



FUNDACIÓN
VALENCIAPORT

GREEN C PORTS

FROM RESEARCH TO DEPLOYMENT

JOAN MESEGUER LLOPIS
ICT PROJECT MANAGER

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AGENDA

- GREEN C PORTS project
- H2020 Transforming Transport
- H2020 InterIoT
- Main challenges towards deployment

Green-C-Ports at a glance

Digitalisation tools and technologies to support port environmental sustainability and performance of port operations in the TEN-T Core Network



Partners of the Project



Case Studies



CS 1. Decreasing port traffic congestion



CS 2. Improving maritime accessibility to ports



CS 3. Improving air quality in ports and port neighbouring areas



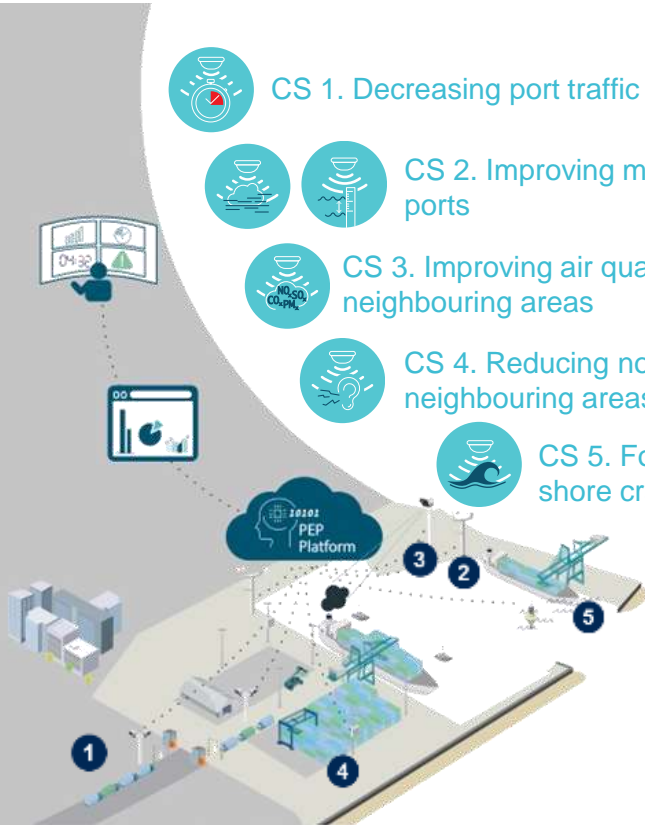
CS 4. Reducing noise in ports and port neighbouring areas



CS 5. Forecasting ship-to-shore crane productivity



CS 6. E2E carbon footprint in multimodal transport chain

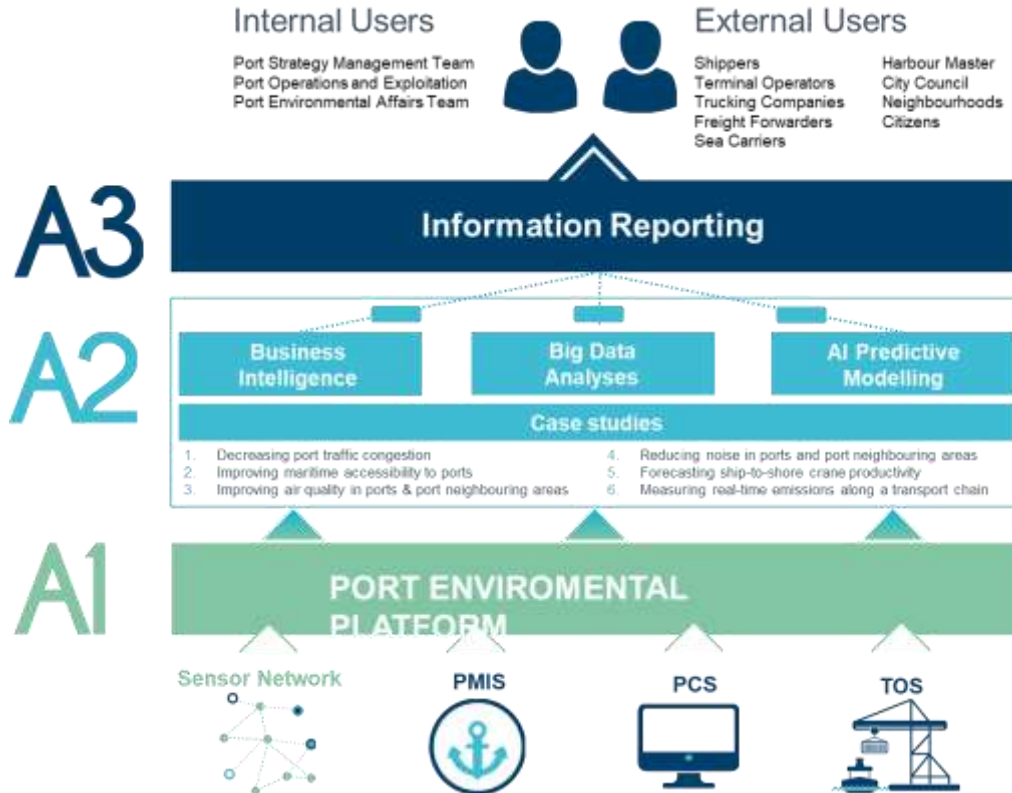


Specific Objectives

- Reduce the impact of port operations on their cities
- Monitor emissions from ports and vessels
- Increase the efficiency of port operations and optimize handling of cargo in core ports
- Facilitate access and egress of cargo in and out of core ports.
- Implement a Port Environmental Performance (PEP) IT platform



High Level Architecture



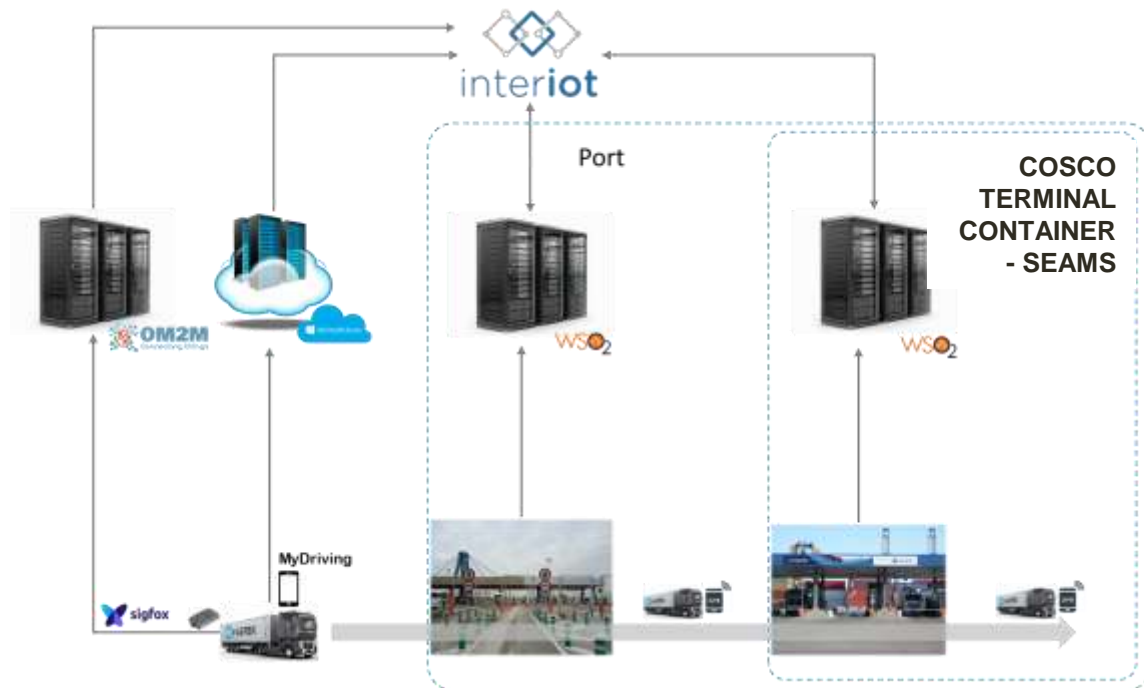
Inter-IoT at a glance

Design, implement and test a framework that will allow **interoperability among different Internet of Things (IoT) platforms**



Use Case: INTER-LogP

IoT access control, traffic and operational assistance



InterIoT Main Inputs

- Interoperability between platforms
- IoT Platform design and development
- Field work on sensorization of port's facilities (e.g. dynamic lighting)



Green C Ports

- From 6 to 9 platforms to integrate with PEP platform
- Development of IoT layer of PEP Platform
- Around 69 sensors will be installed in the scope of the project



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TT at a glance

Demonstrate, in a realistic, measurable, and replicable way the transformations that Big Data will bring to the mobility and logistics market



Highways



Airports



Ports



Rail



Vehicles



Urban Mobility



Supply Networks



Sensing & Infrastructure

Design & Deploy a
BigData Infrastructure
to retrieve, store and
process the huge
amount of data
gathered from different
signals at different
rates



Mathematic- Statistical Analysis

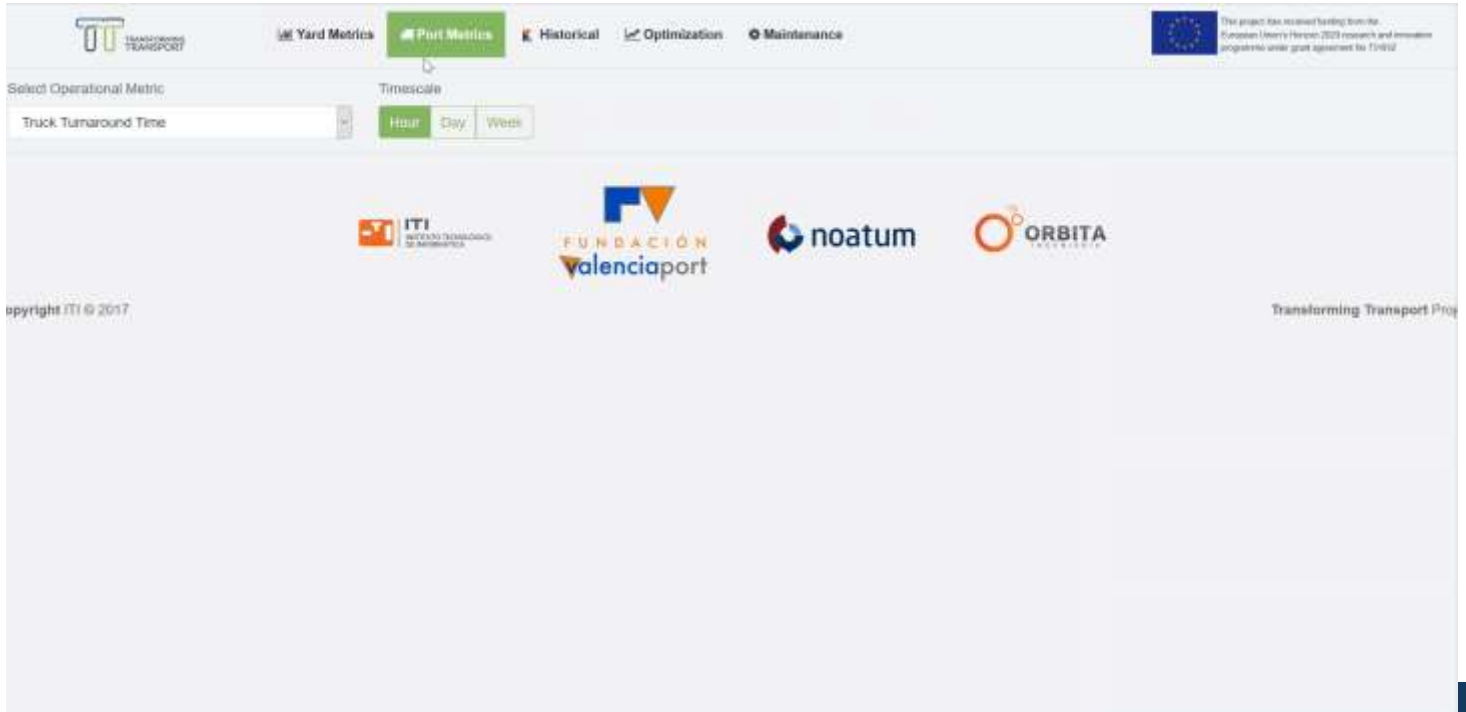
Clean, prepare and
study the data coming
from the machinery in
order to find behaviour
patterns hidden behind
a huge amount of
variables and values



Communication & Visualization

Develop an intuitive
and friendly user
interface to navigate
through the results of
the analysis and help
taking an informed
decision

Port's Truck Turnaround Time predictive dashboard



The screenshot displays a web-based dashboard for predictive analytics. At the top left, there is a navigation menu with tabs for 'Yard Metrics', 'Port Metrics' (which is highlighted in green), 'Historical', 'Optimization', and 'Maintenance'. Below the navigation, there is a section for 'Select Operational Metric' with a dropdown menu currently showing 'Truck Turnaround Time'. To the right of this is a 'Timescale' section with buttons for 'Hour', 'Day', and 'Week'. The main content area is currently blank, showing only logos for 'ITI INSTITUTO TECNOLÓGICO DE VALENCIA', 'FUNDACIÓN valenciaport', 'noatum', and 'ORBITA'. In the bottom left corner, there is a copyright notice: 'copyright ITI © 2017'. In the bottom right corner, there is a partial text: 'Transforming Transport Prog'. A small European Union flag logo and text are visible in the top right corner of the dashboard interface.



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TT Main Inputs

- Experimentation with **Machine Learning** in transport's and logistics' **Turnaround Times**
- Experience in **data quality management**: data understanding, filtering and cleaning (70% of Big Data work!!)
- Design an development of a Big Data platform



Green C Ports

- Various predictive models will be developed for the 6 use cases
- Multiple sources of data are initially considered to train the predictive models
- Advanced predictive analytics layer of PEP Platform

FROM RESEARCH TO DEPLOYMENT

Main Difficulties



Required Investment

Infrastructure, equipment, software, staff and competences



Management of technology changes

Managing innovation of processes



Social Rejection

Innovation can be perceived as a loss of employees in some cases



Technological challenge

Employees should be able to master the continuous change of technologies



Collaborative process

Inter-organization collaboration is necessary for an optimal deployment of innovative solutions



Qualified staff

New technologies usually requires a demand on experts in the given areas



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