Empty Container Management in the Baltic Sea Region

TransBaltic

WANTED: We are looking for stakeholders as partners in a pilot case to put the foldable container into practice as a sustainable logistic solution.

Introduction

The Hamburg University of Technology, Holland Container Innovations and the Delft University of Technology have started a cooperation to investigate and improve empty container management in the Baltic Sea Region (BSR).

This cooperation is embedded in the EU-project TransBaltic, which is funded by the Baltic Sea Region Programme 2007 - 2013. The overall objective of TransBaltic is to provide regional level incentives for the creation of a comprehensive multimodal transport system in the BSR, as stipulated by the EU Strategy for the Baltic Sea region, by means of joint transport development measures and jointly implemented business concepts.

We will directly contribute to this intention by developing a business concept for implementing foldable containers as a sustainable logistic solution to face challenges of empty container management. Therefore we are looking for interested partners to participate in a pilot case.

Background

Worldwide the share of empty containers is 20% on sea-based and 40% on land-based transport (Drewry 2006/2008). Main reason for this is the imbalance of cargo flows and the required compensation of surplus and shortage of empty containers between hubs in the transport chain (e.g. ports or hinterland depots) on a local, regional and global level. Stakeholders are ports, terminal and hinterland operators, shipping lines and other transport operators, shippers as well as container leasing companies: all those who handle or own containers.

The repositioning of empty containers causes high costs - around $31.5 billion worldwide in 2007 (Drewry 2006/2008). Furthermore it ties up capacities in transportation and storage for all transport chain stakeholders. In consequence, these inefficiencies also lead to negative environmental impacts such as air pollution and land use.

To minimize transportation of empty containers there are e.g. organizational or prizing measures, nevertheless movements of empty containers cannot be avoided completely due to the underlying trade imbalances.

The foldable container provides the opportunity to fill this gap, as the main principle is to reduce the volume by folding the container when it is empty. A bundle of it can then be handled as one standard container. Thereby less storage space is needed and unproductive transportation is avoided which leads to significant cost reduction.

Relevance for the Baltic Sea Region

In recent years an enormous increase of container flows in the BSR can be stated. Due to the economic development and the containerization of cargo flows, the handled containers amounted to 7.4 million TEU in the boom year of 2007. This equals a growth of 250% between 2000 and 2007, with an annual growth rate of around 13% (Breitzmann 2008). The share of empty containers in the BSR (excl. Russia) was around 25%, whereas empty containers in the whole EU shared around 20% in the year 2007 (Eurostat 2010).

Along with this development, empty container management has become an issue in the BSR, not only from perspective of the region's more than forty container ports and their hinterland but also for operating feeder lines. Especially the diversity of the region regarding to sources and sinks of cargo flows requires an investigation of strategies for empty container management. Even though the economic crisis had a temporarily relaxing effect on the related problems, the next years shall be used to prepare well for the future.

Goal and task description

The main goal is to implement foldable containers in the BSR to reduce negative impacts of empty container flows. To reach this goal four tasks have been defined:

- *Catching people, experiences and attitude*: A survey on empty container management in the BSR will be conducted in 2010 to gain more transparency on specific experiences and requirements. Furthermore it is aimed to establish a stakeholder implementation platform.
- *Identification of relevant corridors*: Relevant ports and hinterland sites as well as the main transport operators will be identified by investigating container flows in the region and by analysing the market.
- *Implementation in practice*: This is the core task! If the course is set and motivated partners will support the pilot case, a small fleet of foldable containers will be tested in real life environment. The pilot will be accompanied and evaluated to transfer the results and prepare the broader market introduction.
- *Documentation and dissemination of results*: As a result of research on empty container management in general and with focus on the BSR, a manual on empty container management will be published at the end of 2010. After having run the pilot case, a business concept will be finally derived to make the experience of the pilot case available to a broad public.

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Baltic Sea Region Programme 2007-2013

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TU Delft

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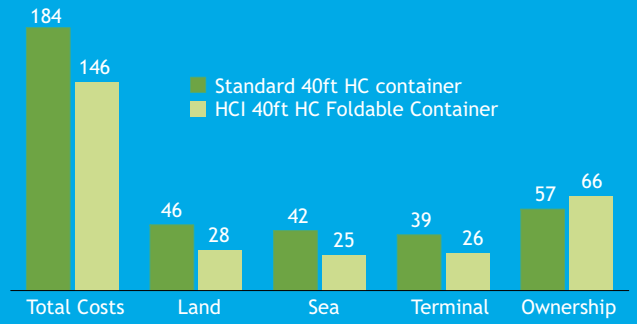
Foldable Container

Holland Container Innovations (HCI) has developed and patented technologies for a foldable container that can be folded in 10 min. The folding process is carried out in four steps:

1. Manually unlock and fold long walls
2. Lift roof (by forklift or spreader) to fold short sides
3. Lower roof with short sides on top of long sides and bottom
4. Lock the folded container

It is designed to comply with all relevant ISO-standards and CSC-approvals. One foldable container takes up ¼ of the volume of a standard container and 4 containers can be stacked, locked and handled together. In the unfolded state, the HCI Foldable Container can be used as a regular 40' high-cube container.

HCI together with the Port of Rotterdam and the Delft University of Technology performed an extensive study to quantify the benefits of the foldable container. Preliminary results show that the foldable container can generate significant savings up to 25% of the operational costs on land as well as on sea and furthermore reduces CO_2 emissions and storage space.



Next steps

In a next step it is planned to set up a pilot case. Therefore we need stakeholders of container flows in the BSR who are willing to contribute by operating foldable containers in their business processes.

Currently the foldable container undergoes the certification process to obtain CSC as well as ISO approval. The first part of the pilot fleet will be built together with a partnering European container manufacturer afterwards and be tested in a first pilot case in the hinterland of a European port. Finally it will be possible to set up a pilot case in the BSR from October 2010 on. Apart from operating the foldable containers in their processes, potential implementation partners are also asked to invest in additional containers.

Team & Contact

- The Institute for Transport Planning and Logistic with Prof. Dr.-Ing. Heike Flämig at Hamburg University of Technology (TUHH) is a competence centre for interdisciplinary transportation research focusing on three core areas of research: settlement structure and transport planning, logistics and sustainability as well as transport and logistics nodes. The TUHH is a cooperation partner within TransBaltic contributing mainly as leader of the project's task 5.2 on 'Empty Container Management'.
- Holland Container Innovations (HCI) is a techno-starter from Delft University of Technology, one of Europe's leading technical universities. HCI was founded in 2006 and has developed and patented three technologies for a foldable maritime container. Therefore HCI has won several prizes in the Netherlands, such as New Venture Round 1,2&3, the Ernst & Young business case award, the Philips Innovation Award and the Shell livewire Award.
- The OTB Research Institute for the Built Environment is part of Delft University of Technology. It combines scientific and contract research and develops innovative solutions for societal issues and problems related to housing, urban and mobility studies. OTB has performed significant research and gained long-term experience on empty container management and foldable containers respectively.

For more information please get in touch with us:

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References:

Breitzmann, K.-H.: Baltic Sea feeder market in Trends in Container Shipping. 2008

Drewry Shipping Consultants: The Drewry Annual Container Market Review and Forecast 2006/2007. 2006

Drewry Shipping Consultants: The Drewry Annual Container Market Review and Forecast 2008/2009. 2008

Eurostat: Database Maritime Transport (Table: goods, main ports, container). Access February 2010

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