



Popular: Cruise ships - here MS Europa- inspire more and more vacationers

FOREWORD



Dear readers,

Cruise travel moves and inspires not only the passengers who set sail in Hamburg but also the people from Hamburg and their visitors celebrating the ships in the harbor and on the Elbe. In order for this to continue, new concepts are required which ensure smooth processes in order to avoid negative consequences for travel times in the Hanseatic City. Furthermore, cruise ships increasingly have to meet requirements for environmental protection. Further information on this can be found in this newsletter.

Another important area which the industry is concerned with is the megatrend of digitization in the port. Please read about lines of development and our projects for example from the forecast of ship arrivals to terminal operating systems to the question of how operators can ensure that digital processes remain safe.

Enjoy your read!

*Prof. Carlos Jahn
Head of Fraunhofer CML*

INNOVATIVE SOLUTIONS FOR CRUISE TRAVEL

MEGATREND CRUISE TRAVEL

Cruise tourism is one of the fastest growing market segments within the tourism industry. The cruise business in the port of Hamburg is growing continuously and rapidly. The results of this are new challenges for entirely different areas for example logistics and ecological sustainability:

On the one hand, innovative concepts have to take into account the strong increase in passenger numbers, short port turnaround times and the supply of people and ships. On the other hand, they have to account for applicable regulations (and the demands of customers) for environmentally friendly journeys.

LUGGAGE LOGISTICS FOR THE CRUISE WARDROBE

CML has been working on the project "Trends in the Logistics of Luggage" together with the Aviation Logistics Department of Fraunhofer IML since January 2016. The project aims at analyzing technical, social and procedural trends regarding the transport of luggage of air and cruise passengers.

At the moment, cruise passengers are mainly responsible for the luggage transport. Embarking and disembarking processes of the passengers and

their luggage often take a couple of hours due to the high number of passengers (AIDAprima has a passenger capacity of approximately 3,300 people plus 900 crew members). In order to optimize baggage processes and make arrival and departure more convenient for cruise passengers, IML and CML are developing solutions for a flowing and unaccompanied baggage flow between house, airport and cruise terminal by the Autumn of 2016.

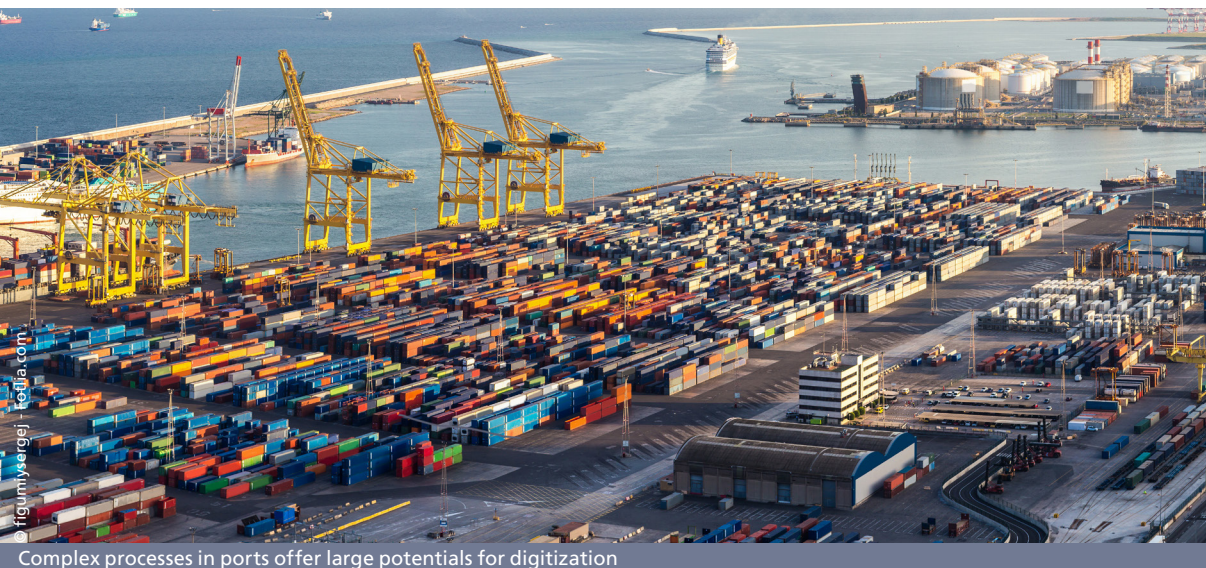
In the future, the cruise passenger may be able to check in their luggage at a luggage machine (so-called. Self-Baggage Drop-Off) at their local train station already. Luggage will be transported to the airport, flown to the destination and transferred to the cruise ship completely independent. „Intelligent“ luggage with mobile internet, GPS and RFID will not only facilitate baggage handling but will also provide information to the passenger about the current position of his bag at any time.

Favorable transfer conditions and short processing times are of great significance to passengers. As a result of this, improved luggage processes could be an important competitive advantage over other cruise ports.

MARINE PROTECTION THROUGH WASTEWATER TREATMENT CONCEPTS

How can the impacts on the marine environment resulting from the increase in passenger ship traffic be limited? In order to answer this question, the project NAUTEK started in September 2013. Funded by the Ministry of Economics, Fraunhofer CML has been working in a consortium together with, among others, AIDA Cruises on approaches related to the wastewater treatment on board of cruise ships.

The project aimed at developing innovative procedures in order to reduce the discharge of nutrients and pollutants in the marine environment. Fraunhofer CML examined the network of Port Reception Facilities PRF in the ports of the Baltic Sea. A simulation model which was developed in this context makes it possible to record whether the installed PRF are sufficient to meet the requirements of the passenger ships in the Baltic Sea for different scenarios. Because only a high level of service will promote the acceptance and therefore the successful implementation of a PRF network for cruise ships. To find out more about the project NAUTEK please see: www.nautek-info.de.



Complex processes in ports offer large potentials for digitization

MEGATREND: DIGITIZATION IN THE PORT

MEGATREND DIGITIZATION CML AS AN INNOVATION DRIVER

Cloud Computing, Big Data, Social Media or Cyber-Physical-Systems: Digitization is undoubtedly one of the megatrends of the 21st century. It will not only fundamentally change social life but also the economic environment. Maritime logistics is a key industry for the digital transformation: In this sector, a particularly large number of international partners is involved in transport processes. Consequently, digitization also offers a lot of potential. The following examples illustrate the promising potential for maritime logistics:

BIG DATA ANALYTICS FOR SHIP ARRIVALS

Different influences such as unfavorable weather conditions or high traffic volumes lead to deviations in the schedules of the ships. In order to provide support regarding these deviations, CML is developing a forecast model within the framework of the project Vestvind together with Trenz AG regarding the arrival of ships in German ports. The product is supported by Hamburg's Investment and Development Bank.

DATA SECURITY IN THE MARITIME SUPPLY CHAIN

The increasing digitization of more and more business processes leads to access and exchange opportunities for digital information along the maritime transport chain. In the project MITIGATE, CML examines, together with an international consortium, the data security of maritime supply chains, e.g. of liquefied natural gas,

container and bulk goods as well as vehicle transport chains. A first (non-representative) survey has revealed that nearly two thirds of the respondents do not carry out a risk assessment of their IT infrastructures so far. From the perspective of the respondents, the most important IT cyber assets are corporate networks (between 50 and 60%) as well as databases and operational applications (65 to 75% respectively).

These are enough reasons for the project partners to create a low-threshold offer for test and sustainable protection of IT infrastructures for the companies of the maritime supply chain as being developed in MITIGATE.

A STUDY ON THE FUTURE OF IT AT THE PORT TERMINAL "TERMINAL OPERATING SYSTEMS 2016" WAS PUBLISHED

Increased capacities, new technologies and increasing customer expectations lead to an increased competitive situation among terminal operators. However, with the aim of optimizing transshipment efficiency, Terminal Operating Systems (TOS) represent key IT solutions. In order to adapt to the changed conditions, TOS providers are continuously further developing their products. By providing information functions for the effective handling of goods between different carriers, they can optimally support terminal operations.

With the aim of showing trends creating transparency and assisting terminal operators in decision-making on the optimal TOS, Fraunhofer CML already publishes the third edition of "Terminal Operating Systems 2016".

The comparison to previous studies makes it possible to draw attention to changes and developments. The current study focuses on the future of the port terminal in relation to the keywords' digitization and optimization. Terminal operators and TOS suppliers were surveyed about the port of the future: How is the port of the future defined? When will the described developments be implemented globally? Can the existing TOS support these developments?

The results of the study show where the trend is going and how terminal operators and TOS suppliers want to react to coming changes. At the moment, entirely autonomous terminals continue to be unrealistic according to the respondents. However, respondents feel more positive about technologies which are closer to the current state of art. These include workflow management through mobile devices or the tracking of vehicles on the site as well as arriving trucks. Information integration, improved electronic data exchange and the possibility of operational monitoring are port developments that offer significant advantages.

The study „Terminal Operating Systems 2016“ is available for purchase at <http://s.fhg.de/TOS2016>.

PLEASE NOTE

Fraunhofer CML uses a variety of digital tools for its work. These include planning tables for the illustration and optimization of terminal layouts. On the „Day of Logistics“ on April 21, the participants listened to an informative introductory lecture and had the opportunity to get to know the digital planning tools and ship handling simulators of CML.

The Transport Research Arena (TRA) 2016 is the most important conference on all aspects of the research on traffic and transport routes in Europe. Fraunhofer CML featured with the topic "Safety and Acceptance of Automation Processes" at this year's TRA which took place in Warsaw from April 18-21, 2016.

Furthermore, CML informed the Logistics and Science Forum about customer loyalty strategies in the maritime supply industry on the new forum which focuses on "Innovations in Logistics" in Hamburg on May 19. On top of that, visitors were able to get to know more about digital solutions from the ship and fleet management.

+ + + DATES + + +

- **IAME 2016**
23rd-26th August 2016, Hamburg
- **ISIS 2016**
31st August-2nd September 2016, Hamburg
- **SMM 2016 Hamburg**
6th-9th September 2016

IMPRESSUM

Fraunhofer Center for Maritime Logistics and Services CML
a unit of Fraunhofer IML

Am Schwarzenberg-Campus 4,
Building D
21073 Hamburg
Tel.: +49 40 428 78-44 50
Fax: +49 40 428 72-44 52
info@cml.fraunhofer.de
www.cml.fraunhofer.de