NORTH SEA REGION CONNECT

Pilot cases

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NORTH SEA REGION CONNECT

The NSR is one of the main logistics zones in Europe: The largest seaports, but also many intermodal transportation nodes are in the NSR. Those intermodal nodes are outstanding for the transportation of goods to and from the supply and demand markets. To increase attractiveness of a location along with its market potential, i.e., the achievable market, efficient, smart, and ecological transportation networks are needed. The intermodality should enable a concentration of transnational traffic and long distance flows, and as a result of their integration, provide for a highly resource efficient infrastructure use.

Currently, the Trans-European Network-Transport (TEN-T) policy is putting a strong focus on the development of the Core Network, the major transport axes across Europe. However, the whole trade and business network is not only depending on its major nodes but also on its hinterland. To raise the efficiency of transport flows in a holistic approach, the project will thus include both major and remoter transportation nodes to establish learning opportunities.

The overall project objective is to support smart intermodality growth in the NSR through efficiency enhancements. The detailed project objectives are:

- Implementation of new smart processes and tools (smart intermodality),
- Developing of strategies for smart efficiency enhancements (smart involvement)

The perspective of transportation is transnational. New are the instruments for implementation and involvement.

Pilot Cases within the Project
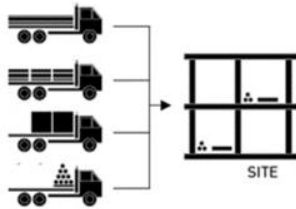
Port of Brussels

The Port of Brussels is looking at two challenges: the efficient transport of goods between Sea Ports and their Hinterland; and mobility of goods within urban areas. The former challenge is considered from the construction sector point of view and building materials shipped from the Netherlands and Antwerp. An estimated 5 to 10 per cent of Brussels' construction flows are currently transported by waterway. Waterway usage provides the potential to reduce the extensive use of trucks for the transportation of goods.

Brussels' on the other hand is also facing major congestion problems, just like many other cities in the North Sea Region. The latter challenge is also looked at from the construction sector point of view and the problem of limited space on site for logistics activities, accessibility to construction sites and limitation of transport in the city and binding delivery times, to name a few.
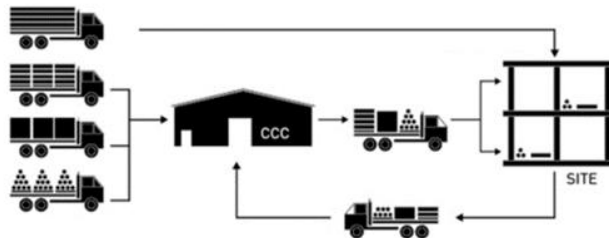
The Pilot therefore has two aims: reinforcing the links between North Sea Ports with their Hinterland connections through the Antwerp-Brussels-Charleroi Canal; and optimising global supply chain and city distribution for construction sites. More precisely, an extension of the Construction Consolidation Center for building materials (CCC) in the North (Vergote Dock) to the South of Brussels (Biestebroek Dock).

The goal is to further develop the use of waterway for unitised building material supply, with a special focus on the organisation of the last mile and the whole supply chain from building material producers to the end consumer (construction sites).

The CCC in the north is operational since 2018 and exploited by Shipit Multimodal Logistics. A main requirement for success is that the distance to building sites cannot exceed 5 kilometres. Extending the CCC to the south is therefore needed.

The pilot consists of the following activities:

- Analysis of current situation CCC North and suggestions for improvement (including exchange with Wilson James London);
- Policy and regulation study to increase the use of the CCC's in Brussels;
- Feasibility study CCC South (including business model);
- Test operation shuttle CCC North and South;
- Test operation CCC South (including temporary stocking facilities).

Port of Oostende

Port of Oostende, together with VIVES is looking at autonomous loading/unloading of vessels in the port. The idea is to use IT frameworks and technology for smart processes and tools for a more efficient inland waterway transport cargo handling.

The pilot is focussing on low level autonomous cargo handling and a digital twin of a dock in the port of Oostende in a digital environment. The digital twin includes a digital forklift with virtual smart sensors, SLAM navigation and will simulate the pickup and moving of pallets from A to B in a sterile environment and reinforcement learning.

SSPA and Port of Gothenburg

SSPA is looking at smart seaport terminal accessibility, with seamless information exchange between the involved actors. Currently there are five different access management services: access information services, automated gate services, pre-notification and appointment services, real-time information exchange platform services and dedicated access services. The improvement of the access management will reduce the turnaround times for trucks and trains in port terminals and with that increase the efficiency of logistics chains. Smart processes and tools are already widely used in logistics to increase productivity; therefore, it is only logic to extend the usage to this aspect in ports.

The pilot investigates:

- How can relevant information be exchanged automatically between vehicle and terminal?
- What does such a service look like?
- How can it be implemented?

Develops:

- Automatic information sharing
- Business models
- Measures and evaluates previously implemented frameworks

Business Vordingborg and Port of Vordingborg

In 2029 the Fehmarnbelt fixed link will be established and there will be a large increase in road traffic that will pass through the municipality of Vordingborg. It is important to analyse the situation ahead of time, to be prepared for all potentials that may arise from this new link. Therefore, it is of relevance to investigate into the development of a logistics centre in Vordingborg. The continuous development of the port and the new link therefore provide the opportunity for the municipality of Vordingborg to create a dry port function, in connection with the highway, train and sea.

As a second part of the pilot, the partners are looking at how Port of Vordingborg can be better integrated into the TEN-T network. With the complexity of the TEN-T network, the connectivity of remoter nodes in peripheral regions to the TEN-T network is sometimes difficult. The pilot will therefore also look at the network and inland waterway system in the Vordingborg vicinity and analyse the possibility of being integrated into the network and the economic impact that would come with it. The pilot will also look at potential operators moving goods to and from Vordingborg and potential business port partners in the inland waterway system and the STRING megaregion.

Hamburg Port Authority

Hamburg is Europe's largest rail port. With a port rail network of about 300 km and about 200 goods trains per day, there is a lot of traffic to be coordinated. To increase the efficiency of the port and improve the smart processes already in place, the pilot aims at integrating the slot plan into the Rail Port Community System.

Currently the mainline train operations from seaports towards Hinterland are planned mostly on the national-, sometimes on the trans-European rail network. The Port terminals focus on their planning first on the maritime side. This leads to the necessity of temporary freight waggon storage.

The political goal is to move from trucking more towards rail transportation. This will bring the existing railway infrastructure to its physical limits, sooner or later. Often there is just not enough physical space available near the intermodal terminals.

This optimisation necessity is also joined by a high demand of data communication between stakeholders. The interdependency increases, the larger the port- and railway operations become. A synchronisation of activities becomes more and more important.

The pilot therefore focuses on the data exchange between rail operation and intermodal terminal operation and the integration of slot plan data structures of multiple intermodal seaport terminals into the common rail port community system.