

Overview of the FOR-FREIGHT project

Market survey mission, Constanta, Galati & Giurgiulesti ports
Advantage Austria D & C FOR-FREIGHT Project
March 13th, 2024



FOR-FREIGHT snapshot

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)

www.for-freight.eu & <https://twitter.com/forfreight22>

Scope:

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.

This will enable more **effective and sustainable management of goods and freight** flows in airports, ports, inland terminals and various logistics nodes, taking into account the requirements of all involved stakeholders, and accounting for **economic, environmental and social aspects**.

Partners:



COSCO SHIPPING LINES (SPAIN) S.A.



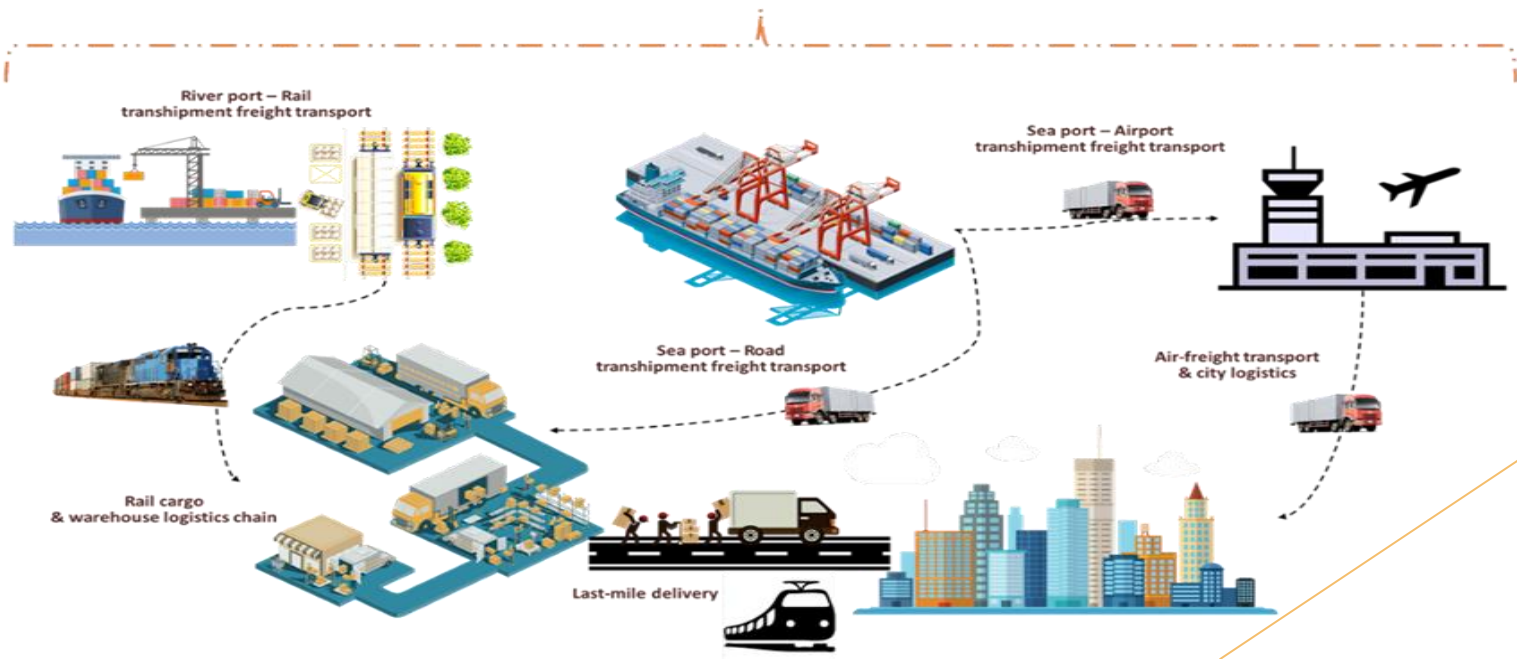
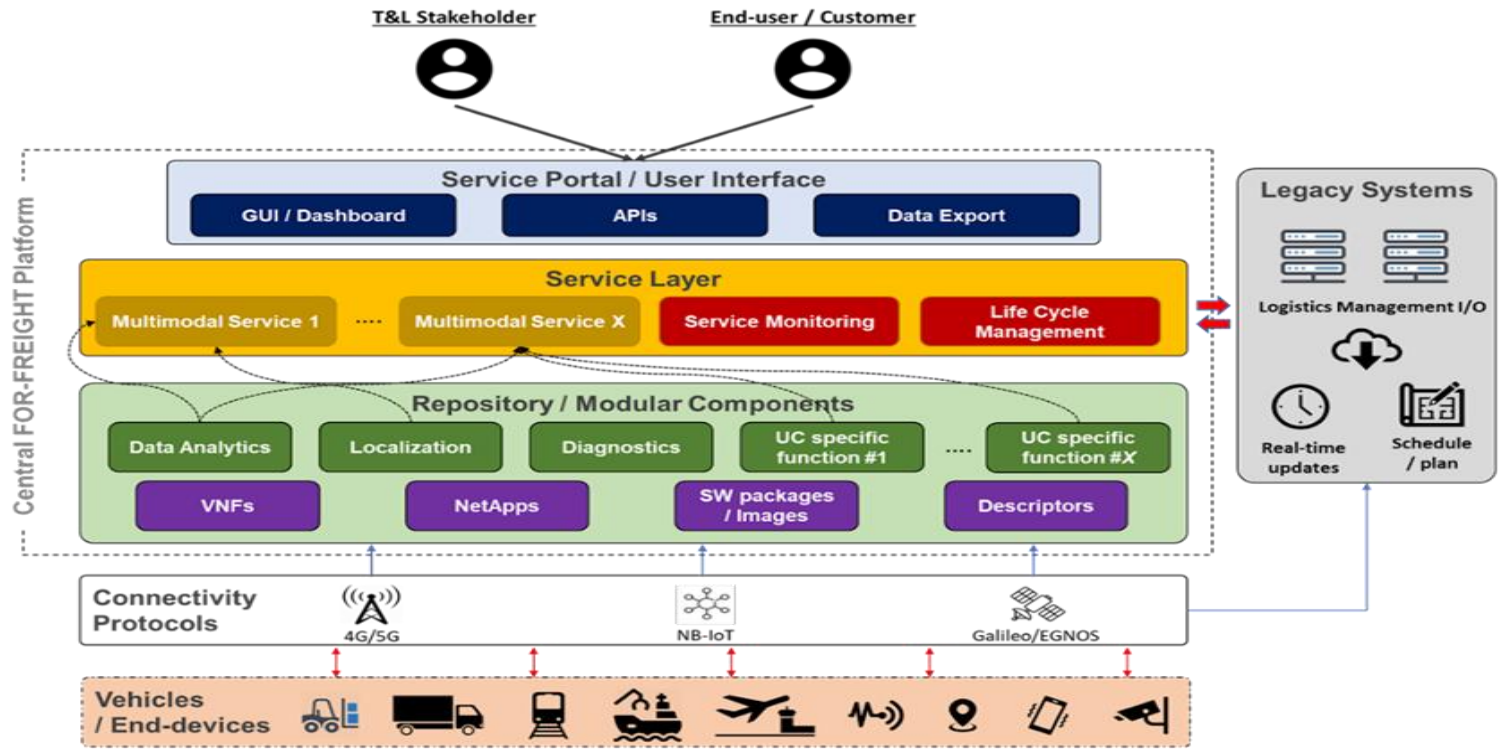
FOR-FREIGHT objectives & main solutions

Objectives:

- **Decision Support** System for the optimization of resource utilization (AI/ML, Digital Twins).
- **Real-time door-to-door tracking**, status monitoring & control of cargo along the supply chain.
- Increased **resilience** against large scale disruptive events based on proactive planning and increased security of information (e.g., Blockchain).
- Increased **sustainability** through the adoption of a carbon footprint assessment framework and use of alternative modes of transportation (subway).

Solutions:

- FOR-FREIGHT platform – end-to-end view of the multimodal transport planning, monitoring and operations assessment.
- A support system for real-time, automated decision-making.
- Decentralized data management / Integration with existing legacy systems in the supply chains.
- Services at pilot site level



Project outcomes and products

E2E multimodal/multi-stakeholder delivery cloud-based platform (orchestrating multimodal SC visibility)

- Creating a cloud-based experimentation platform (integrating the three trial site solutions) for the provision of multimodal logistics services
- Enabling real-time, door-to-door tracking across stakeholders' domains and management systems (elimination of info silos)
- Upgrading, extending, integrating/connecting existing logistics legacy systems

Decision Support System (DSS) for inter-disciplinary/ multi-domain resource utilization optimization (optimized planning)

- Optimization of resource utilization (labour, vehicles, equipment) using advanced AI/ML techniques and Digital Twin concepts
- Blockchain & Digital Twins for real time data exchange to support Decision Making Process in multimodal transport

Utilization of a Subway-Based Network as sustainable alternative for last mile distribution (new capacities – long to short SC interfaces)

- Decreased carbon footprint



Romania (RO) Use Case Modelling

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Romania (RO) Use Case

Overview

Shipping lines arrival notice, Shipment arrival information, Cargo tracking, Bill of Landing (BoL), Vessels' working schedules, scheduled & working vessels (CERIS)

Customs' exchanges/declarations status

Border Police
Customs
Port Authority

Manifests, Waybills, Housewaybills, Freight Status Updates, Customs Declarations, Invoicing documents, accounting information

CONTAINER LINES

INLAND SHIPPING

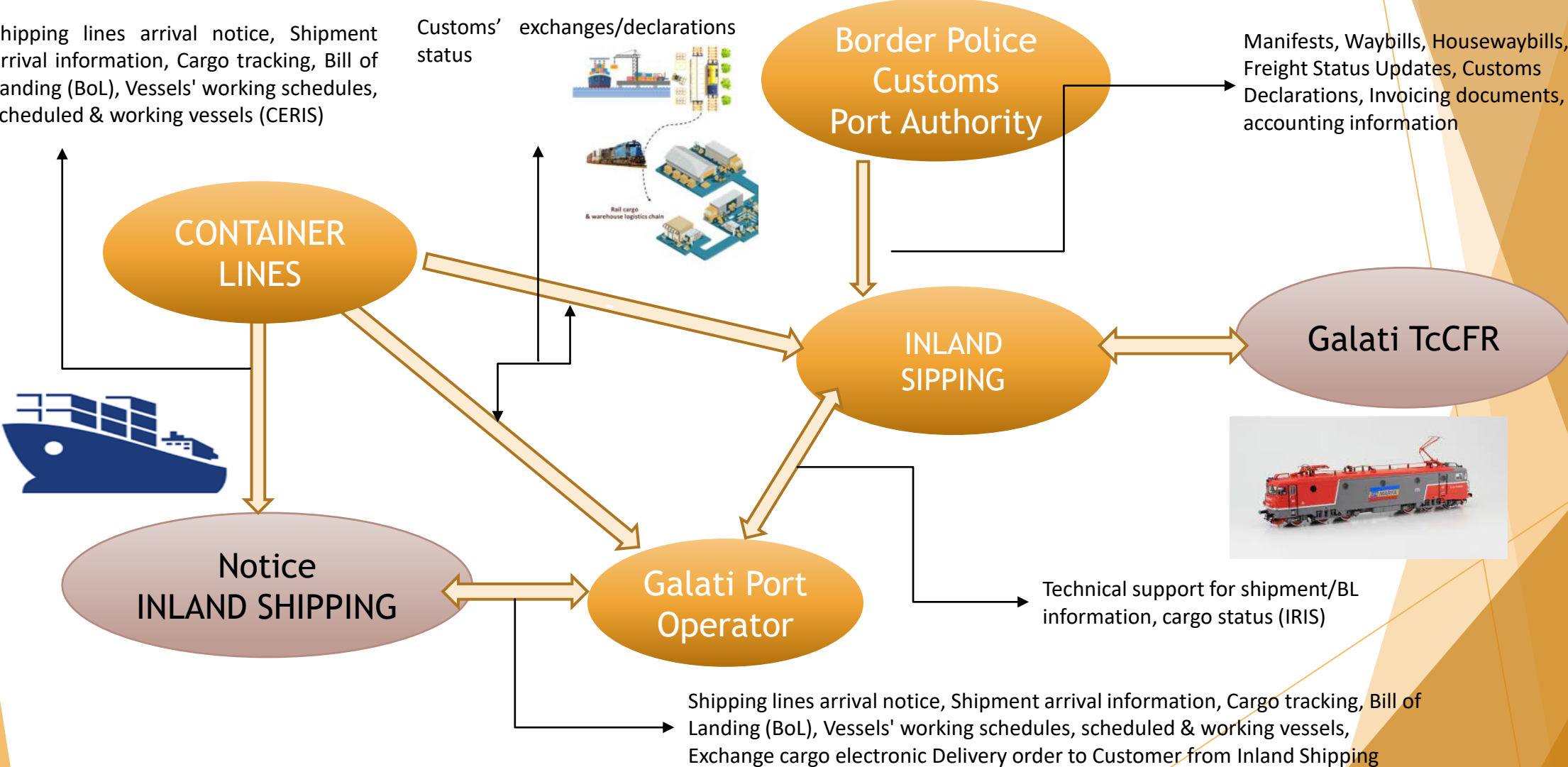
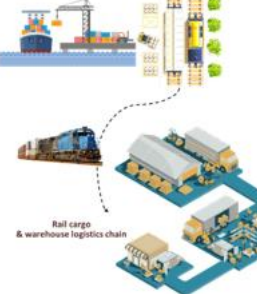
Galati TcCFR

Notice
INLAND SHIPPING

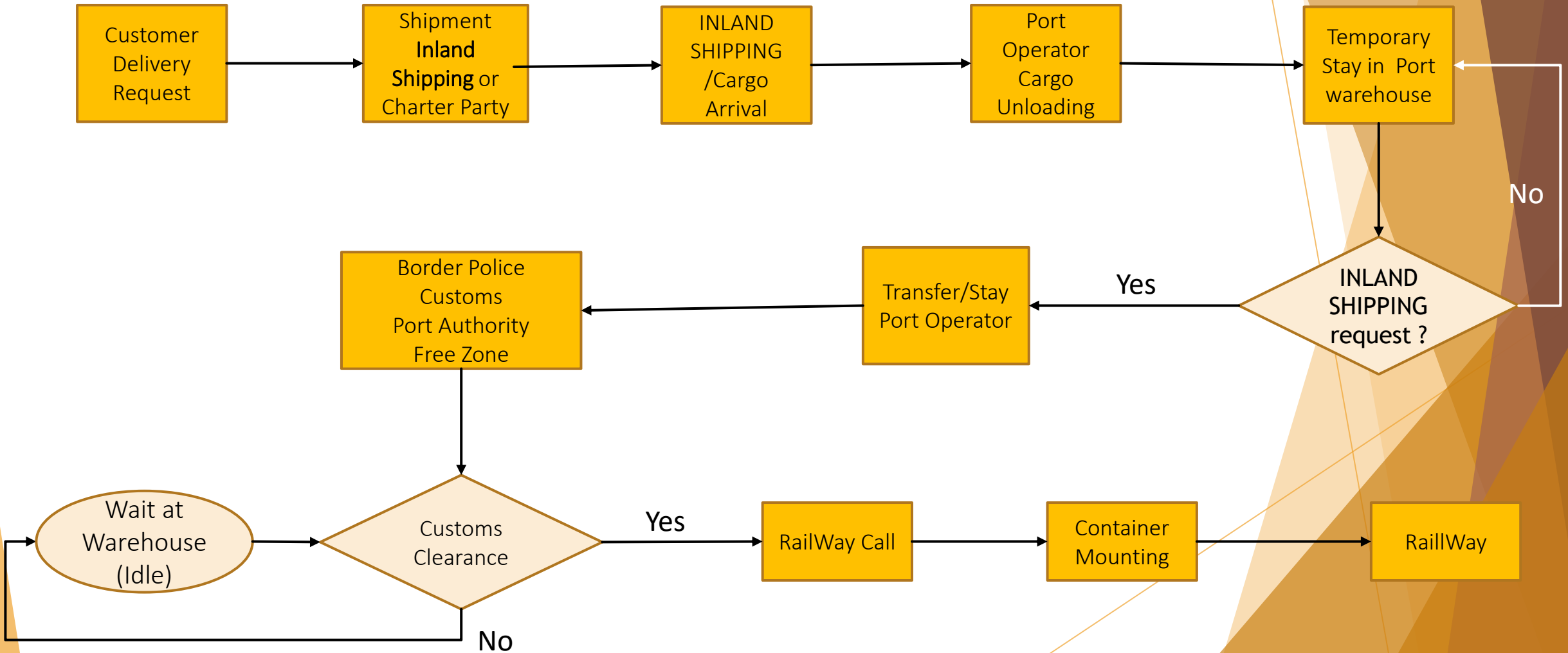
Galati Port Operator

Technical support for shipment/BL information, cargo status (IRIS)

Shipping lines arrival notice, Shipment arrival information, Cargo tracking, Bill of Landing (BoL), Vessels' working schedules, scheduled & working vessels, Exchange cargo electronic Delivery order to Customer from Inland Shipping



Port-of-Galati part Process Flow Chart



Romania (RO) Use Case

Technologies & Value Addition

Increase efficiency of present operation through real time data availability and shipment visibility

Digital Twins

Standardize and digitize multimodal flows

4G/5G/Wi-Fi

AI

Overall supply chain optimization based on the Decision Support System and real-time information

Attract additional volumes and cargo by offering a new service to shippers and consignees



Integrate innovative T&L and other enabling technologies for transport planning and data exchange optimisation

IoT

Reduction of transport times from DHL warehouse to destination

Romanian (RO) Use Case

Integration of Components

Decision Support System

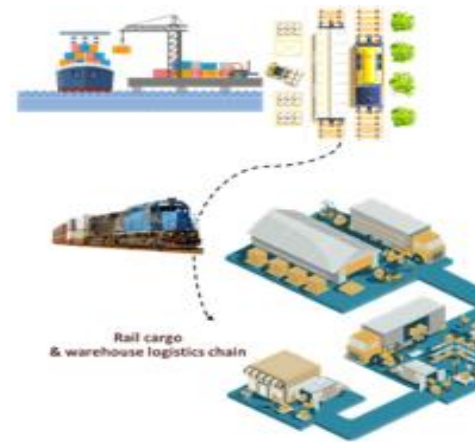
resource reservation
(personnel,
vehicles etc.)

Freight integrity/cargo status monitoring

Telemetry systems on barges/pushers

Telemetry systems on railway waggons

Container tracking



Rail cargo & warehouse logistics chain

“BEIA IoT” cloud platform solution for Transport & Logistics

- sensors,
- GNSS trackers,
- smartphones,
- IoT gateways

Romania (RO) Use Case

Business Scenarios: Foreseen Functionalities

The following functionalities are envisioned to be developed until the end of the project:

- Automatic ETA update of the ship in the port of Galati.
- Full view of the end-to-end process to users, including real-time door-to-door tracking.
- Suggestions from the decision support system (DSS) to the port authorities, the logistics operator and the customs agencies, regarding the necessary resources to be reserved (staff, vehicles, etc.), depending on the size of the goods, the type and the exact ETA.
- Automatic reservation to railway companies, using a cargo ID, based on precise ETA.
- Notification and advice from DSS to rail freight operators on the required storage space and resources to be available at the exact time of arrival of the goods.



Contact
Details



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