PIXEL – Port IoT for environmental Leverage
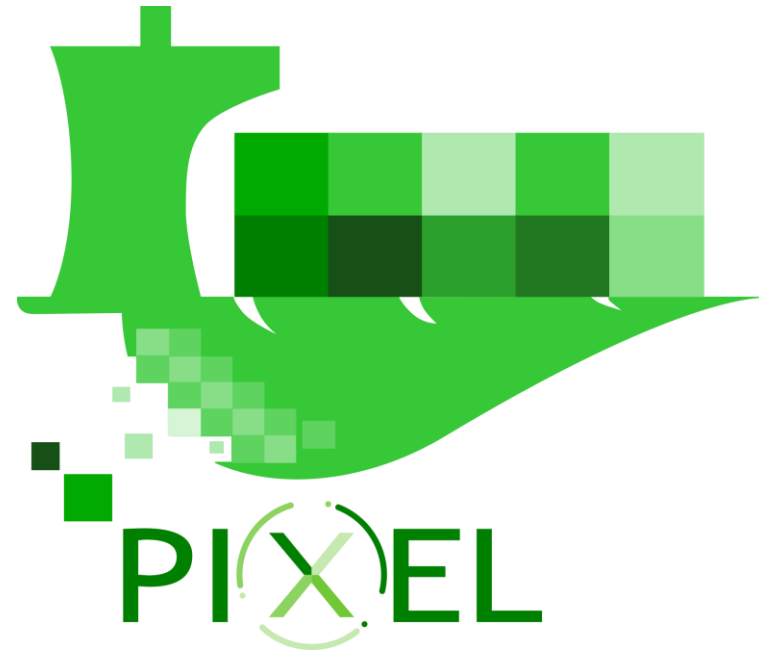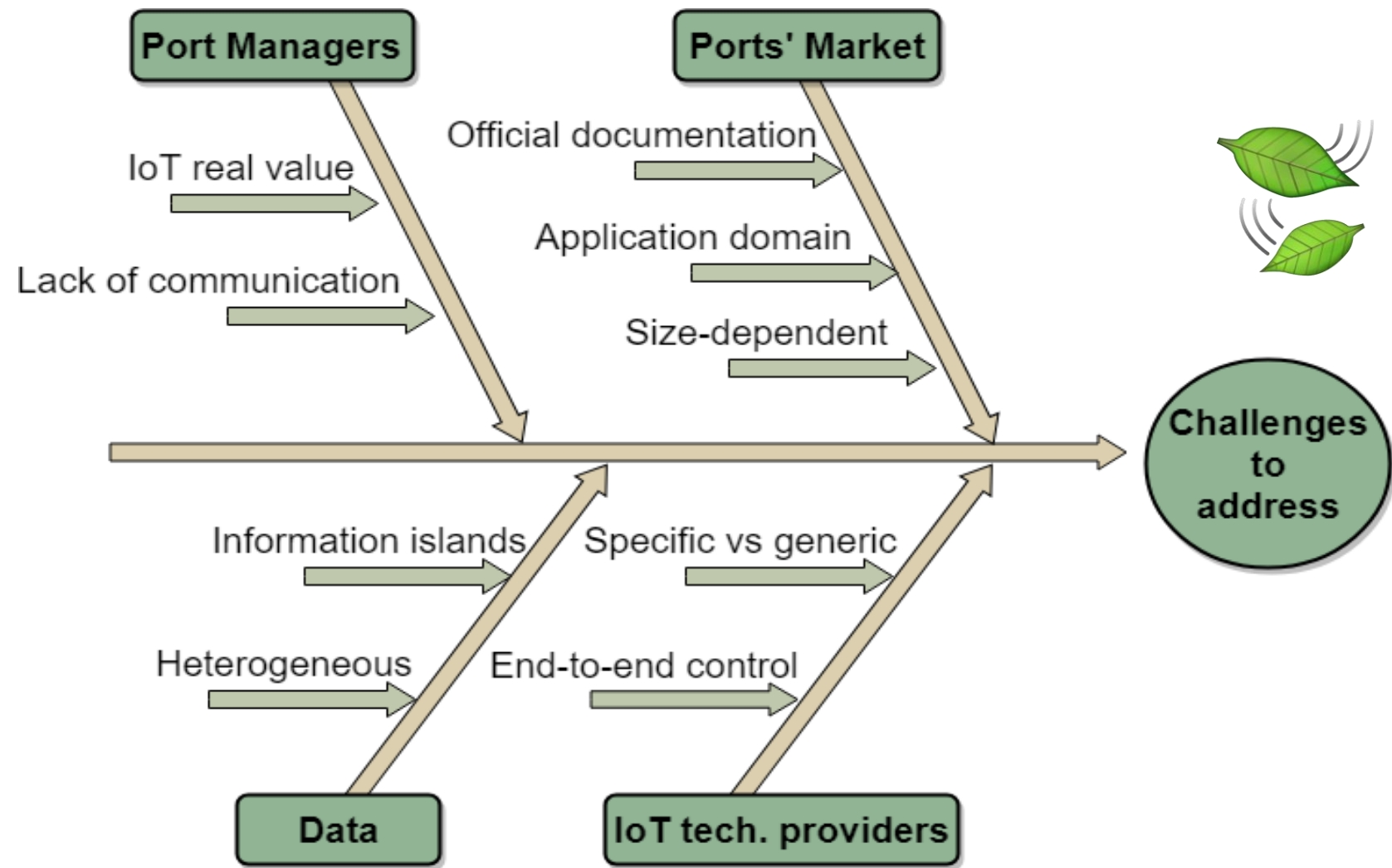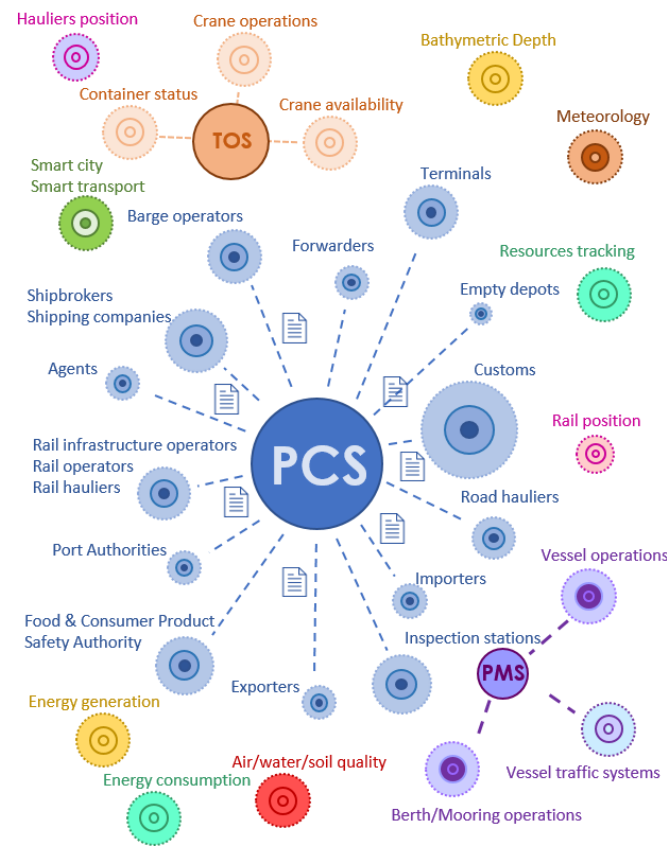
Carlos E. Palau (UPV)

Project Coordinator

What is PIXEL being? Challenges common to COREALIS

PIXEL in a nutshell

Data sources interoperability

Centralised Management

PIXEL as integrator + tool

Democrati-sation and awareness

PIXEL

PCS

Intelligent and dynamic lighting

Logistic operations

Performance

Freight hauliers

Environmental Control systems

Smart Cities

Rail traffic

Cranes

PMS

Health systems

IoT gateways & platforms

Video systems and visual sensors

TOS

Smart manufacturing

Benchmarking

Hazardous and pollutant substances

Real time location systems
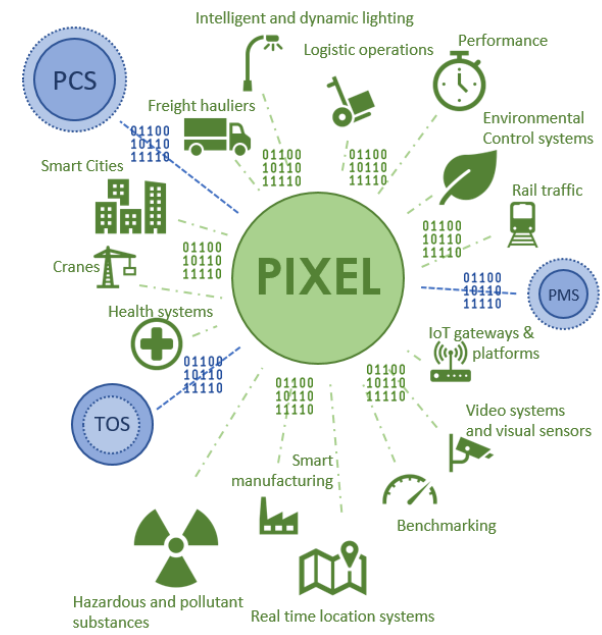
PIXEL

PIXEL innovative proposal

PIXEL as a whole

PIXEL

Port Environmental Index (PEI)

Predictive Algorithms & Analytics (e.g. AIS based)

Port ecosystem IoT Platform

Port Activity Models & Scenarios

Optimisation algorithms

Innovation Backbone (IoT)
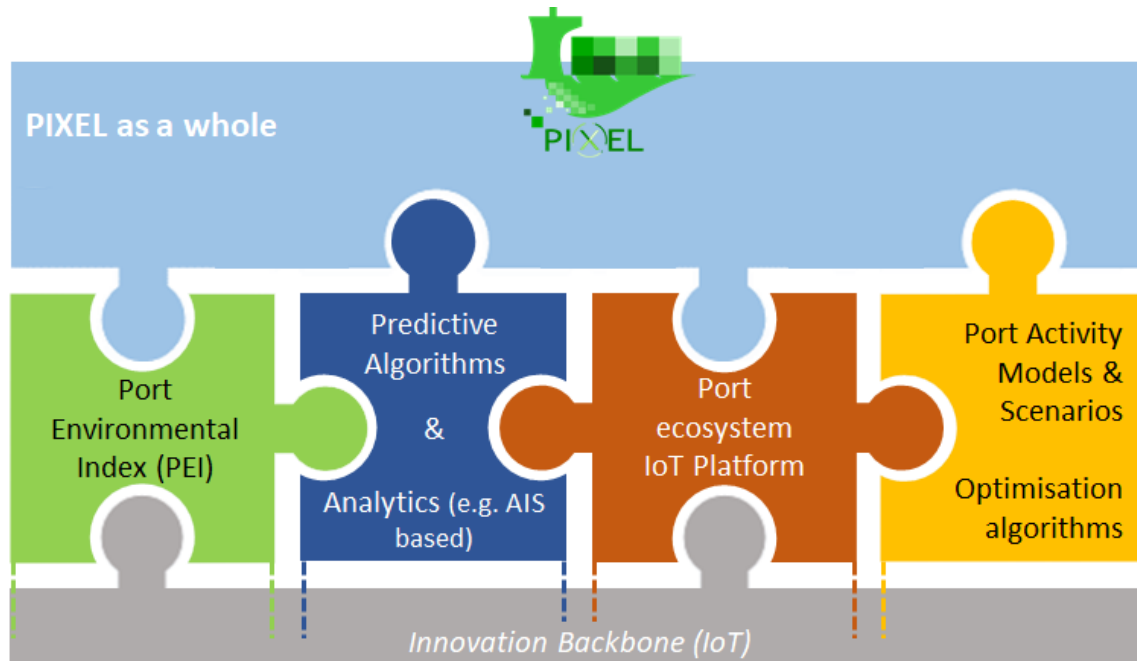
Reduction of environmental impact of port activities

Reduction of operational and infrastructural costs

Improvement of logistics efficiency in multimodal hubs
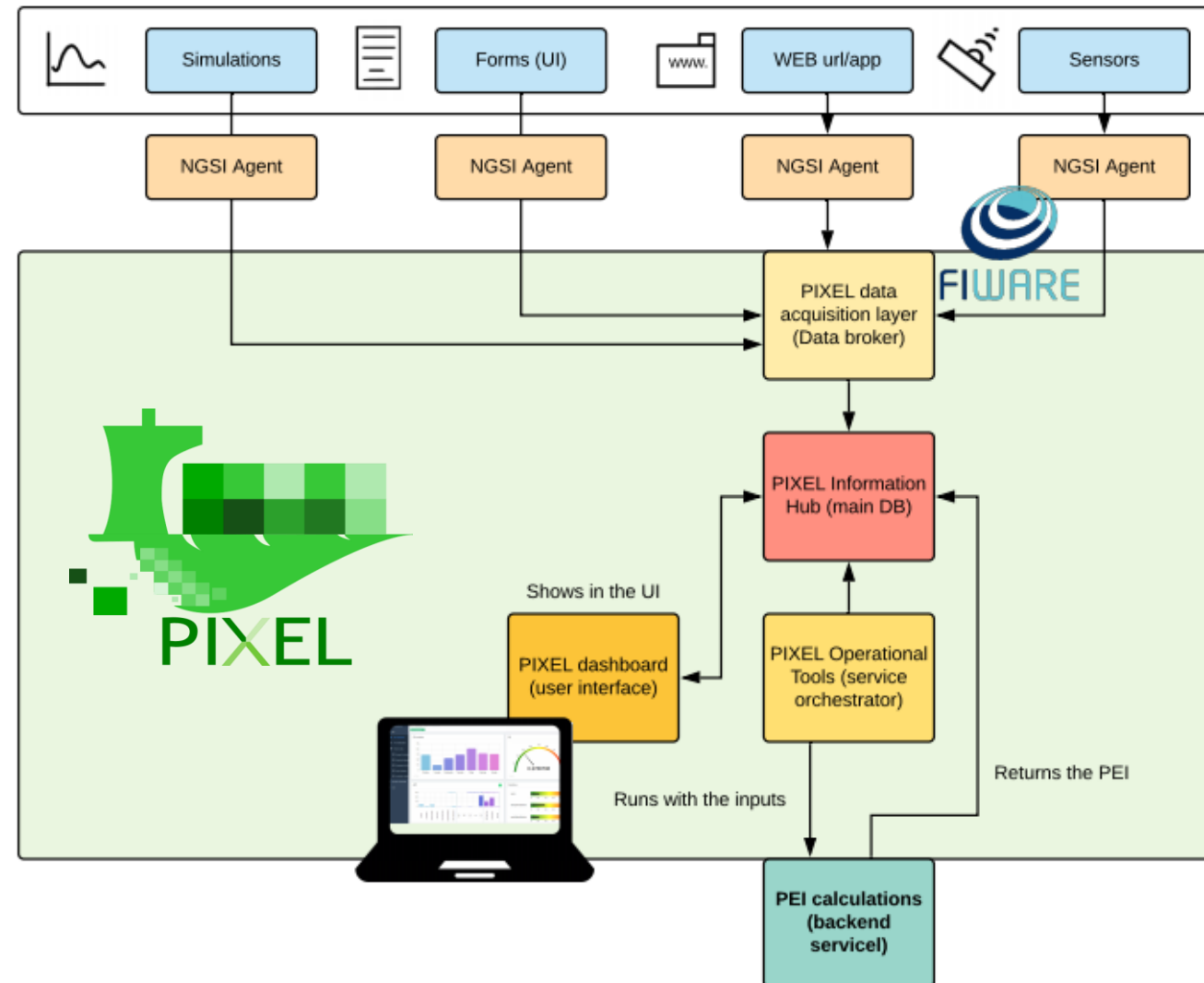
Better Port-City **integration**

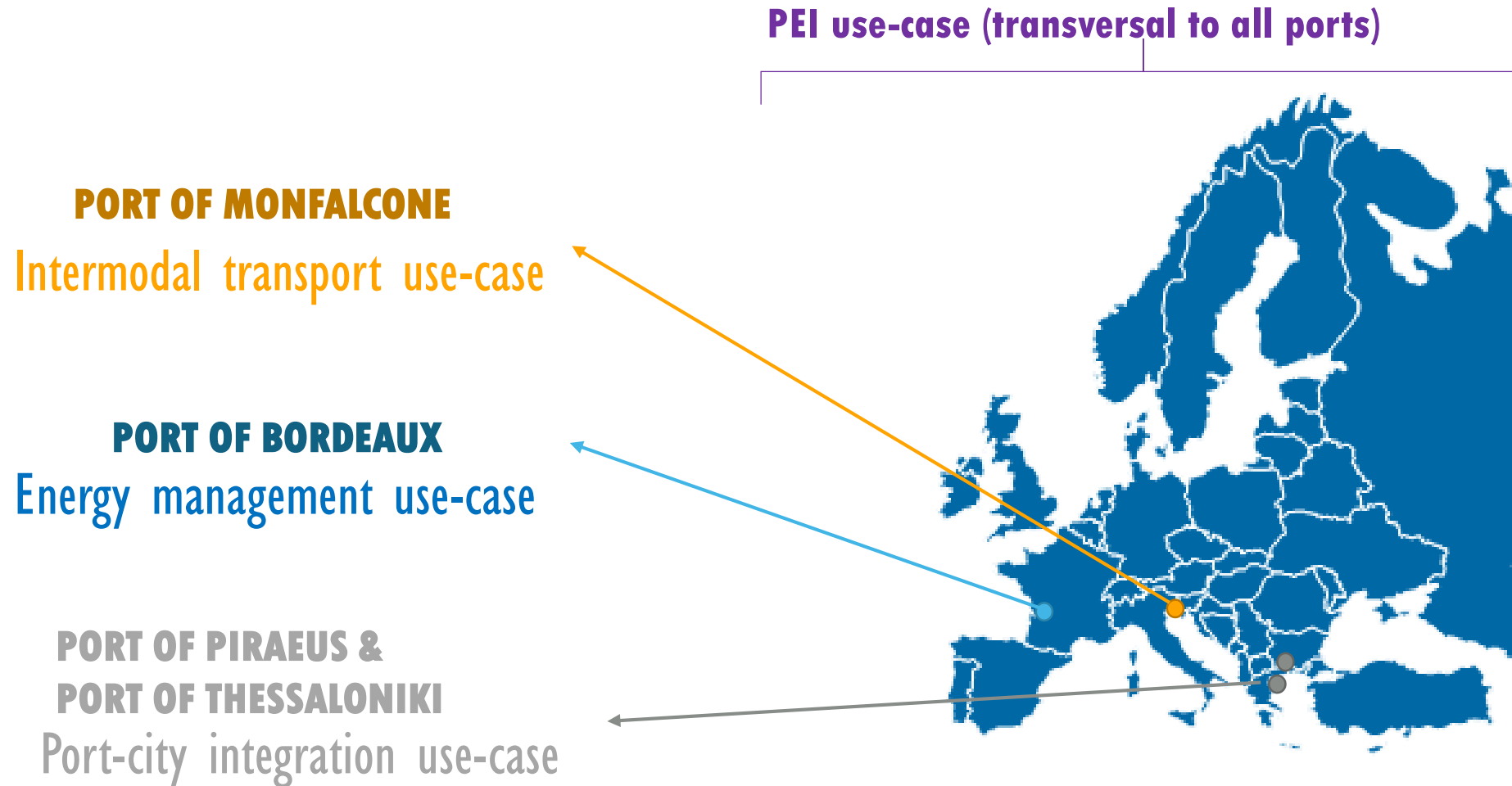**Less dependency** on different technology providers when **attempting digitalisation**

Technological proposal

- **Data Adquisition Layer (DAL),** which is on charge of gathering data and sending it to a FIWARE Orion context broker. In this context, several agents based on the pyngsi framework have been developed acting as data gateways.

- **Information Hub (IH):** a custom (PIXEL) component based on an ELK implementation, the central data storage component.

- **Operational Tools (OT),** a custom Java-based component that orchestrates the proper execution of all other modules (containerized using Docker).

- The **dashboard** is a web application (developed in Vue.js) for configuring and observing the results of composite indicator, models, predictive algorithms and sensor data monitoring.
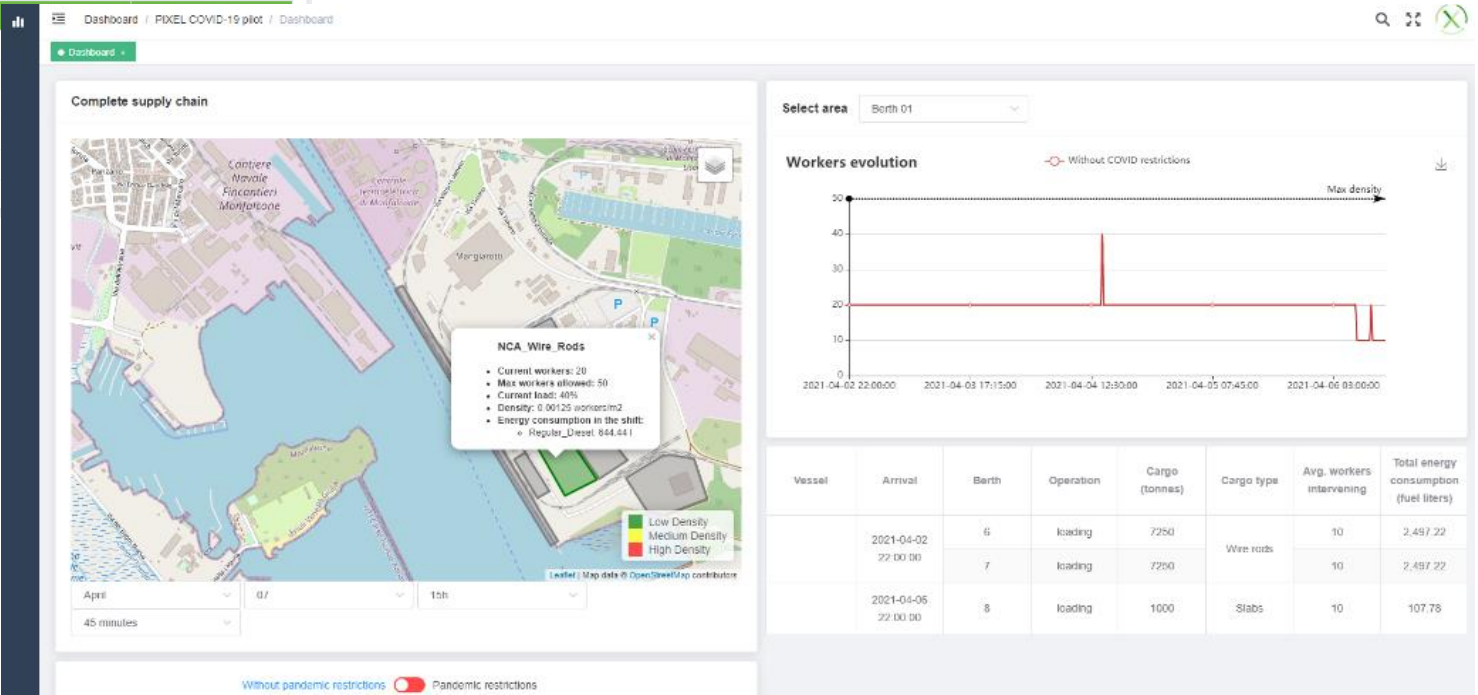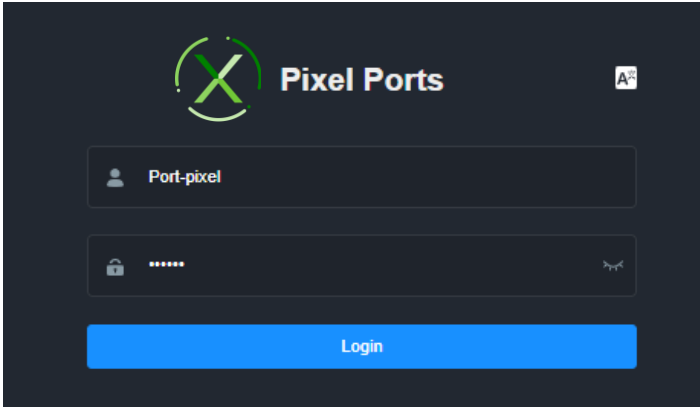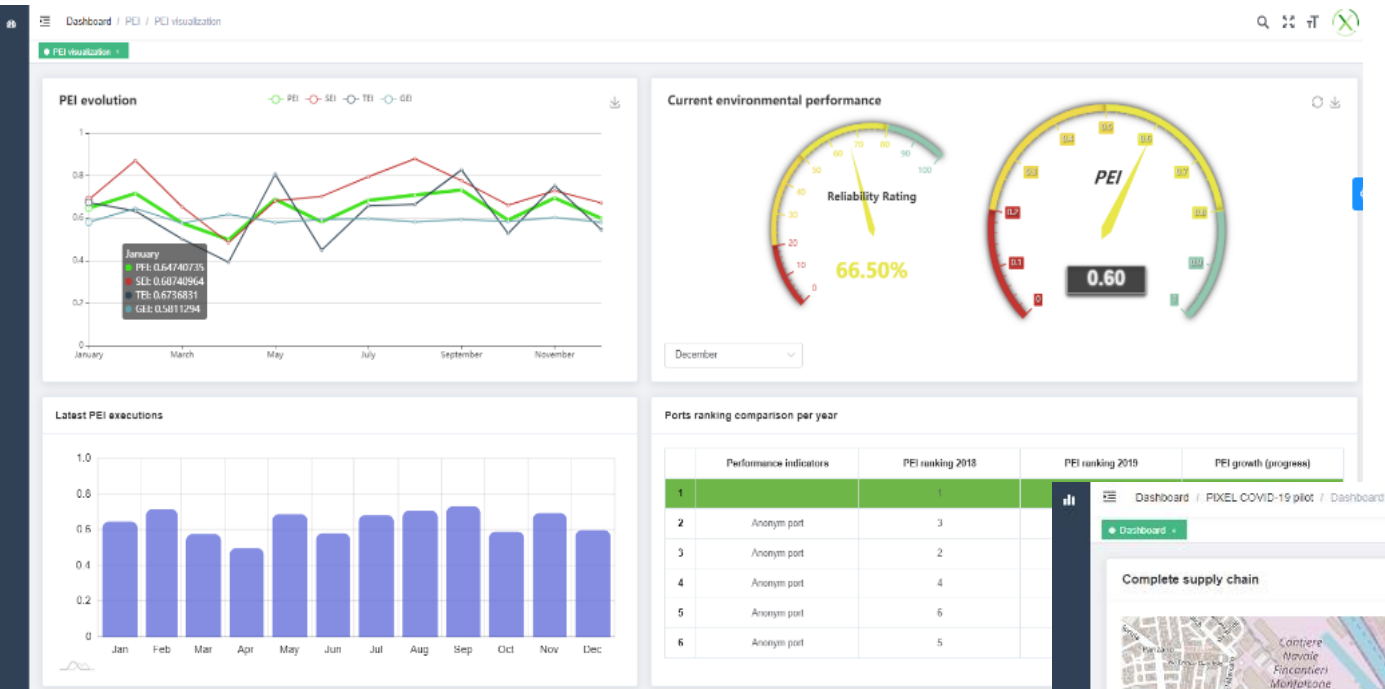
PIXEL pilots: usage in real life port scenarios

PEI use-case (transversal to all ports)

PORT OF MONFALCONE
Intermodal transport use-case

PORT OF BORDEAUX
Energy management use-case

**PORT OF PIRAEUS &
PORT OF THESSALONIKI**
Port-city integration use-case

PIXEL

How PIXEL looks like

How PIXEL looks like

How we will miss PIXEL-COREALIS encounters…
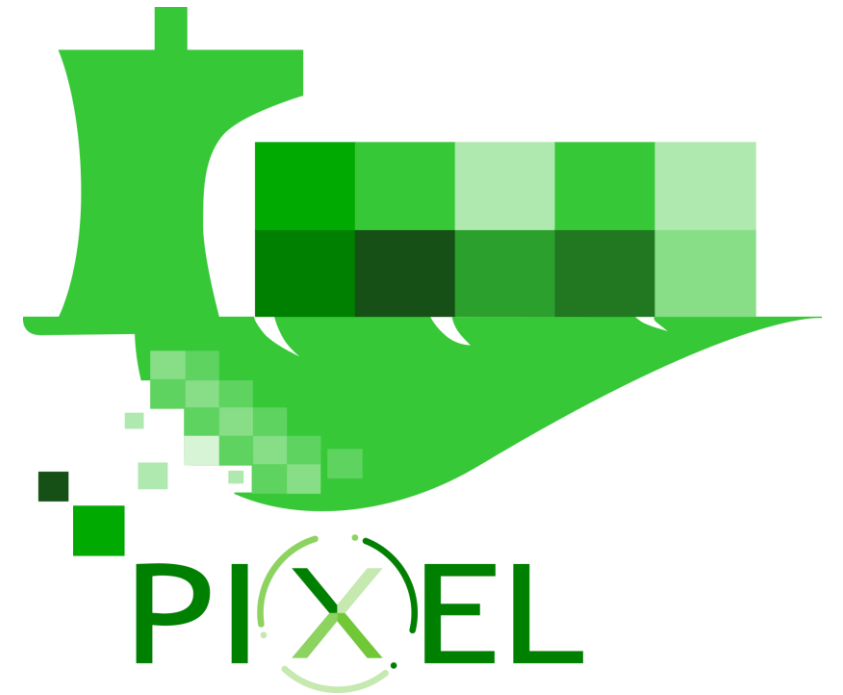

DtF Workshop with Experts, Oporto, October 2018

CID ALICE-DtF OBOR, Athens, November 2018

DtF Mid-term event, Trieste, May 2019

We had good times together… seeing each other and sharing the vision of Port of the Future innovation…

PIXEL

Thank You + Questions?

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