

NON-STOP

Pilot project descriptions



Port of Zwolle

NON-STOP is co-funded by the North Sea Region Program 2014 - 2020; Eco-innovation priority.

Read more at: <http://www.northsearegion.eu/non-stop/>



What is NON-STOP?

▷ **New smart digital Operations Needed for a Sustainable Transition of Ports**

NON-STOP focuses on promoting sustainable development within the port sector, by promoting green smart systems and strategies that improve the overall management of port areas, also in connection with their hinterland and relate cities.

The objective of NON-STOP is

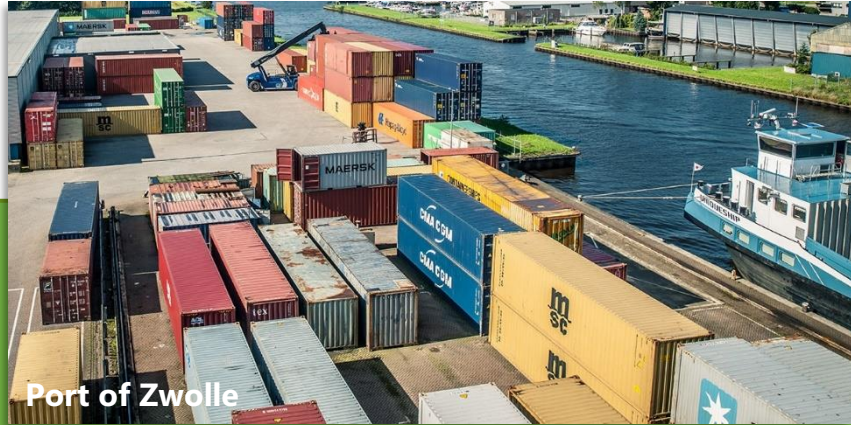
- I. Develop and test smart management systems for port eco-innovative digitalization
- II. Design and test intelligent solutions that enable smart sea/port/land-side management
- III. Define a green digitalization port strategy supported by smart management solutions

The ultimate goal of the project is to reduce by 10% the time of -predefined logistical/maintenance port operations and lower by 10% the port energy and pollution by building on collaborative expertise and joint practice.

Facts about NON-STOP

- ▷ The time period of project: 01. July 2019 – 31. December 2022
- ▷ The responsible beneficiary: Port of Zwolle Coöperatie U.A.
- ▷ The budget: 4.677.950 €

Project Partners



- ▷ Port of Zwolle Coöperatie U.A.
- ▷ Haven Oostende, NV van Publiek Recht
- ▷ CRESCENT SA
- ▷ Helsingør Selvstyrehamn
- ▷ Niedersachsen Ports GmbH & Co. KG
- ▷ Korsør Havn
- ▷ GreenBridge
- ▷ BPK – Rechtsanwaltskanzlei Friederike Berg-Packhäuser & Kollegen

1. Safe management & Efficient App

Develop and test innovative smart management systems & Apps in NON-STOP ports to ensure higher performance, time/energy reduction and safety, considering interoperability and interconnectivity requirements.

App Aqua Park line

Task of the pilot

Create a real time digital Early Warning System (EWS) and a connecting contingency plan to avoid dragging anchor incidents and reduce the potential for accidents and pollution risks.

Task and results

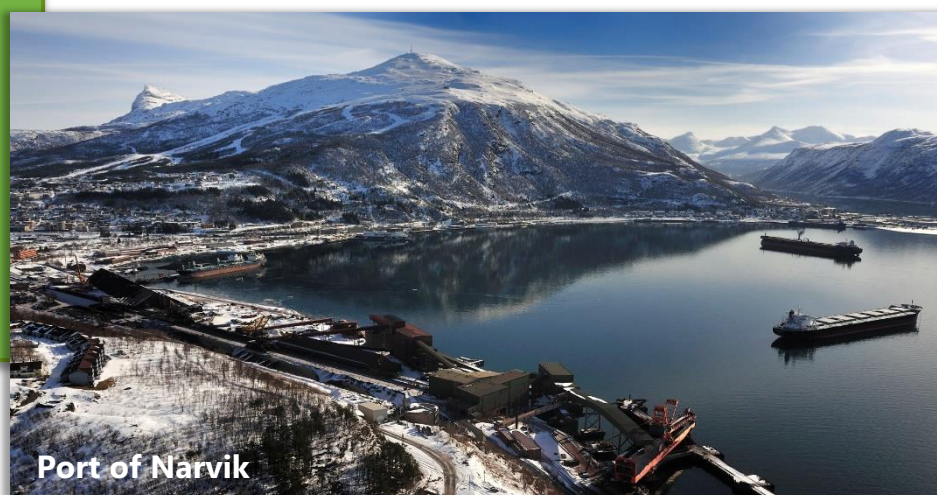
Create a business case and a risk analysis for a joint safety operation based on a common digital system between port, ship and cargo owners.

Experiences/examples of dragging anchor incident or accidents in port areas within Europe.

As a result, the port authority will work in a more effective, "less paper" environment

Key pilot working group

- ▷ Port of Narvik
- ▷ Port of Zwolle
- ▷ CRESCENT



2. Sensors & System Integration

Harbour integrated digitalized management system

Develop and test smart-sensor based / system integration digitalized technologies in NON-STOP ports to enable more efficient operations and pollution reduction

Development of a Port Digital Twin

Task of the pilot

Implementation of artificial intelligence and machine learning in order to make the harbour more efficient in the field of energy consumption and the use of labour

Task and results

The demonstrator, including sources of existing & future data flows related to the port area, will be used as a basis of the implementation and it consists of:

- ▷ Port environment filter (PEF)
- ▷ Port Water Quality Analysis (PoWAQA)
- ▷ Students engagement
- ▷ Digital board

As a result, a smart camera system should assist the port to save cost of staff, but also on travels and thus carbon dioxide reductions.

Key pilot working group

- ▷ Port of Oostende
- ▷ CRESECENT
- ▷ Greenbridge



Port of Oostende

Integrated sensor-based dashboard for air, light and noise information

Task of the pilot

Develop a digital real time system to monitor and show the level of air, light and noise pollution from the ports.

Task and results

Install sensors in the Port of Helsingør in light poles to ensure real time data on the port and the users.

Collaboration with Swedish Port of Helsingborg on joint air quality monitoring system on both sides of the gateway to Øreund and the Baltics.

As a result, the introduction of data monitoring in a single intelligent system by the port authority will improve the successful partnership between port, logistic operations and the city.

Key pilot working group

- ▷ Port of Helsingør
- ▷ CRESCENT
- ▷ (Port of Helsingborg)



Integrated water & sediment management dash-board

Task of the pilot

Design a smart dashboard for coordinated management of water inflow and sediment runoff in the port to optimize dredging activities.

Task and results

Create a system equipped with sensors for monitoring water levels, density of water/sediments, biological state of ecosystem, which is framed by weather data and supplemented by controlling of port infrastructure.

As a result, the scheme would allow fewer dredging activities, no additional ponds for dredging material and optimization in port infrastructure with benefits for the ports.

Key pilot working group

- ▷ NPorts
- ▷ (LWKN – Lower Saxony Water Management
- ▷ Coastal Defence and Nature Conservation Agency + I
- ▷ Entwässerungsverband Emden + Oldersum)

3. Smart-shore & Bio-power supply management

Develop and test smart management systems for port eco-innovative digitalization

Integrated sensor-based dashboard for air, light and noise information

Task of the pilot

Develop innovative digitalized information management systems in ports to achieve higher performance and time/energy/pollution reduction, considering interoperability and interconnectivity requirement

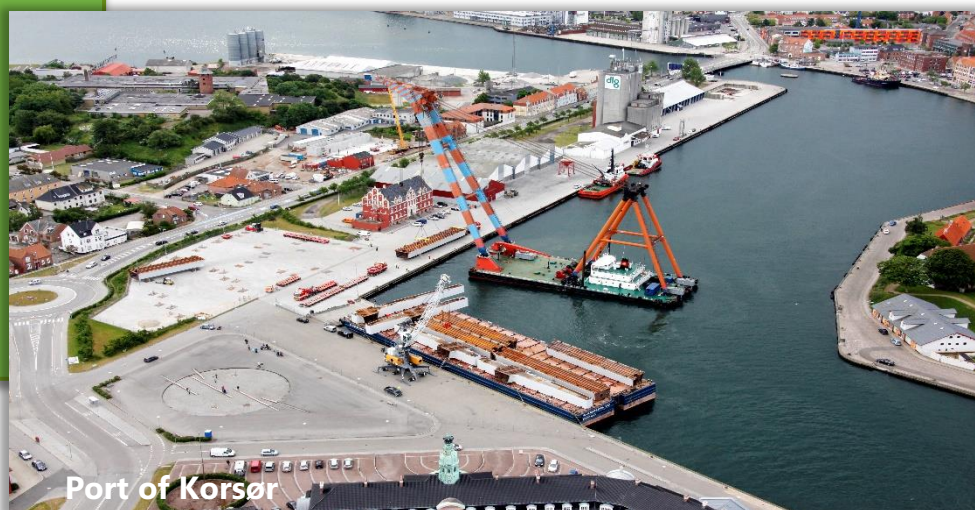
Task and results

The designed shore power / digitalized technologies will be tested in NON-STOP ports.

As a result, the system will enable port crane to run on the same power output and will hence create a more efficient and sustainable logistics operation for the ports.

Key pilot working group

- ▷ Port of Korsør
- ▷ CRESCENT



Investigation of shore power combining with energy facilities management

Task of the pilot

Investigate different energy facilities in the planned port area in a smart manner.

Task and results

Port of Helsingør investigates for new and advanced systems for port seaside service and landside operations to use to provide both green power sources and digitalized monitoring and management.

As a result, the ambition is to connect the public wastewater treatment next to the port by production of biogases and refinement into liquid biogas (LBG) at the port area.

Key pilot working group

- ▷ Port of Helsingør
- ▷ CRESCENT



4. Digitalised port areas valorisation

Digitalised technologies for more effective management and development of port areas and industrial sites.

Digital officer

Task of the pilot

Employ a Chief Digital Officer to handle the development of the digital platform in the port together with a function of dissemination of digital platforms to other ports and partners in and outside the project.

Task and results

Port of Helsingør will introduce digital management technologies that enable the development of eco-systems between ports and their hinterland.

As a result, the overall goal is of a further implementation of circular economy to the benefit of the port and its hinterland.

Key pilot working group

- ▷ Port of Helsingør



Virtual platform for smart management and promotion of port areas

Task of the pilot

Foresees the development of a joint NPorts-JadeWeserPort platform for the optimization of management of commercial and industrial port real estate.

Task and results

Design a digital program that allows for transparency, efficiency and sustainability in the management of port areas

Organisation of a specialist workshop to interface with several transnational ports and facilitate the realization of the demonstrators. Also, debating the various types of smart sea/land-side port management solutions with actors from various organizations to ensure the solutions devised can be transferrable.

As a result, will this serve to verify how and ensure that all NON-STOP different software's meet the needs of other ports and the common EU-legislation. With that produce a platform with a good usability and compliance with legal and interoperability requirements.

Key pilot working group

- ▷ BPK
- ▷ NPorts
- ▷ (JadeWeserPort)

OVERALL GOALS FOR NON-STOP

In the last decades Small and Medium sized Ports within the North Sea Region have been working in a more and more complex and rapidly changing world where the society and businesses have experienced a digital transformation in numerous areas.

Thereby, a smart modernization and eco-innovative approach in port management becomes key to allow port authorities to cope with ever growing multifaced challenges and make a step forward, by moving towards a more advanced, as well as environmentally friendly future.

NON-STOP project aims to implement a green smart digital transition in the management of North Sea Region ports of regional importance. This will be achieved by introducing, testing and monitoring intelligent technologies and processes in the storage, deployment, sharing and transmission of data related to marine conditions, sea/landside operations and energy production/consumption/distribution in ports.

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Interreg VB North Sea Region Programme Area 2014-2020

 Regions within the NSR programme area





Port of Zwolle