

Equilibrium between env. action and costs

- ❖ Reduction of **environmental impact** of port activities (e.g. greenhouse gases for 15-20%)
- ❖ Increase of **renewables energy uptake** in use-cases ports
- ❖ Adoption of a **Port Environmental Index** to monitor and act on own environmental footprint



- ❖ Reduction of operational and infrastructural costs with better Port-City integration
- ❖ Improvement of logistics waiting time for vessels (85%), on-time performance (120% impact)
- ❖ Quay productivity, Assets maintenance, Storage Area Productivity



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PIXEL – Where IoT meets the Port of the Future

- ★ **Secure IoT solutions** for port ecosystem operations
- ★ **Business intelligence w/** predictive analytics
- ★ **Environmental awareness** with actionable tool: PEI
- ★ Addressing **medium and small ports with scalability** to big ports
- ★ Focusing on **port-city ecosystem challenges**



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Why do you need a Port Environmental Index?

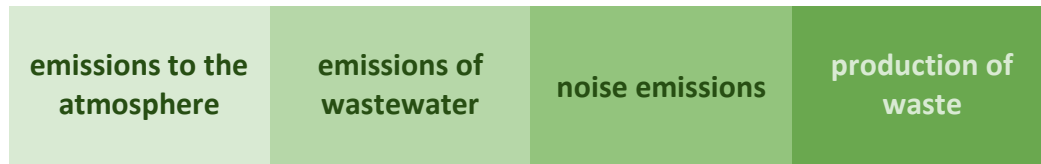
- ❑ **Today's environmental challenges** are rising to fit the real global needs, enhanced by legislation and standards. Ports need clear understanding of their **overall environmental performance**
- ❑ Ports can **optimise their use of resources** to include the appropriate monitor of environmental-related activity and act on it
- ❑ PEI is a global indicator of the impact in ports that permits the ports to have a **real-time measure of their environmental footprint and to plan actions** to reduce it to desired levels



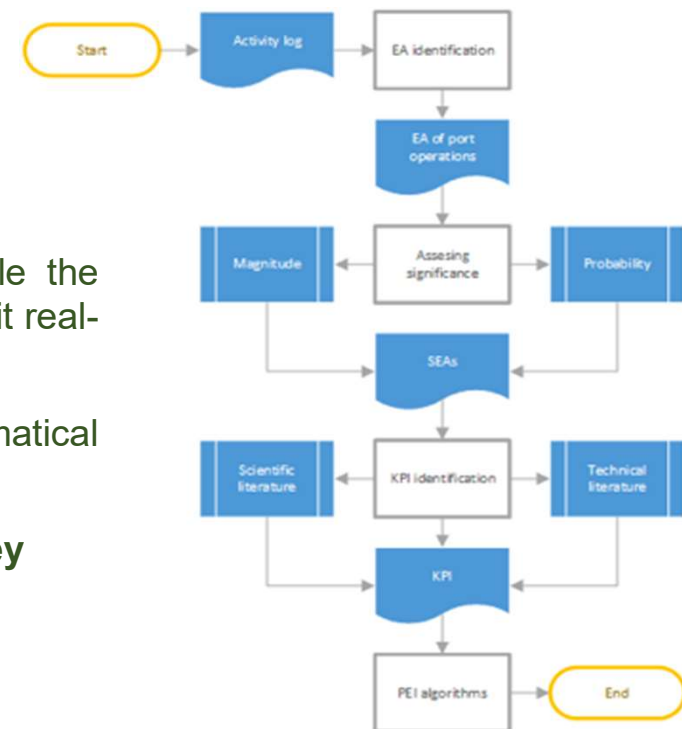
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What is this Port Environmental Index?



- PEI relies on a **baseline of IoT data sources** that enable the interoperable data collection with needed frequency (some of it real-time)
- It is a **composite environmental index**, i.e., a mathematical aggregation of a set of indicators.
- Combines different environmental indices - **environmental Key Performance Indicators (eKPIs)** - into a single metric using a specific mathematical algorithm.

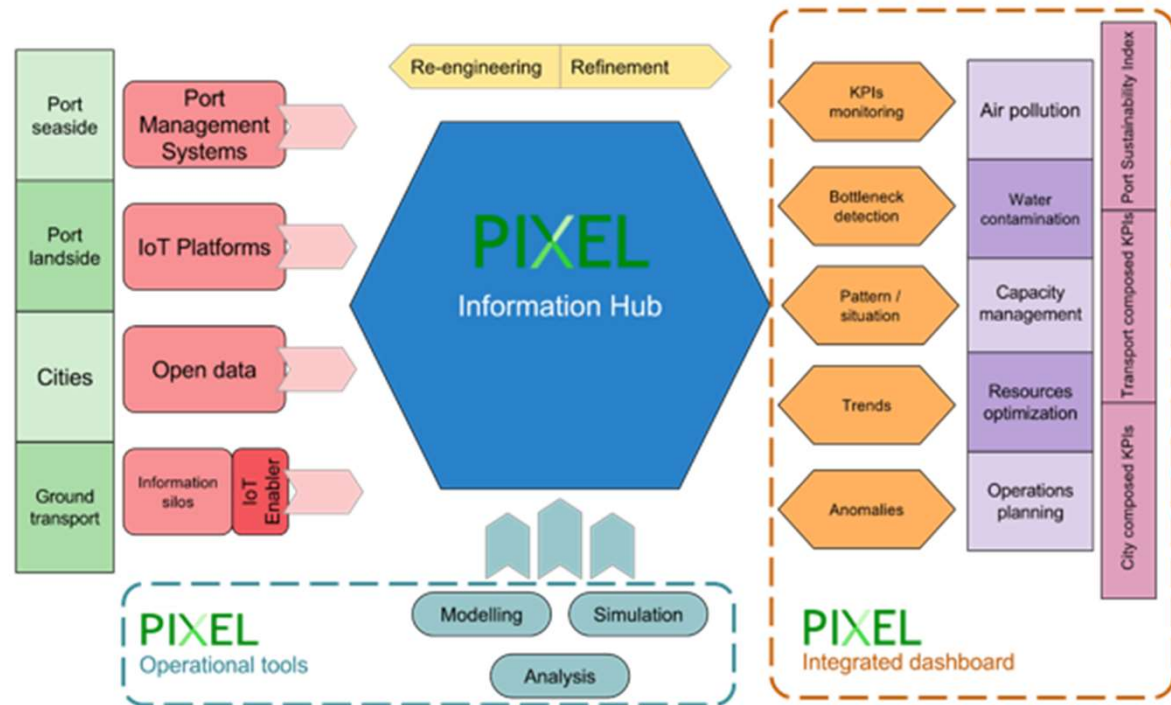


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Port Environmental Index in PIXEL

- PEI will be using the **PIXEL baseline infrastructure** to enable small and medium ports for environmental awareness and action
- The modularity of PIXEL will suit port-cities of different sizes, natures and needs **towards the Port of the Future**
- The costs of environmental assessment and action are covered by the investment on the **improvement and optimization of port operations**



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