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A NEW APPROACH FOR HUMAN FACTOR INTEGRATION INTO SHIP DESIGN PROCESS

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Ship safety and operational aspects are driving issues of ship design and at the same time it is well recognized that such performances are strongly related to the Human Factor (HF) element.

In the paper a methodology to integrate HF into the ship design process since an early stage is proposed, with the aim to improve the overall ship resilience when dealing with uncertainty implied by HF performance.

The System-Theoretic Accident Model Process (STAMP, Leveson 2003) is investigated as a suitable methodology that combined with risk analysis can provide a significant improvement to decision making during the ship design process. To better frame pros and cons of such approach, selected application cases from other industrial and transportation fields will be analysed and commented. Furthermore in the attempt to define a comprehensive procedure, specifically for a “design for operations”, models suitable to classify the human behavior will be considered with specific focus on the reasons for degrade (ETTO - Efficiency Through Trade Off, Hollnagel 2009; SRK - Skills, Rules, Knowledge, Rasmussen 1983). For the context description the SHELL (Software, Hardware, Environment and Liveware, Hawkins 1987) model will be introduced since it is very effective to represent interactions of human beings, also at organizational level.

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