



# PIXEL USE CASES

## Energy Management

### Introduction

Maritime ports concentrate, in direct link to their transport activities, logistics and industrial activities and interact with urban territories. PIXEL adheres to the principles of **sustainable development**, combining and balancing the requirements of environmental conservation, protection of individuals and economic development, and is in line with the EU's ambition: a secure, competitive and decarbonised transport and energy system in 2050, associated with the port of the future.

### Objectives

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

- 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 create and deploy a Port Environmental Index (PEI) to **measure the efficiency** of a port's green policy, and of the supply chain connected to the port,
- To **analyse major traffic long term trends** thanks to deeper port statistics analysis.

### Benefit for ports

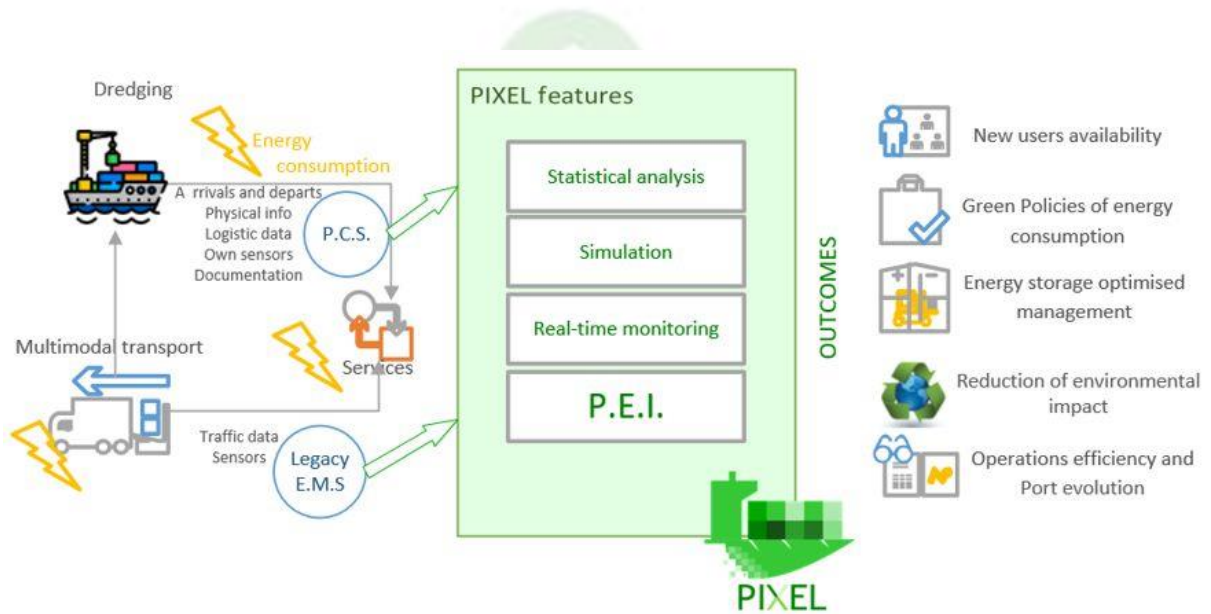
Thus, new modelling and predictive algorithms developed with the data and knowledge given by this location will take a major role in order:

- To **better manage traffic** entering and leaving the port to **optimize available energy resources**, reduce waiting times and reduce traffic impact in the city
- To **optimize multimodality** based on energy consumption
- To size **renewable-energy** production infrastructures (based on predicted consumption models) in an optimal and cost efficient manner
- To **reduce the storage needs** to reduce costs and be more environmentally friendly
- To **enable proposition** of new services associated with the overproduction of energy in times of low consumption

### IoT and systems integration envisaged

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

- PIXEL will **extend roles** of PCS in the overall port performance especially in the energy, port operations and port strategies fields.
- **Standard interfaces** are to be developed between PIXEL and different PCSs so that systems can send physical information and port statistics (energy-related data) to PIXEL, and, in return, PIXEL sends back analysis and simulation results.
- **Integration of sensors** (IoT) for a more real-time monitoring of the port.
- Integration of **machinery data** (consumption, features, datasheets...).
- To **monitor** and **integrate** different data coming from highly demanding energy-consuming processes in ports (such as loading, unloading, dredging, etc.).



### Involved PIXEL ports

Port of Bordeaux

