Smooth Operations -
Optimising Feeder and Shortsea Operations in Ports

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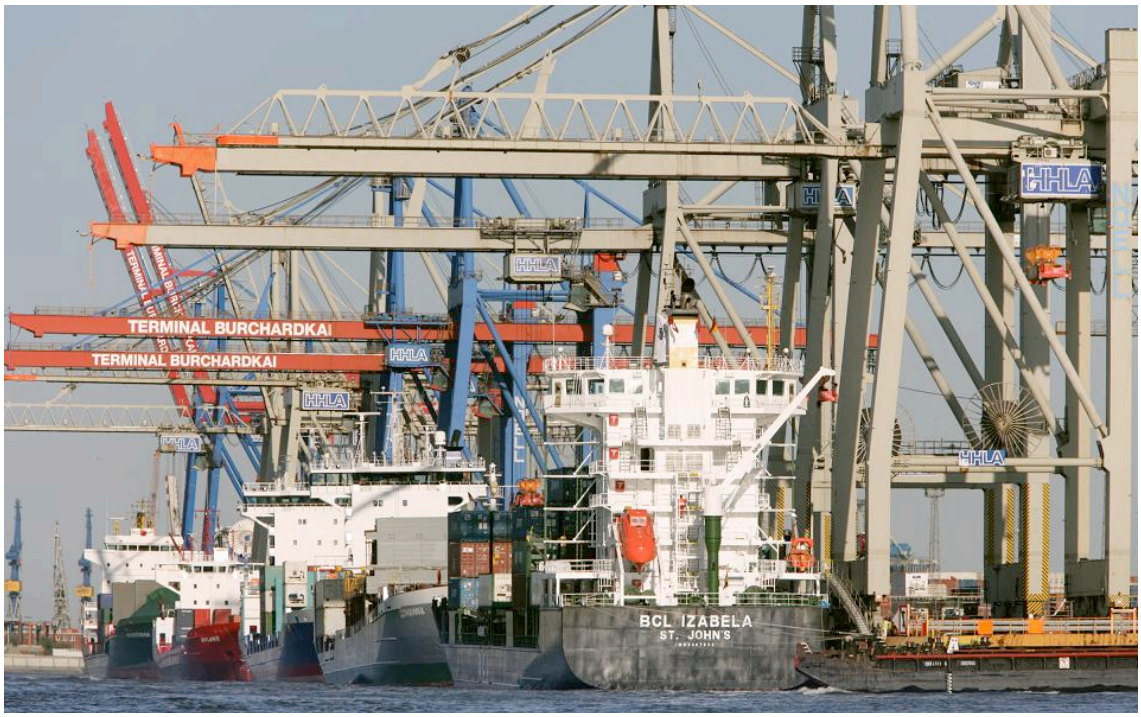
Feeder and short sea shipping operations of containers in hub ports form the core of StratMoS Demonstration Project 3b (DP 3b). Feeder and short sea shipping transports, realized by ships up to 1,500 TEU loading capacity, form around 80 % of ship arrivals for most hub ports in the North Sea Region. Therefore feeder or short sea ships represent the most important clients of ports. However, related to the overall handling quantities of a container terminal, these ships only have a share of about 25 % and, as a result, 40 % of the quay side infrastructure is occupied by ships carrying less than 1,500 TEU. This disproportion is the main reason for the research carried out.

Within DP 3b, port and terminal operations concerning feeder and short sea ships in Northern European hub ports have been analyzed. In this context, the Port of Hamburg was taken as an example of which the general results are applicable to other ports as well. Possibilities of process optimization were identified and rough concepts of efficient port operations developed. The fields of investigation were not limited to ships since technological and organizational influences from the environment of container terminals were considered as well. In that way, DP 3b contributes to the research on alternatives to expensive infrastructure extensions in urban port regions.



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Investing in the Future by working together for a sustainable and competitive region

The Interreg IVB North Sea Region Programme
Investing in the future by working together for a sustainable and competitive region

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Background and Challenges

Growing feeder volumes in the stable North Sea Region and the growing Baltic Sea Region traffic have been recognised in the Port of Hamburg. In 2007 about 27 % of the total container handling was related to the Baltic Sea traffic. 1989 this Baltic trade amounted only to 14 %. Containers arriving by deep-sea ship, e.g. from Asia, are being discharged in Hamburg in order to be distributed further within the North and Baltic Sea Region by feeder ships and vice versa. Most of the port calls in 2007 were done by ships in the range of 500 to 1,000 TEU capacities. The strongest container handling volume per ship class came from this sector, too. The relation between the number of ship calls and handling volume in comparison to larger vessels is quite poor though. From the point of view of a container terminal operator, around 70 % of all calls are feeder or shortsea ship calls. However, only about 25 % of the container volume stems from those ships.

As a result, the specific gross berth time for the handling of one Container (TEU) of a feeder ship is up to five times higher than of a liner ship. Assuming that every container move at a terminal is charged the same price, the handling performance of a feeder ship is therefore significantly lower than the handling performance of an ocean going liner vessel. In sum, feeder and short sea ships have the lowest operation efficiency of all sea going vessels. Operating parties, terminals and ship operators, have enormous potential of optimization if the port and handling procedures could be enhanced.

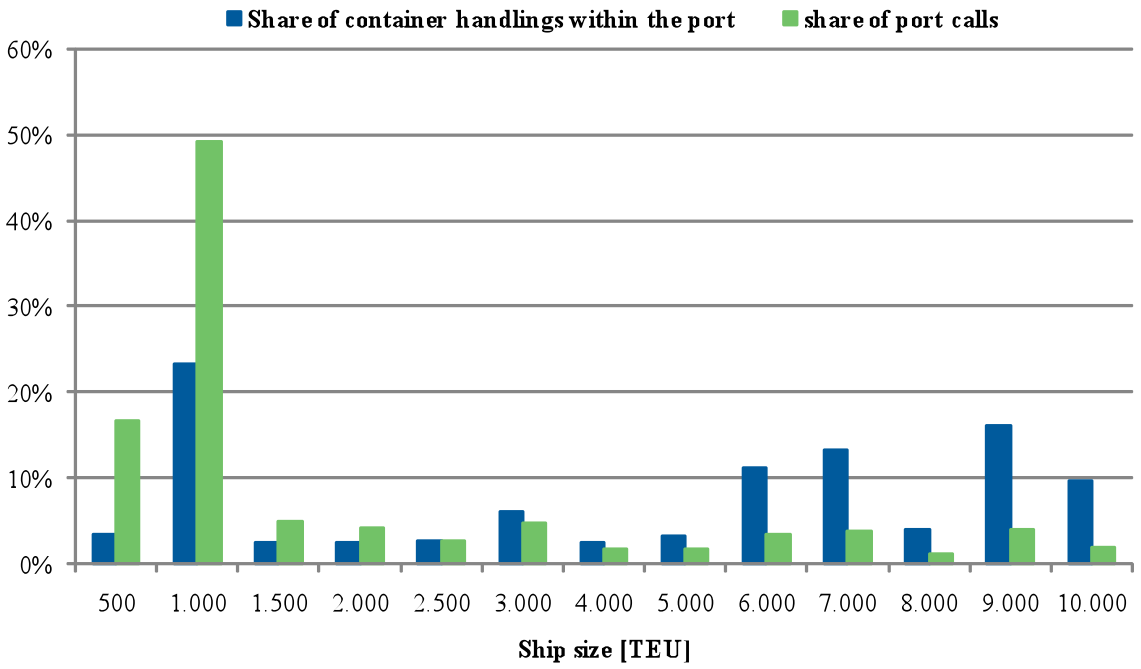
Moreover, Motorways of the Sea as a transport concept could be further stimulated.

Objective

The aim of DP 3b was to identify ways to optimize feeder and shortsea operations in hub ports. Thereby, the attractiveness of this transport mode for both the port operators and the customers could be increased and modal shift within the concept of Motorways of the Sea could be supported.

Work processes

The tasks in DP 3b have been carried out according to a work plan that was determined at the start of the project. The work plan was divided into different tasks, each having a dedicated timeframe and content definition.
E.g. DP 3b's task 2.1 foresaw an elaboration of feeder and shortsea operator's requirements concerning the hub concept. Therefore, interviews were carried out, asking experts from both sides about their view on proposed measures to optimize the feeder handling procedure in hub ports. The work was generally carried out according to the work plan, incorporating some slight adjustments due to the extension of the StratMoS project.



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Description of Results

In an elaboration of feeder and shortsea operator's requirements concerning the hub concept, experts were asked about their view on proposed measures to optimise the feeder handling procedure in hub ports. Interestingly, representatives from different sectors evaluated the measures to a large extent similarly. Being asked which measures they regard as "target oriented", 100% of the participants named "Increase ship's turnover per terminal call" and "Working hours adjustment within European Ports". Other possible answers such as "Larger vessels" or "binding schedules" were preferred by terminals over ship owners. On the other hand, ship owners stated measures such as "Increase of waiting berths" or "Terminal comprehensive preplanning" as more target oriented than terminal operators did.

Research has further confirmed that mainline carriers especially consider the following aspects in selecting which of their European main ports (terminals) should preferred as a transhipment hub at the same time; in sequence of priority:

- Customs procedures, rules and regulations
- Terminal organization, production and reliability
- Priority (given by the port authority and terminal operator for transshipment)
- Costs (container handling; port of all cost)
- Service aspects of the mainline carrier (schedule, rotation, organization)
- Transit times to/from the feeder ports

In the associated evaluation, the focus was put on the organization and the promotion of hub ports regarding the handling of feeder ships within the port.

Further on, the influence of mainline shipping industry on feeder traffic has been examined. For example, mergers and takeovers among mainline carriers affect the common feeder operator in the way that the new company may achieve a size that it may start or increase its own dedicated feeder. Carrier consolidation could also induce concentration of trans-shipment activities on a port- or terminal-level. Other recent trends in feeder development are that common feeder carriers operate their ships under the name-style of mainline customers, joint services are carried out between common and dedicated operators and the operation of networks through space chartering has improved.

Therefore, it has been found that under current conditions the market is tripartite to dedicated and common mid-sized and niche feeder operators. The current deep sea market is characterized by decreasing cargo volumes, increasing and enlarging ship capacity, high costs and low revenues. General port call trends are not put into action. In this vibrant environment trends are hard to find and business decisions are made on a day-to-day basis.

New opportunities for feeder and short sea traffic were also examined in the project. By the current draught limitation of 9.5 m in the Kiel Canal a strong influence in shipbuilding is expected. Under this limitation, a maximum ship size of around 1,500 TEU in feeder and short sea traffic is possible only. The draught expansion to 10.5 m is still in planning and will not be finished before 2018. The hard barrier of 1,500 TEU might lead to a combination of container and Ro/Ro ships. Some ships of this type operate already between Antwerp and the Baltic Sea, yet in smaller dimensions. If an increase in loading capacity of ships is necessary by economic reasons as in the oversea shipping business, the only possibility exists in additional Ro/Ro cargo capacities. Ro/Ro cargo is generally not very heavy and will not lead to a draught increase of a ship. Only the length and the width of the ship will increase. But in terms of these dimensions, the limitation of the Kiel-Canal still is sufficient for extensions. This idea is also supported by the fact that in today's port operation there is a considerable time gap between total port lay time and the berth time. As an effect, there would be sufficient time for an additional Ro/Ro operation.

Bringing the results forward

Over 160 representatives from business and politics attended the conference headed „Feeder services today and tomorrow" on 27 August 2009, at the invitation of Port of Hamburg Marketing and the Hamburg Chamber of Commerce. The event programme consisted of a number of specialist presentations and a panel discussion. Sebastian Doderer from Port of Hamburg Marketing reported on the EU project "StratMoS", which provided the framework for this event. Under the umbrella of this EU project, a total of 27 partners from 11 countries are investigating ways to shift cargo traffic from road to sea. Bernd Bertram, Managing Director of Unifeeder Germany, the leading feeder and short sea shipping company at the Port of Hamburg, brought the audience up to date on the current situation in the feeder shipping sector.

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In doing so, he also highlighted the differences in clearing ships at the various North Range ports and called for concessions from terminal operators at the Port of Hamburg regarding important issues relating to the clearing, handling and dispatch of ships. The Managing Director of the Hamburg Port Authority, Jens Meier, emphasised the importance of feeder services for the Port of Hamburg. After all, the contribution from feeder services to total container transhipments in 2007 was no less than 28.4%. Sönke Meesenburg, the head of the planning group for the upgrade of the Kiel Canal, then reported on the planned investments in this, the world's busiest man-made waterway. Around one billion euros is to be spent on modernizing and upgrading the canal over the next 10 years.

A view to the future came from Dr. Pierre Sames, Senior VP Strategic Research and Development at Germanischer Lloyd in his presentation on a gas-powered feeder vessel for use in northern Europe. Depending on future trends in fuel prices, this form of propulsion could result in considerable cost benefits.

Similar issues were also discussed on the Motorways of the Sea - Messages from StratMoS Information Event in the Hanse-Office (the common institution of the German Länder Hamburg and Schleswig-Holstein to the European Union) in Brussels on November 9, 2010, which was jointly organized by the StratMoS partners Hamburg State Ministry of Economic and Labour Affairs, Hamburg University of Technology and Hafen Hamburg Marketing. During the afternoon event, several perspectives on the MoS-concept were presented: from the North Sea MoS Task Force Mr. Pim Bonne, from the funding-applicants Mr. Patrick van Cauwenberghe (Port of Zeebrugge) and from the StratMoS-project. A plenary discussion also involved directly the participants of the event. Several representatives of the European Commission took the chance to discuss the future outline of EU transport policy aspects with the StratMoS experts. A networking snack completed the successful event in Brussels.

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The StratMos Project

The full name of the project is "Strategic Demonstration Project for Motorwas of the Sea". The name signalises that the project seeks to be strategic and policy oriented, and at the same time seeking for concrete and tangible results.
The core aim and idea of the StratMoS project is to promote and facilitate shift of cargo from road to seabased intermodal transport as well as to improve accessibility within the North Sea Region by supporting the implementation of Motorway of the Sea (MoS) and related transport networks in an integrated logistical chain.
The StratMoS project is funded by EU and the Norwegian government through the Interreg IV B North Sea Region Programme. The project comprises for the time being 29 partners, covering the North Sea Region from Flanders in the south to Finnmark in Northern Norway in the north. The Murmansk, Arkhangelsk and Nenets regions in Russia are associated partners.
The StratMoS project was approved in December 2007, and the first formal International Management Group meeting was held in April 2008. It will end on 30 September 2011.
Reflecting the dual aspect of the project, the project comprises work packages that are policy and methodology oriented and demonstration projects which shall provide concrete and tangible results.

The StratMos Partners

- Hafen Hamburg Marketing
- FDT
- University of Hull
- Aberdeenshire Council