PIXEL USE CASES
Intermodal Transport

Introduction

Future ports, as essential multimodal nodes, are undoubtedly a key piece within the whole **supply chain** on the logistics realm with regards to intermodal transport. Normally, ports have more than one entry/exit points and transport types. Rail, road and sea are the most common interfaces, and their synchronisation with other entities and nodes of proximity could be treated as potentially improvable field. Information related to schedules, berthing time, arrival and departure time, parking occupancy, road traffic, potential bottlenecks, important events and anomalies, etc. are data that should be **shared** and **democratized** among those agents in order to enable smooth and uninterrupted flow of goods through multiple modes of transportation. Thus, PIXEL has established a use-case intending to address different **intermodal transport challenges** that are being currently faced by real ports.

Objectives and benefits for ports

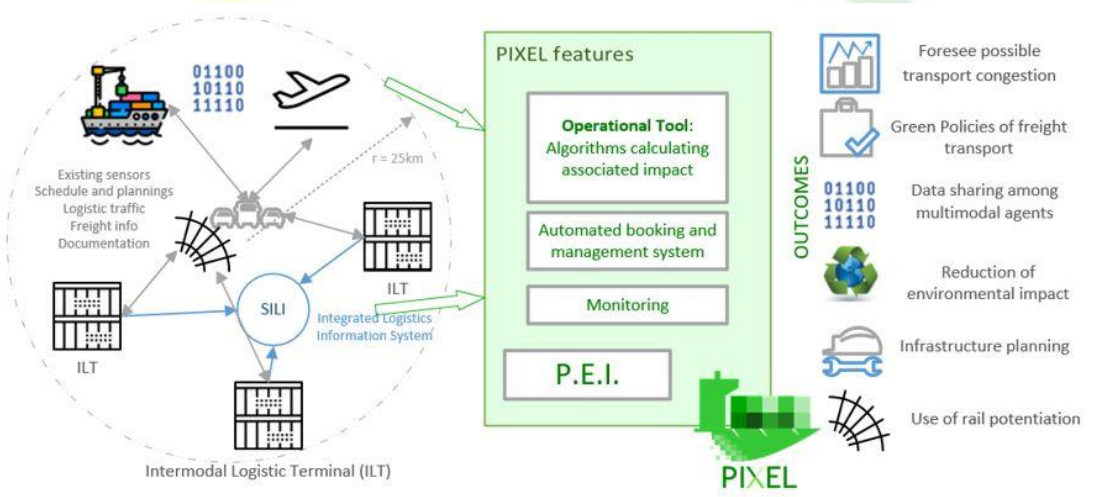
Framed in achieving this new port concept in a very efficient way, PIXEL aims at achieving these objectives:

- To **improve** the **efficiency** of their resources and at the same time **avoiding congestions** in the surrounding areas
- To **reduce bottlenecks** and congestions in **port areas** and to give incentive to the use of the rail
- To **reinforce** the **security related to ADR transport** through the interoperability of data with regional stakeholders
- To create a system able to provide anticipations and **simulations** so to **foresee possible congestions**
- To meet **local energy needs** during the call of a ship in order to cope with **renewable energy** production the port must itself reduce its own carbon footprint,
- To develop **algorithms to simulate** how different policies in freight transport can impact the environment and consequently the health status of citizens
- To implement a IoT-based automated solution that can help port managers book and management system of the infrastructure in order to use inter-port premises and services when ports are full and boost the usage of rail transport in order to decrease the environmental impact.

IoT and systems integration envisaged

For achieving the mentioned objectives and enabling ports to benefit our solution for energy efficiency aims, PIXEL works hardly on **sensoring**, **monitoring**, **data processing** and, principally, **integration**. Below are listed the main integration and IoT activities that PIXEL undertakes under its energy management use-case:

- Ports and related agents will be able to use will use PIXEL in order to make **interoperable** the data produced by local systems of ports, region, other close logistic agents and/or municipalities enabling a **shared management** of the truck traffic at data level.
- **Standard interfaces** are to be developed between PIXEL and different PCSs to implement the data sharing related to availability in the port area and the access management in order to implements and joint management of the traffic and to collect information and data that can be made available to stakeholders belonging to transport domains and external stakeholders such as municipalities, environmental agencies.
- Integration of **sensors (IoT)** for a more real-time monitoring of the port.
- Integration of **images** and other information that could help to simulate and forecast traffic situations in the port (video surveillance, gate access…).



Involved PIXEL ports

Port of Monfalcone, Gorizia Interporto

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