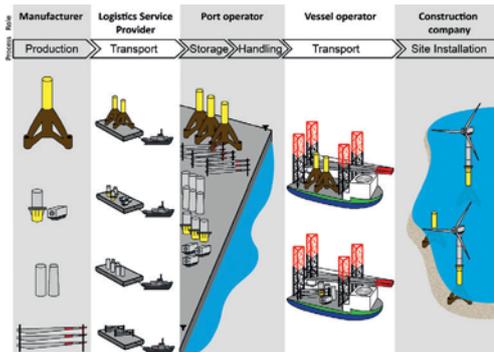


Mon²Sea

Real-time monitoring of transport and cargo handling of components for the offshore installation of wind turbines



Left: Logistics process of installation (BIBA) | Above: a Loading of components (BLG)

Motivation

The offshore wind energy is very important for the German energy transition. For this purpose, the industrialization of the offshore wind industry and especially of production and installation of offshore wind turbines is necessary. Due to the high costs for logistics, the processes must be well coordinated and transparent.

Approach

At the beginning of the project comprehensive process mapping and process analysis were performed. Thereafter a process concept of a consistent and transparent information logistics for the construction of an offshore wind farm were developed. Subsequently, the development of two planning tools followed, one for the strategic and the other for the operational planning level. For the first tool, different methods of simulation and optimization for evaluating the logistics performance were developed and implemented, i.a. evolutionary algorithms and tabu search. The development of the operative platform for planning, ma-

nagement and control of the logistic processes, was characterized by an iterative development approach.

Results

The developed strategic planning tool allows evaluating strategic decision alternatives. These decision alternatives include dynamic weather conditions. By applying the developed instrument, different installations and logistics concepts can be compared.

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BIBA is an engineering research institute located at the University of Bremen ranked among the University of Excellence. It is committed to basic research as well as to application-oriented development projects and engages itself in practice-oriented implementations, whereby it relies on cross-national, -institutional and interdisciplinary cooperation and transfer. BIBA always considers the entire value-added chain: from the idea, concept and production, through to the use and the end recycling of a product.

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