

Master assignment at Damen Schelde Naval Shipbuilding: “Life Cycle Cost and Availability optimization - data aspect”

A maintenance improvement project in the Maritime sector

1 Damen Schelde Naval Shipbuilding

Damen Schelde Naval Shipbuilding (DSNS), established in Vlissingen has a rich tradition of naval shipbuilding with its original navy roots stemming back more than 140 years. At that time the Royal Schelde shipyard, based in Vlissingen in the Netherlands, was known worldwide for its quality shipbuilding, both in the naval and commercial sector. Over the decades the emphasis on quality continued and in 2001 Damen Shipyards Group acquired Royal Schelde along with all of its subsidiaries. Following the acquisition, Damen then introduced its unique, standardized modular construction concept in Vlissingen too, allowing them to offer very fast delivery times. They have delivered more than 400 vessels since 1875 to satisfied customers all over the world and have earned a reputation for excellence along the way. They achieved this status by producing vessels that have a lifespan that far exceeds the average by offering cutting-edge technology and the most cost efficient design solutions.

2 Context of the assignment

This master assignment is part of the Integrated Maintenance and Service Logistics Concepts for Maritime Assets (MaSelMa) project. In the maritime sector, service logistics support and maintenance of systems constitute a significant fraction of the exploitation costs. This is on the one hand due to the complexity and high capital value of the assets used in this sector and on the other hand due to the highly variable and mostly severe operating conditions encountered by ships and their subsystems. Moreover, since these assets are often operated at remote locations around the world, unplanned maintenance requires significant logistic effort and hence is very costly. This reveals that an important reason for the high costs for service logistics in the maritime sector is the uncertainty in demand.

The MaSelMa project focuses on developing innovative concepts to improve the predictability of maintenance and service logistics demand. The project also includes a supply chain focus geared towards the maritime sector (navy, offshore) that complements and integrates with service logistics (e.g. bundling deliveries to ships or offshore equipment crews). In that way, the project aims at increasing the service logistics efficiency for these maritime assets, following three approaches:

1. Increase the predictability of maintenance (i.e. prevent failures / reduce unnecessary maintenance).
2. Design service logistics plans that generate optimal maintenance actions, with a specification of resources and materials requirements.
3. Improve and extend cooperation for service logistics and supply chain management

3 Master assignment

The focus of this project is the data that is required to influence 80% of the maintenance costs of a ship. By using the data that is available, defining what data is missing and start measuring, a strategy is to be developed so that 80% of the maintenance costs can be influenced by using this data in a smart way. Questions that need to be answered are questions like what data is available, what are the requirements for the data to make it reliable and useable, how should the data be registered, analyzed and processed into useable information?

4 Point of contact

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