Tools and methods to establish a feed-forward loop from operation to design of large ships and buildings. - DTU Orbit (02/11/2019)

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Purpose: This study compares ways to transfer knowledge from the operation stage to the design stage in construction projects of large ships and buildings. Previous studies show that integration of operational knowledge in design of new buildings is important to ensure a high performance of the buildings, though studies show that it is difficult to establish such a feed-forward loop in practise. Comparatively little research has been carried out in knowledge transfer in construction projects of ships.

Methodology: The study was done in three steps. First, five practitioners experienced in ship construction projects, as either ship owners or ship designers, were interviewed to gain insights into the integration of knowledge from the operation stage. Secondly, a literature review was conducted for insight on knowledge transfer in building design. Finally, a workshop with five other practitioners representing both the building industry and the marine industry was held to validate the findings.

Key findings: The analysis identified similarities and differences between the shipping and building industries with respect to knowledge transfer from operation to design. The findings are divided on two aspects: A) General conditions and B) Practical tools and methods. The study furthermore investigated two approaches to knowledge transfer; a technocratic approach and a behavioural approach. The study identified examples of both approaches. Some tools and methods were used by both the shipping and building industries, e.g., project reviews by operational staff and commissioning. Other tools and methods were only used in either building or ship projects and could potentially be adopted by the other type of project.

Impact: The study informs practitioners on ways to establish a feed forward loop from operation to design of either buildings or large ships. Furthermore, the study points at several important aspects of knowledge transfer from operation to design to be further investigated by researchers as well as practitioners.

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