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DOCKSTHEFUTURE

defining the concept of "Port of the Future"

MidTerm Conference: Envisioning the Port of the Future: the 2030 horizon

4th of April 2019 – Port of Trieste

PIXEL project presentation – Benjamin Molina (UPV), benmomo@upvnet.upv.es

Autorità di Sistema Portuale del Mare Adriatico Orientale Porti di Trieste e Monfalcone

PIXEL

Co-funded by the Horizon 2020 programme of the European Union

PIXEL –Port IoT for Environmental Leverage

PIXEL

Mission. To bring the sustainable PoF paradigm to the complete spectrum of European ports

STRATEGY

- ✓ Establish a **single metric index** (PEI, Port Environmental Index) to quantitatively assess the environmental impact
- ✓ **Interoperable IoT** infrastructure
- ✓ Automatic aggregation and integration of **heterogeneous data**
- ✓ Models and algorithms to **predict/simulate** future (environmental) impacts and propose optimization strategies
- ✓ **Real applicability** in small, medium and large European pilot ports

SCOPE

- ✓ More on **integration of operational information** exchange than on regulatory compliance
- ✓ More on **port-city general area interactions** than on specific events in ports
- ✓ More on **small and medium ports** (limited resources) than on large ports
- ✓ More on **multipurpose port operations** (containers, general cargo, passengers) than on dedicated ones

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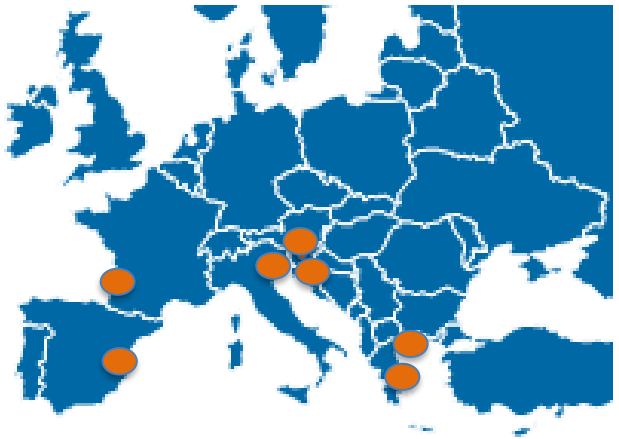
PIXEL –Port IoT for Environmental Leverage

PIXEL

- Coverage: 15 partners from 7 different countries (May 2018- April 2021)
- Pilot Ports: Monfalcone, Burdeaux, Pireaus, Thessaloniki
- Coordinator: UPV / Innovation: XLAB

	Energy Management use case	Intermodal Transport use case	Port-City Integration use case	Port Environmental Index
Grand Port Maritime of Bordeaux	X			X
Port of Monfalcone/SDAG		X		X
Port of Piraeus			X	X
Port of Thessaloniki			X	X



PIXEL –Port IoT for Environmental Leverage

- Initial results so far are already available in the website (http://pixel-ports.eu/)
- D3.3/D3.4 Use cases and scenarios manual v1/v2

ENERGY - Bordeaux

- IoT platform
- Integration with VIGIESip
- Assessment for supplying local renewable energy
- PEI (Port Environmental Index)
- 8 scenarios

INTERMODAL TRANSPORT – Monfalcone, SDAG

- Data sharing between ports to reduce congestion
- Reinforce safety related to ADR transport
- Collect, analyse and share data with public entities (REHO and Reg. Gov.)
- PEI (Port Environmental Index)
- 6 scenarios

PORT-CITY INTEGRATION- Piraeus, Thessaloniki

- Air quality monitoring (IoT)
- Noise level monitoring (IoT)
- Optimize traffic between city and port
- PEI (Port Environmental Index)
- 5 scenarios

PIXEL –Port IoT for Environmental Leverage

- Initial results so far are already available in the website (http://pixel-ports.eu/)
- D4.1 PIXEL models v1 (energy, transportation,environmental pollution). Final version ongoing

Energy model

- Energy consumption module
- Electricity production module
- Energy balance module
- Usage and interoperability

Hinterland multimodal transport model

- Context and data available
- Existing tools (SOTA)
- Hypothesis
- Usage and interoperability

Environmental pollution model

- Context and data available
- Existing tools (SOTA)
- AEROMOD, CALPUFF

+ Predictive algorithms: inbound traffic, outbound traffic (road and maritime), energy consumption

PIXEL –Port IoT for Environmental Leverage

IoT

- Multi-source sensors
- Virtual sensors
- Data Acquisition Layer
- Information Hub

Security

- Models
- Predictive algorithms
- Operational Tools
- Dashboard

DATA ANALYTICS

ENVIRONMENT

- Environmental-dependent decision policies
- Integration with neighbourhood (city) environmental plans
- PEI + Guideliness