



PIXEL USE CASES

Port-City Integration

Introduction and objectives

The **Port Environmental Index (PEI)** is a **quantitative composite indicator** of the **overall environmental performance** of a port.

The core idea behind PEI is to devise a comprehensive, standardized and transparent methodology to be used as an integrator of all the significant environmental aspects of ports and the related impacts into a single metric.

The metric will be used by ports to:

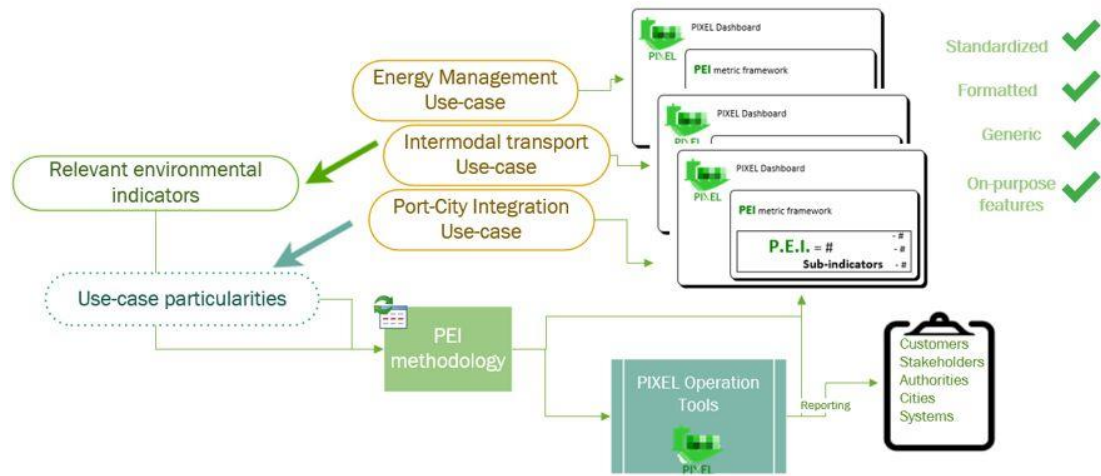
- evaluate their own environmental performance in a comprehensive integrative manner,
- compare their environmental performance to other ports that have deployed the metric.

Differentiation and innovation

There are **similar environmental initiatives** already in place in both the European Union (EU) and the United States (US). In the **EU EcoPorts** is the main environmental initiative which is fully integrated in the European Sea Ports Organization (**ESPO**) since 2011. The main tools of the initiative are the Self Diagnosis Method (**SDM**) which according to EcoPorts is “a concise checklist against which port managers can self-assess the environmental management programme of the port in relation to the performance of both the sector and international standards” (Ecoports, 2018) and the Port Environmental Review System (**PERS**) which is a standard of best practice for reviewing and reporting on significant environmental aspects of port processes. The main North American initiative is the **Green Marine Programme** which offers a “detailed framework for maritime companies to first establish and then reduce their environmental footprint” (GreenMarine, 2018). The programme is constituted by four basic steps which include a self-evaluation process, external verification, publication of results and finally the issuing of the certificate.

The **differentiating points of PEI** in relation to the existing approaches are that the methodological approach which will be used to construct the PEI is **quantitative** (data based) and it **by-passes the self-assessment procedure**. Thus, the PEI will accurately depict the true environmental performance of a port and will allow for interport environmental comparisons. In addition, if PEI is built on automated **real-time data collection system** obtained through **IoT** it would make it possible to monitor the environmental performance of a port in a comprehensive manner (meaning that all environmental aspects have been considered). If achieved such a feat would be impressive, ground-breaking and truly disruptive since to PIXEL’s knowledge no such systems exist at the moment, nor for ports nor other industries

This use case is **transversal** and will be included in the other use cases described in PIXEL.



Involved PIXEL ports

Port of Bordeaux, Port of Monfalcone, Port of Piraeus, Port of Thessaloniki

