Application of Human Factors Engineering to an Italian ferryboat

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Abstract

In Human Engineering human performance principles, models, measurements, and techniques are applied to systems design. Goal is to optimise system performance by taking human physical and cognitive capabilities and limitations into consideration during design. The application of this methodology as case test to an Italian ferry and the development of a software tool for the implementation of this methodology are described in this paper.

Introduction

Human Engineering (HE) deals with the application of human performance principles, models, measurements, and techniques to the design of systems. The goal of HE is to optimise system performance by taking physical and cognitive human capabilities and limitations into consideration during ship design.

Methodology

The integration of Human Engineering in the ship design Feasibility Study leads to the need of adopting a pragmatic approach, generally based long-term on-board experience of Italian ferryboat owners and designers. In Figure 1 the application of the Human Engineering Process (Malone, Bost, Molini, & Ricco, 2003) to the design of a ferryboat is shown.

Results

The main results of the HE process application to the Italian ferryboat were:

1. the optimised Scheme of Complement for this ship to guarantee ship's operability in each ship mission has been identified;
2. the skills and the necessary crew training level have been identified;
3. some possible modifications in the ship automation in order to reduce the crew workload have been underlined.

In D. de Waard, K.A. Brookhuis, R. van Egmond, and Th. Boersema (Eds.) (2005), *Human Factors in Design, Safety, and Management* (pp. 153 - 155). Maastricht, the Netherlands: Shaker Publishing.