



COREALIS Webinar

## Port of Piraeus Living Lab

John Kanellopoulos, Piraeus Container Terminal

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# Port of Piraeus

- 6<sup>th</sup> biggest port in Europe in terms of throughput
  - 4.9M TEU
- Aiming to become 4<sup>th</sup> in Europe and biggest container port in the Mediterranean in 2020
- Port Hub: **20% I/E** and **80% transshipment**
- Extensive feeder network
- 16-18 trains/week
- 31 QCs, 170 yard trucks, 22 RMGs & 40 ERTGs





# Scenarios in the LL of Piraeus

## Scenario 1:

### **PREDICTOR: Asset Management** (PCT & NEC)

✓ **Sub-scenario 1.1**

Predictive Maintenance Schedule for Yard equipment

✓ **Sub-scenario 1.2**

Predictive Maintenance Spare Part Requirements

## Scenario 2:

### **PoF: Energy Assessment** (PCT & DYNNIQ)

**Analyse** and **model energy consumption** of the port of Piraeus, through measuring and collecting power consumption data.

It will explore **novel and cost-effective solutions for reducing energy consumption** of the terminals, as well as for improving energy efficiency in the whole network of the port and the connected port city

## Scenario 3:

### **PoF: Serious Game** (PCT & DELTARES)

The PoFSG makes it possible to **interpret and compare sustainability in port-city mid-/long-term plans.**

PoFSG is **developed for port planners and stakeholders** that want to explore future port-city sustainable port development.

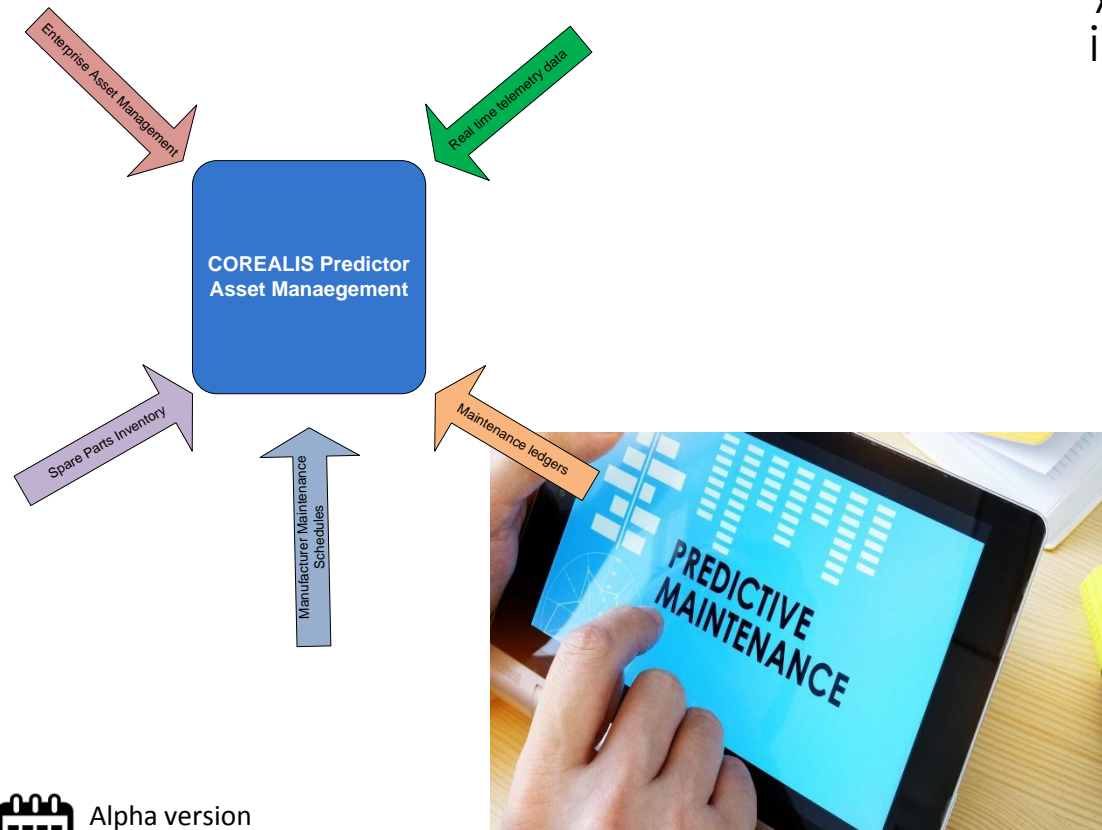
It provides **clarity on port-city stakeholders roles and responsibilities**, and how people work with and around in green port policy development



# COREALIS Predictor: Asset Management


## Predictor Asset Management:

**Objective:** extend yard equipment lifecycle, improve yard equipment availability, reduce spare parts inventory cost & size



### Predictor Asset Management in two steps:

1. Predictive Maintenance:
  - Predictive Maintenance Equipment List
  - Predictive Maintenance Schedule
  - Learning Algorithm
2. Spare Parts Inventory:
  - Spare parts requirements based on Predictive Maintenance Schedule
  - JIT inventory

 Alpha version  
Sep 19



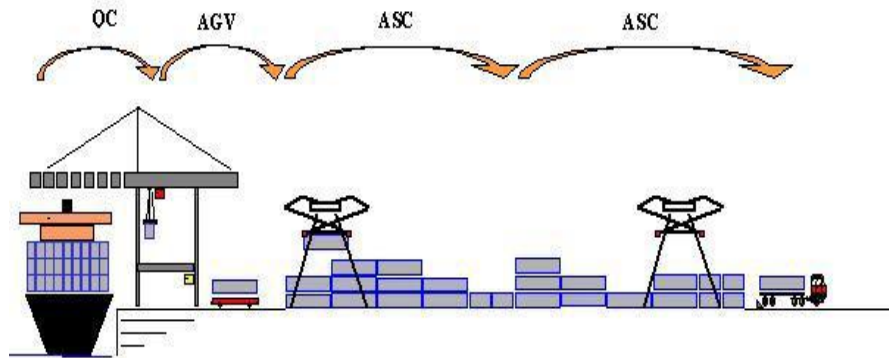


# COREALIS PoF: Energy Assessment



## Energy Assessment

**Objective:** Reduce energy consumption in the Port of Piraeus and investigate feasibility of use of renewable energy sources



- Isolate power fault sources and restore power to unaffected parts of the grid
- Long term planning of grid infrastructure
- Research and evaluate integration with renewable power sources
- Evaluate power storage feasibility at port premises





## COREALIS PoF Serious Game

**Objective:** Enable the port and local authorities to take informed medium-term and long-term strategic decisions and become an innovation hub of the local urban space.



- Development of an advance user-friendly sandbox for decision making
- Simulation of complex sustainable growth scenarios
- Realization of progress in time of different measures and scenarios
- Digital version with visualization and port specific scenarios



# Contribution of the LL to the COREALIS goals



## COREALIS objectives

**O1. Embrace circular economy models** in its port strategy and operations.



Predictor: Asset Management  
PoF Energy Assessment  
PoF: Serious Game

**O2. Reduce the port's total environmental footprint** associated with intermodal connections and the surrounding urban environment for three major transport modes, road/truck, rail and inland waterways.



PoF Energy Assessment  
PoF: Serious Game

**O3. Improve operational efficiency, optimise yard capacity** and streamline **cargo flows** without additional infrastructural investments.



Predictor: Asset Management

**O4. Enable the port to take informed medium-term and long-term strategic decisions** and become an **innovation hub of the local urban space**.



PoF Energy Assessment  
PoF: Serious Game





# Conclusions

## Next steps:

### 1 Predictor: Asset Management:

- Complete data collection from various sources
- Begin the development of the learning algorithm

### 2 PoF: Energy Assessment:

- Complete data collection including data coming from the service provider
- Elaborate on current findings

### 3 PoF: Serious Game:

- Secure the supply of data from Piraeus port stakeholders





-  [www.corealis.eu](http://www.corealis.eu)
-  [corealis\\_eu](https://twitter.com/corealis_eu)
-  [COREALIS EU Project](https://www.youtube.com/COREALIS_EU_Project)
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-  [info@corealis.eu](mailto:info@corealis.eu)

THANK YOU FOR YOUR ATTENTION



John Kanellopoulos, Piraeus Container Terminal

 [John.Kanellopoulos@pct.com.gr](mailto:John.Kanellopoulos@pct.com.gr)



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