG 9 Industry innovation and infrastructure

SDG 13 Climate Action

SDG 11 Sustainable Cities and Communities

Solutions

- SENATOR wants to develop a solution that integrates these four layers into one platform, that resembles a "**control tower**".
- The platform will work as a support tool for decision making, integration and planning of all logistics operations.
- This will constitute an effective means of collaboration between the agents involved in the process: **citizens, operators, shippers and city councils**.

The main objective of SENATOR project is to provide 4 governance schemes for urban planning policies

1 User demand planning

2 Transport planning

3 Freight & Logistics planning

4 City infrastructure focused

About the project

Correos

Deusto
Universidad de Deusto
Deustuko Unibertsitatea
University of Deusto

Zaragoza
AYUNTAMIENTO

Comhairle Cathrach Bhaile Átha Cliath
Dublin City Council

MDS Transmodal
Local & Global Transport & Logistics Research

RINA

zabala
INNOVATION

DOTGIS

software AG

UCD DUBLIN
University College Dublin
Ireland's Global University

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Start date	End date
1 September 2020	31 August 2024

PROJECT

11 partners	5 countries
2 urban living labs	48 months
4 million euros budget	

Objectives of the project

The main objective of SENATOR is to provide 4 governance schemes for urban planning policies: User demand planning, Transport planning, Freight & Logistics planning and City infrastructure focused.

Promote better urban mobility governance by strengthening the capacity of European urban municipal authorities at urban planning level

Foster a common logistics operation framework under European legislation focused on ensure equal labour conditions for last-mile delivery services

Promote more citizen centred and socially inclusive logistic services

Enable new market opportunities and prosperous growth on the urban logistics delivery services

Objectives of the project

The main objective of SENATOR is to provide 4 governance schemes for urban planning policies: User demand planning, Transport planning, Freight & Logistics planning and City infrastructure focused.

Ensure project replicability for future EU actions

Decrease by 10% CO2 emissions and pollutant concentration and reducing noise levels

Decrease urban congestion

Increase modal shift up to 10% and ease a flexible management and communication of diverse transport assets in logistics from cargo vans to zero emission transport modes and active transport

Urban Living Labs (ULLs)

SENATOR solutions will be tested, readjusted, and improved to fit the real-life environment at small scale within urban environment.

SENATOR will help city councils to manage and optimise, as part of a 360-vision approach, sustainable transport policies: incorporating freight flows into urban planning.

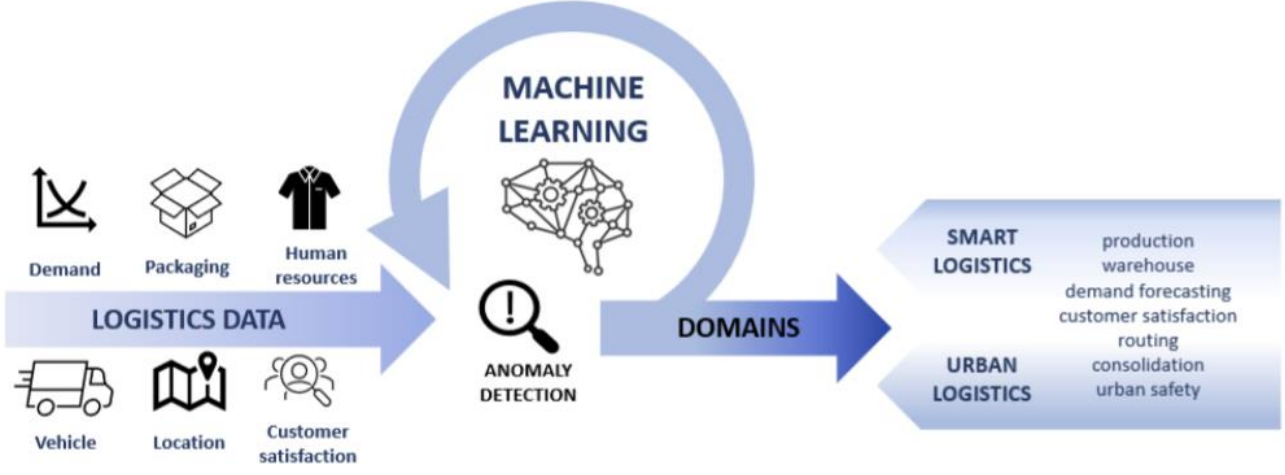
ULLs

Senator

First results: in-depth review of the SoA

In-depth review of the state of the art in optimization and machine learning algorithms applied to last mile logistics

- main literature approaches, practice from industrial cases and application domains for data analytics through machine learning;
- analysis of optimization models and techniques for dynamic planning in logistics, including current available software tools.



Information Flow for selected data sources

First results: Co-creation processes and citizens awareness techniques

Co-creation processes and citizens awareness techniques. This includes the key points of the SENATOR co-creation and citizens awareness workshops, and a more detailed definition of plans for each of the two cities involved in the ULLs.

Design Thinking approach

First results: Zaragoza - Use case definition and ULL requirements

WHERE?

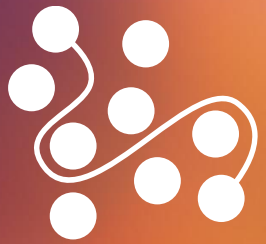
The San Vicente de Paul market and parking areas within neighboring districts.

Area affected by the ULL of ZGZ: 1.266m2

First results: Dublin - Use case definition and ULL requirements

WHERE?

Several different city centre locations in a variety of activity zones (e.g. retail, residential and commercial). These locations include: the Docklands area, Temple Bar and Dame Street, Henry Street, Grafton Street.



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Thanks for your attention!

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