



European ports reflect the diversity of the Community

DATA AND INFORMATION FOR THE EUROPEAN TRANSPORT POLICY

Shaping the European port industry efficiently and sustainably: this is an important goal of European transport policy. In order to develop a Community strategy, a reliable framework of data and information is needed. In order to develop this, the EU, initiated by the European Sea Port Organisation ESPO, has supported a project called PORTOPIA.

The aim of PORTOPIA was to create a cloud-based data and information system for all European ports. This gathers for example data on cargo handling, modal split or passenger traffic in order to make this information available to ESPO, the EU and the ports among themselves and to

enable a comparison of their performance.

The final event of the project took place in November. The project partners presented four tools that will be used by the ports and their customers in the future: The „Rapid Exchange System“ enables rapid access to the traffic data of the participating ports. An individually configurable „Environmental Dashboard“ allows the comparison of environmental data. „Governance Trends“ show the different forms of port management in Europe and their development. Another tool measures customer satisfaction („User Perception“).

The CML was a project partner of

PORTOPIA together with the Fraunhofer IML. Their task was the development of new performance indicators for seaports and the analysis of terminal handling charges for European ports. These are an important indicator of the competitiveness of ports. In addition, the Fraunhofer institutes have transferred the idea of PORTOPIA to inland ports.

ESPO is convinced that with the development and introduction of PORTOPIA, a major step towards the digitalization of ports has been taken and is striving for a continuation of the project.

FLEET MANAGEMENT SYSTEMS MARKET STUDY SHOWS NEW TRENDS

The Fraunhofer CML provides help for the orientation and selection of fleet management systems (FMS). For the first time in 2011, we provided an overview of the market, asked for trends and explained the complex situation of the global software market. Since then, our study has been published every two years.

As with every new edition, we have identified new focal points and performance components of the software solutions this year: data integration and condition-based maintenance. 95% of the software developers consider the importance of integrating external data into a fleet management system to be important or very important. And more than half

(56%) of the providers already offer condition-based maintenance functionality.

Overall, the market for FMS is on the move. In our study, 33 providers were examined in 2011 and 38 in 2017. Their confidence in the market is strong. While the estimated market growth for 2016 was expected between 5 and 11%, the expectations for 2018 lay between 14 and 16%.

Thanks to the great interest in recent years, this fourth edition is a comprehensive update of the previous versions, which now includes 38 and thus a good third of the providers of fleet management software. These providers operate in a heterogeneous market. Some smaller companies offer highly

specialized software solutions, while large suppliers can map all planning tasks of the FMS in their products.

„The market for Fleet Management Systems is very dynamic, with some vendors merging while others retreating or new entrepreneurs entering the market. In the course of the increasing digitalization of shipping, there is also a constant change and optimization of the products in order to guarantee state-of-the-art technology,” says Prof. Carlos Jahn, head of Fraunhofer CML.

Fleet Management Systems 2017 is published in English and is available at www.verlag.fraunhofer.de.

FOREWORD



Dear readers,

2017 is almost over and we are happy to send you not only our best wishes at the turn of the year, but also to present four interesting projects and solutions.

To name just two:

We are particularly proud to have won funding for the development of an integrated dynamic simulation of logistic nodes. This implementation has been a matter of concern to us for years and we are glad that we have now received funding from the Federal Ministry of Education and Research for its implementation.

And at the end of the year, our study „Fleet Management Systems“ appears in this series for the fourth time. In addition to the extensive market overview, this issue highlights the topics of data integration and condition-based maintenance.

I wish you a Merry Christmas and all the best for the New Year,

*Your Prof. Carlos Jahn
Head of Fraunhofer CML*



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Layout of a container terminal in the virtual planning environment of the CML

TERMINAL PLANNING THROUGH ISI PLAN LINKING LAYOUT PLANNING AND SIMULATION

The planning of port terminals has undergone a major transformation in the course of digitalization in recent years. The activities of engineers and architects are increasingly taking place at digital planning tables. The many individual components that make up a modern terminal are assembled on them using virtual blocks of digital libraries. This procedure allows complex layout designs to be created and varied in a short time.

However, the static layout design of a terminal is always just one part of the tasks that are required for sustainable planning. Later on, dynamic transshipment and transport processes will take place on the terminal, which can only be planned in detail by means of an elaborate simulation.

At present, terminal planning is usually iterative and therefore very time and cost-intensive. In this context, layout planning is followed by the simulation of the subsequent processes, which in turn are taken into account in a revised layout planning, etc. Due to the high expenditure of a dynamic simulation, this is nowadays sometimes even completely left out.

For some time now, Fraunhofer CML has been pursuing the idea of linking the static layout planning, e.g. of a container terminal, with the dynamic transshipment and transport processes running on it, in order to considerably reduce the planning effort. The CML, the Institute for Maritime Logistics at TUHH, the planning software manufacturer

plavis, the simulation software developer INCONTROL and the „German Promotion Centre for Intermodal Transport“ (Studiengesellschaft für den Kombinierten Verkehr e. V.) now want to implement the seamless integration of layout planning and logistics simulation in a publicly funded project.

Dr. Torsten Münsterberg, project manager at CML, is also pleased about this: “The automatic generation of a dynamic simulation model based on a previously created static layout significantly increases the level of detail and accuracy of terminal planning and also saves a lot of time and money that previously had to be spent on the manual creation of a simulation model by experts.”

OPTIMIZE PROCUREMENT - REDUCE OPERATING COSTS

Operating costs of merchant fleets are an important factor for the economic success of shipping companies and shipping management companies. The targeted analysis of individual cost types can reveal possible savings potentials.

Studies of the CML show that the costs for spare parts alone amount to approximately 10% of the total operating costs. For large, globally active fleets, significant economies of scale can be achieved by fleet-wide management of spare parts or resources.

An optimized procurement strategy plays a decisive role here: good long-term delivery conditions are of-

ten the result of a strategic partnership between supplier and customer. This, in turn, is based on coordinated procurement across the entire fleet, which offers further opportunities for both partners in addition to the cost factor, e.g. by harmonizing and standardizing the product range. And the orientation to the entire supply chain of spare parts and operating resources offers advantages in terms of costs and delivery locations.

For this challenge, Fraunhofer CML has developed a mathematical model for the cost-oriented optimization of procurement, warehousing and transport logistics that can also

be integrated into existing software solutions: the Supply Chain Optimizer SCO. The following steps are carried out to implement this optimization model: An analysis of procurement data and a forecast of demand lead to the optimization of relevant supply chains. The application of the model makes it possible to identify a spare parts-economical optimum that minimizes the costs for logistical measures and the outage or shortfall costs. The use of the SCO also makes it possible to decide on different transport concepts by considering replenishment lead times.

IN BRIEF

The event „Verbesserte Prognose von Schiffsankünften“ (Improved Forecast of Ship Arrivals) concluded the results of a study that was conducted by CML in cooperation with TRENZ AG. More than 40 participants from research and administration, shipping companies and maritime service providers visited the Technical University of Hamburg on November 29, 2017 and discussed the presented solution, which is based on Big Data analysis of AIS data.

The test runs of the European Maritime Simulator Network in November were also successful. As part of the Sea Traffic Management Validation project, 29 virtual ships met for one of the largest civilian ship management simulation to date for joint manoeuvres in the English Channel and the southern Baltic Sea. The participating bridges are spread across 13 locations throughout Europe, but the network allows the exchange of routes between ships and land stations with the help of new functions of the electronic nautical charts. Find out more at www.stmvalidation.eu.

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- **Supply Chain Day, 19.4.2018**, worldwide event
- **Maritime Innovation Insights - CML presents latest research results for the maritime industry, 3.5.2018**, Technical University of Hamburg

IMPRINT

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