

CARNIVAL MARITIME UTILIZES THE POTENTIAL OF MATHEMATICAL OPTIMIZATION IN WORKFORCE PLANNING AND SCHEDULING

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Hamburg. Carnival Maritime, the Marine Service Unit of the Costa Group, and the Fraunhofer CML have set up a strategic partnership to implement the maritime research institute's decision support system SCEDAS® on the 27 vessels of Costa Crociere, AIDA Cruises and Costa Asia.

SCEDAS®, which is already in use at container and bulk vessels around the world, uses mathematical optimization techniques to assist planners to calculate detailed work schedules for every seaman. In daily shipping it is likely that original planning will be more or less changed by unpredictable events. To optimize these various parameters manually in real time is extremely difficult. Efficient scheduling algorithms address this fact by constantly updating the work schedule during the voyage.

The real work hours records of every crew member in combination with realtime voyage situations are considered in order to create better work schedules than the manually generated ones. The present planning tool is without an optimization algorithm behind.

Due to the large number of influencing factors the reliable workforce planning and scheduling represents a complex planning problem in cruise market. Carnival Maritime will now incorporate SCEDAS® in a new advanced version developed specifically for cruise market requirements. The transparency achieved regarding workloads has the additional benefit of identifying optimal time slots for planned and unplanned maintenance efforts. Carnival Maritime project leader, Capt. Nicole Langosch, says: "Our goal is to take workforce planning onboard our ships to a new level. To facilitate the work scheduling for our crews we will integrate maintenance tasks from our PMS-System within SCEDAS®. Thereby we are able to intelligently mesh operational demands and maintenance management considering the individual needs of our seafarers."

Contact**Claudia Bosse** | Fraunhofer Center for Maritime Logistics and Services CML | Tel.: +49 40 42878-4476 |Am Schwarzenberg-Campus 4, Gebäude D | 21073 Hamburg | Germany | www.cml.fraunhofer.de | claudia.bosse@cml.fraunhofer.de

FRAUNHOFER CENTER FOR MARITIME LOGISTICS AND SERVICES CML

Fraunhofer CML's Head of Department, Ole John, adds: "We've experienced the benefits of mathematical optimization first-hand and we are delighted to be working with Carnival Maritime, that knows the importance of pioneering approaches. Our experts have helped implement efficient, reliable and highly customized workforce solutions in maritime sector. Now, we're eager to enable our partner in cruise market to realize an informed decision-making process and implementation of innovative work flows that SCEDAS® can provide."

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Bild 1: AIDAnova on the high seas (Copyright Carnival Maritime)

About Fraunhofer CML

The Fraunhofer Center for Maritime Logistics and Services CML develops and optimizes processes and systems along the maritime supply chain. We support private and public-sector clients with the initiation and realization of innovations through practical research projects in the fields of shipping, ports and logistics.

In accordance with the project and customer requirements, we put together interdisciplinary teams of engineers, economists, mathematicians, information scientists and marine engineers to create customer-specific solutions for ship and fleet management, marine transport and navigation, ports and transportation markets. We take both the results of our varied research activities and the latest scientific insights into account.

Fraunhofer-Gesellschaft

The Fraunhofer-Gesellschaft is the leading organization for applied research in Europe. Its research activities are conducted by 72 institutes and research units at locations throughout Germany. The Fraunhofer-Gesellschaft employs a staff of more than 26,600, who work with an annual research budget totaling 2.6 billion euros. Of this sum, 2.2 billion euros is generated through contract research. Around 70 percent of the Fraunhofer-Gesellschaft's contract research revenue is derived from contracts with industry and from publicly financed research projects. International collaborations with excellent research partners and innovative companies around the world ensure direct access to regions of the greatest importance to present and future scientific progress and economic development.