



Unlocking efficiency: FOR-FREIGHT's Solution to Intermodal Interface Transport Challenges

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ALICE Logistics Innovation Theatre
TRA Conference, Dublin, April 17th



Funded by the European Union under Grant Agreement no. 101069731. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Climate, Infrastructure and Environment Executive Agency. Neither the European Union or the granting authority can be held responsible for them.



Agenda

Presentation Sections

01

Intermodal Interface Transport Challenges

02

FOR-FREIGHT Project

03

FOR-FREIGHT Platform and Architecture

04

FOR-FREIGHT Use Cases

05

Innovation Aspects

06

Social Media

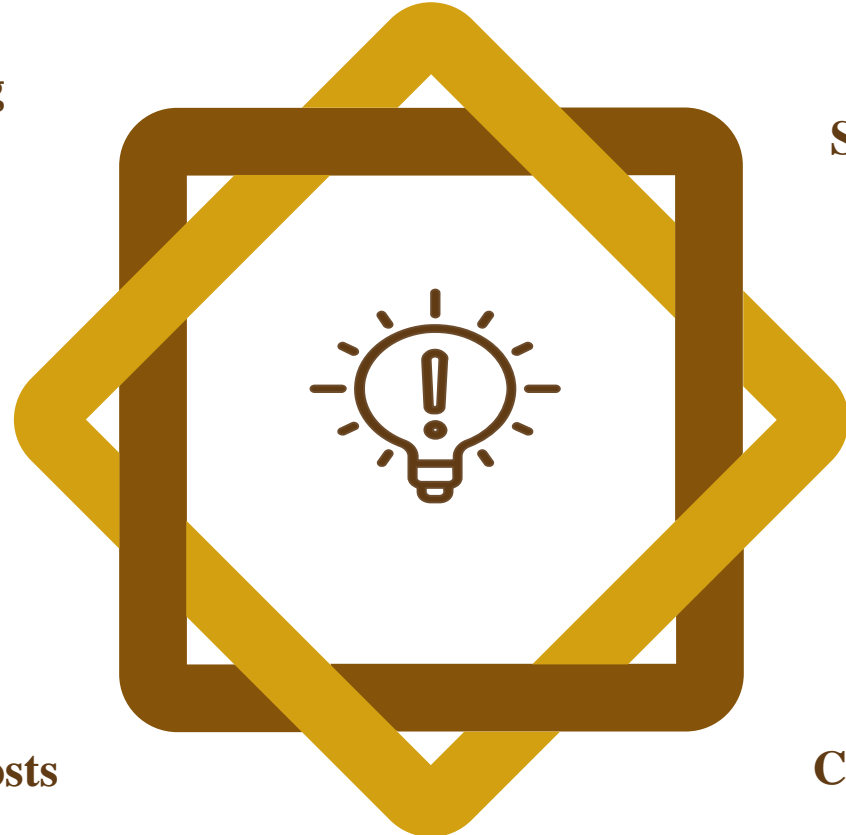


01

Intermodal Interface Transport Challenges



Intermodal Interface Transport Challenges



Information Silos & Legacy Systems

Lack of Standardization

Digitalization Gap

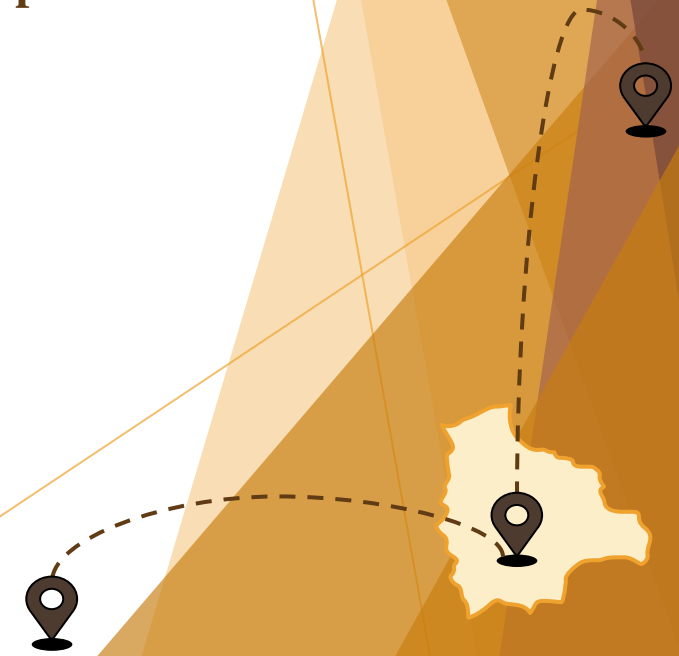
Last-mile Connectivity

Lack of Coordination and Integration

Conflicting Interests

Regulatory Compliance

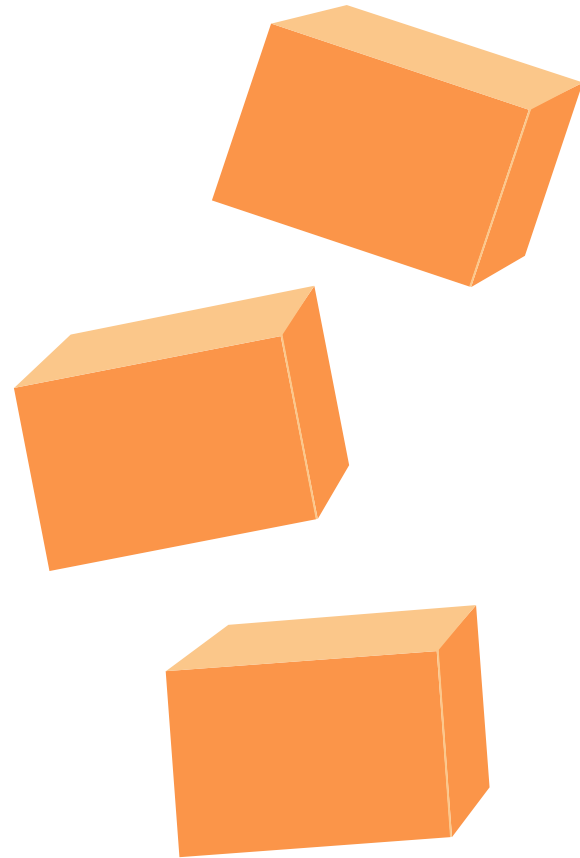
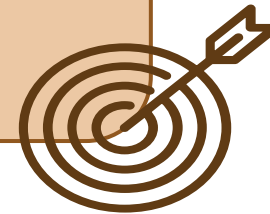
Increased Costs



Intermodal Interface Transport Challenges

Around the world, actors of intermodal interfaces encounter the same problems.

FOR-FREIGHT Project aims to facilitate co-operation between the different stakeholders and align their optimization interests and procedures.





02

FOR-FREIGHT Project



Project: Flexible, multi-mOdal and Robust FREIGHt Transport (101069731)

Topic: HORIZON-CL5-2021-D6-01-07 - More efficient and effective multimodal freight transport nodes to increase flexibility, service visibility and reduce the average cost of freight transport

Duration: September 2022-December 2025 (40 months)

Budget: 7.151.677,5 €

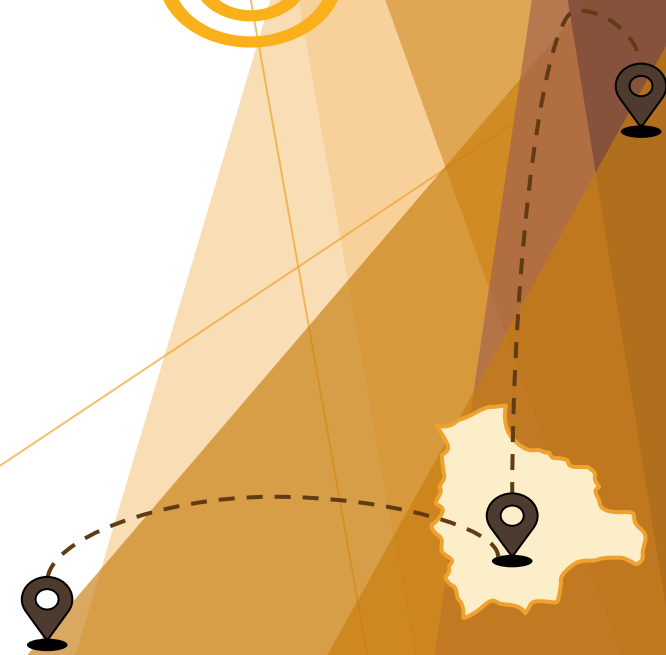
Partners:





FOR-FREIGHT

Aims to maximize the utilization of multimodal freight transport capacity and reduce the average cost of freight transport through the development of novel solutions and their integration with legacy logistics systems.





04

FOR-FREIGHT System Capabilities and Architecture





FOR-FREIGHT Generalized Solving Process

Through the new definition of TEN-T corridors in Europe, intermodal interfaces actors encounter common generalized problems which occur in different operation environments regarding: infrastructure, availability and geographies.

Solving Process Example (Spanish Use Case)

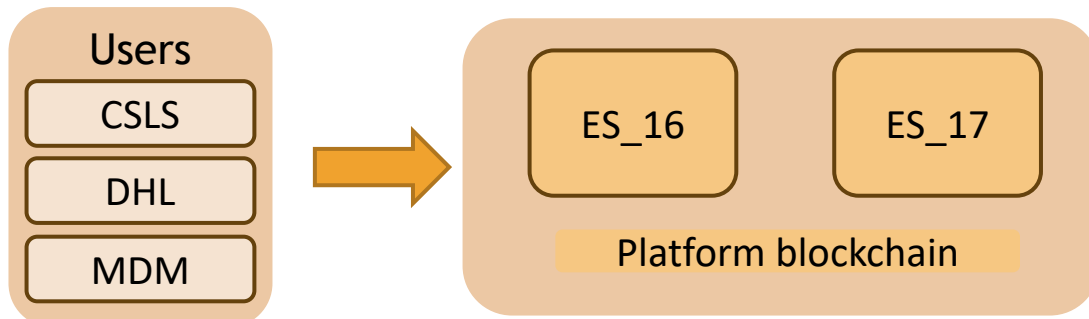
Digitalisation and automation of processes/ Collaboration and information sharing:

CSLS faces discrepancies and delays in confirming deliveries to DHL warehouses. Without a reliable method to track shipments and verify deliveries, CSLS struggles to provide accurate information to their clients, leading to dissatisfaction and mistrust, moreover.

For this, CSLS will need digital proof of delivery. CSLS is going to use the FOR-FREIGHT platform and will use the blockchain-based solutions related with ES_16 and ES_17, which will support the tracking process and generates digital proof of delivery for shipments, including for example timestamps, signatures, and other relevant details.

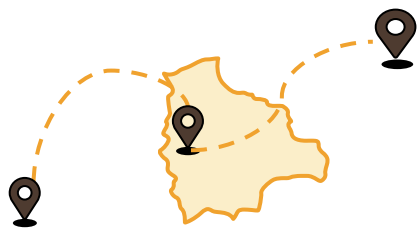
FOR-FREIGHT Project aims to:

- Define about 15 problem solving processes
- Develop 50 solvers



ES_16: Digital proof of delivery at the final destination

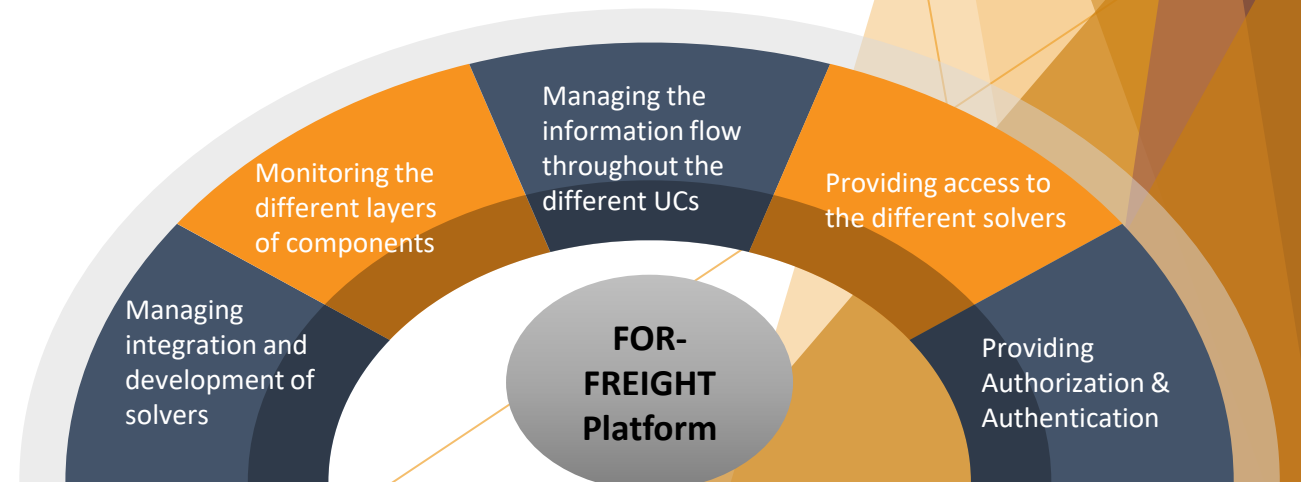
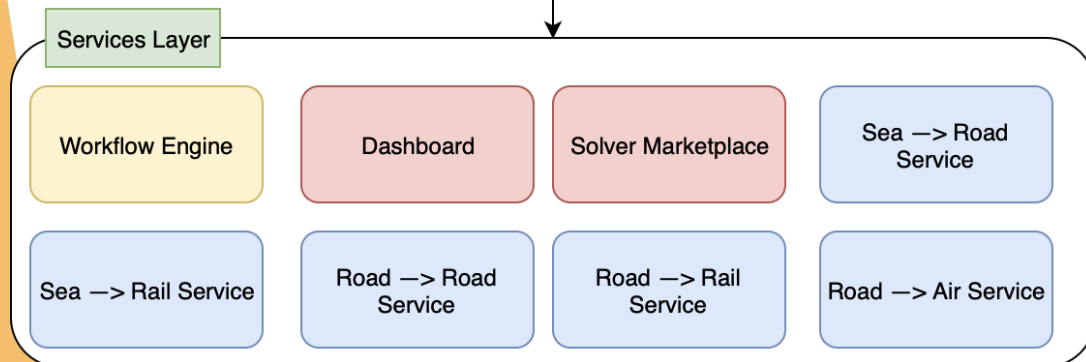
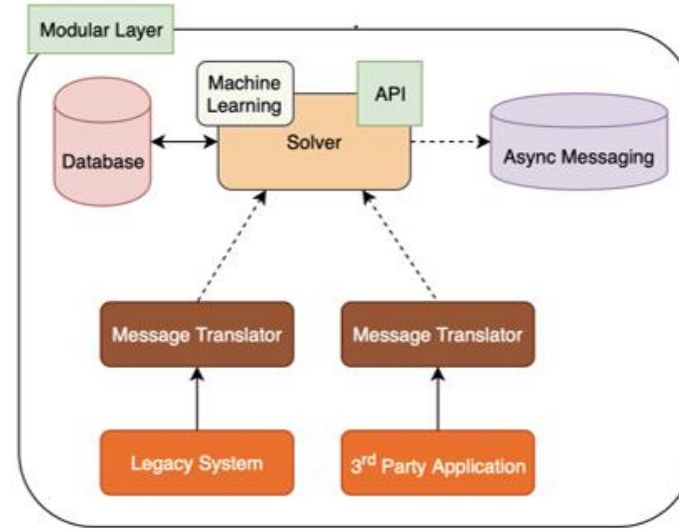
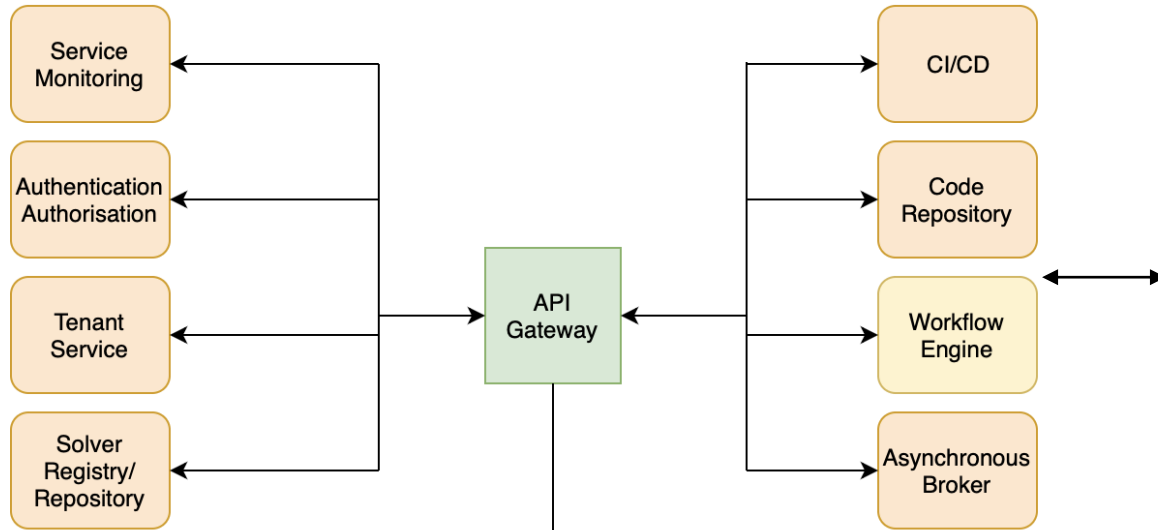
ES_17: Decentralised system for sharing data and documents between different stakeholders



FOR-FREIGHT Platform

FOR-FREIGHT Platform Architecture

- Core System Components:**
- Solvers Library
 - Services (interface optimization)
 - Legacy system and 3rd party systems interfaces



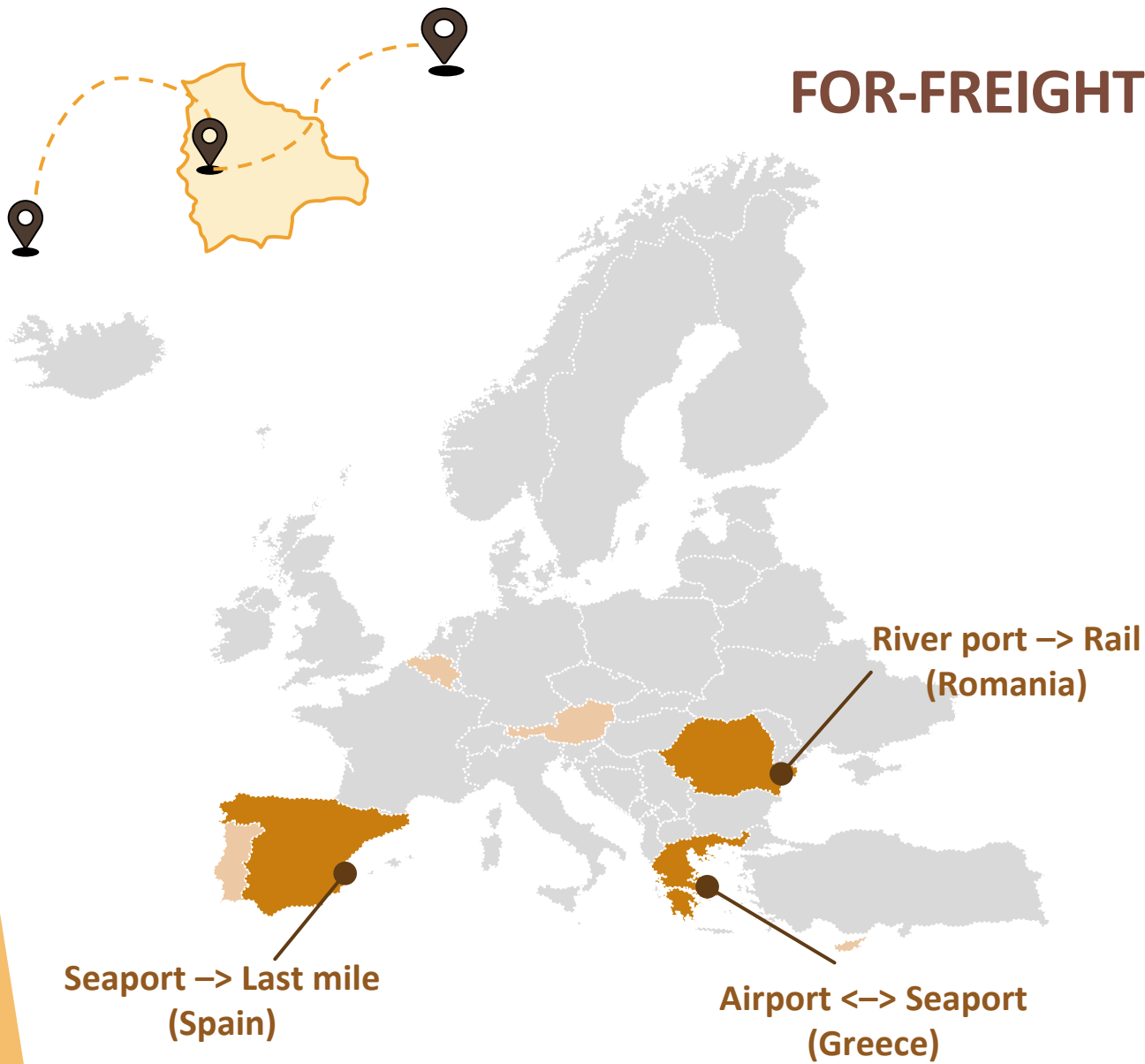


03

FOR-FREIGHT Use Cases



FOR-FREIGHT Use Cases



FOR-FREIGHT Strategy:

- Identify Generalized Problems of Intermodality
- Define Solving Strategies for Intermodal Interface Facilitation
- Develop Specific Solvers for each Generalized Problem

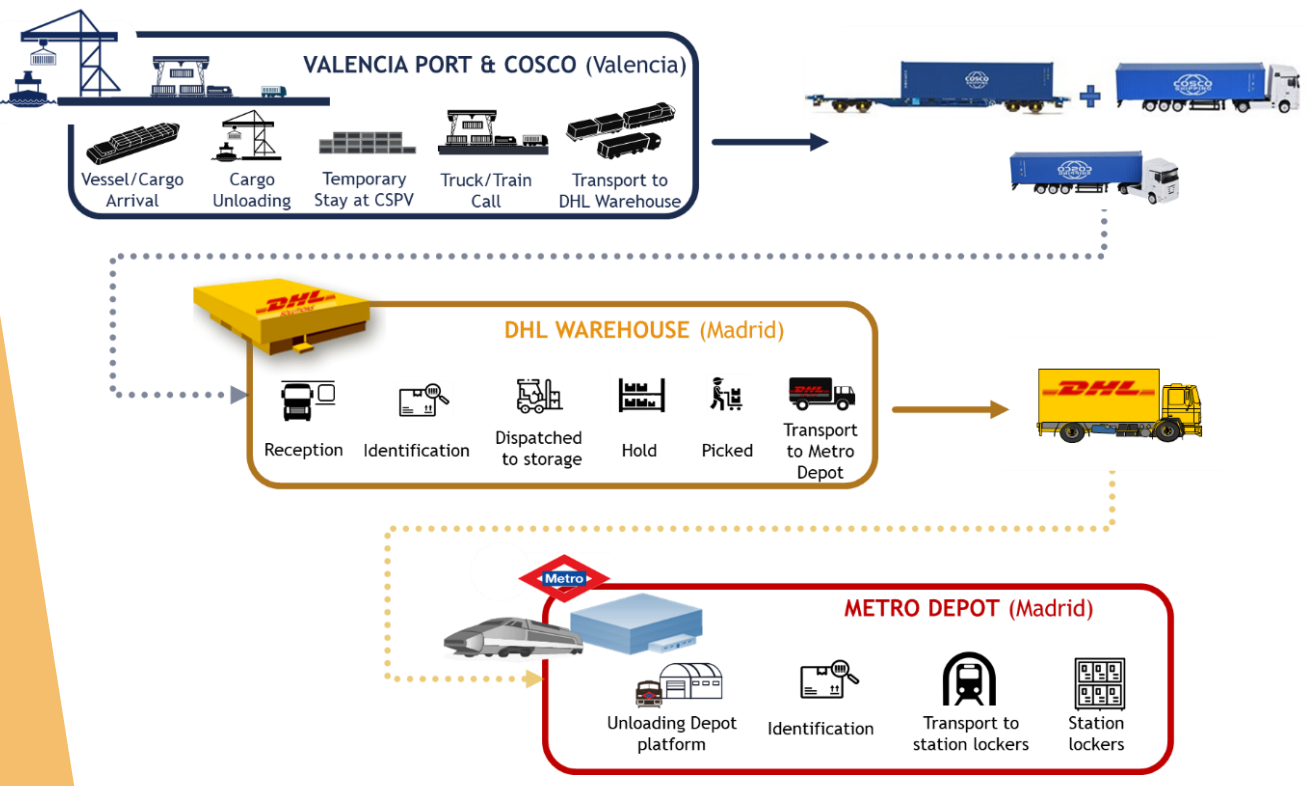
The three pilots constitute a **bottom-up approach** to fulfill the FOR-FREIGHT Strategy.

Spanish Use Case



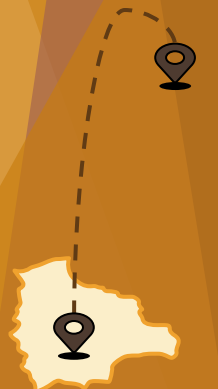
Seamless integration of the long-haulage transportation into the last-mile delivery systems.

- Lack of Interaction between legacy systems
- Limited visibility of cargo flow
- Low Digitalization/Automation
- Sub-optimal resource and multimodal transport planning



- Spanish Use Case Goals:**
- ✓ Improve information flow and visibility
 - ✓ Improve truck planning and truck staying at the port and terminal
 - ✓ Reduce traffic congestion at the port
 - ✓ Faster distributions through the existing nodes
 - ✓ Use a more efficient and sustainable transport mode in the last mile distribution - METRO

Development of 17 Solvers



Greek Use Case

Align optimization objectives of Athens Airport and Piraeus Port with effective CO2 reduction.

- Lack of unified management systems via common interfaces (low interoperability)
- Increase GHG emissions
- Low digitalization/automation of the logistics processes
- Sub-optimal resource planning based on outdated information

Greek Use Case Goals:

- ✓ Prioritization of interoperability, efficiency, and seamless connectivity among different actors
- ✓ Reduce the increased multimodal costs and CO2 emissions
- ✓ Optimize inventory management systems
- ✓ Introduce innovative features to enhance logistics operations

Development of 23 Solvers



Romanian Use Case



Align intermodal interface management systems of Inland Waterways and Railway network.



- Fragmented freight transport - Lack of unified management systems between different modes
- Lack of visibility between stakeholders
- Sub-optimal resource planning before the vessel arrival to the port
- Low digitalization/automation of the logistics processes



Romanian Use Case Goals:

- ✓ Enhance remote monitoring capabilities for logistics operators and users (tracking)
- ✓ Smooth functioning in the port area connecting the whole ecosystem
- ✓ Automation of processes that are now manually executed
- ✓ Reduced GHG emissions based on carbon footprint analysis

Development of 10 Solvers





05

FOR-FREIGHT Innovation Aspects



FOR-FREIGHT Innovation Aspects



Comprehensive technology-driven solvers library

- Responds to different technological & infrastructure maturity
- Monitoring, Prediction of CO2 footprint, costs, capacities etc.

“Community” Platform

- Consumes the local innovation and technology advancements of different ecosystems.
- A unique pipeline of solvers and data sources to provide solutions to real-world operational cases.



Setting a “common ground” for logistics communication

- Expansion of TIC4.0's common language to hinterland actors (warehouse, dry port, airport, land transport)

Last mile distribution systems in intermodal interfaces

- Utilization of a Subway-Based Network as sustainable alternative for last mile distribution
- New capacities and efficient interfaces

Cutting – Edge Technology integration

- Digital Twins as a decision-support system and simulation tool
- IoT sensors for real-time tracking
- Blockchain technology





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<https://www.for-freight.eu/>



This project has received funding from the European Union's Horizon Europe research and innovation programme under the Grant Agreement No. 101069731





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