More than 15 years with **Human Factors**

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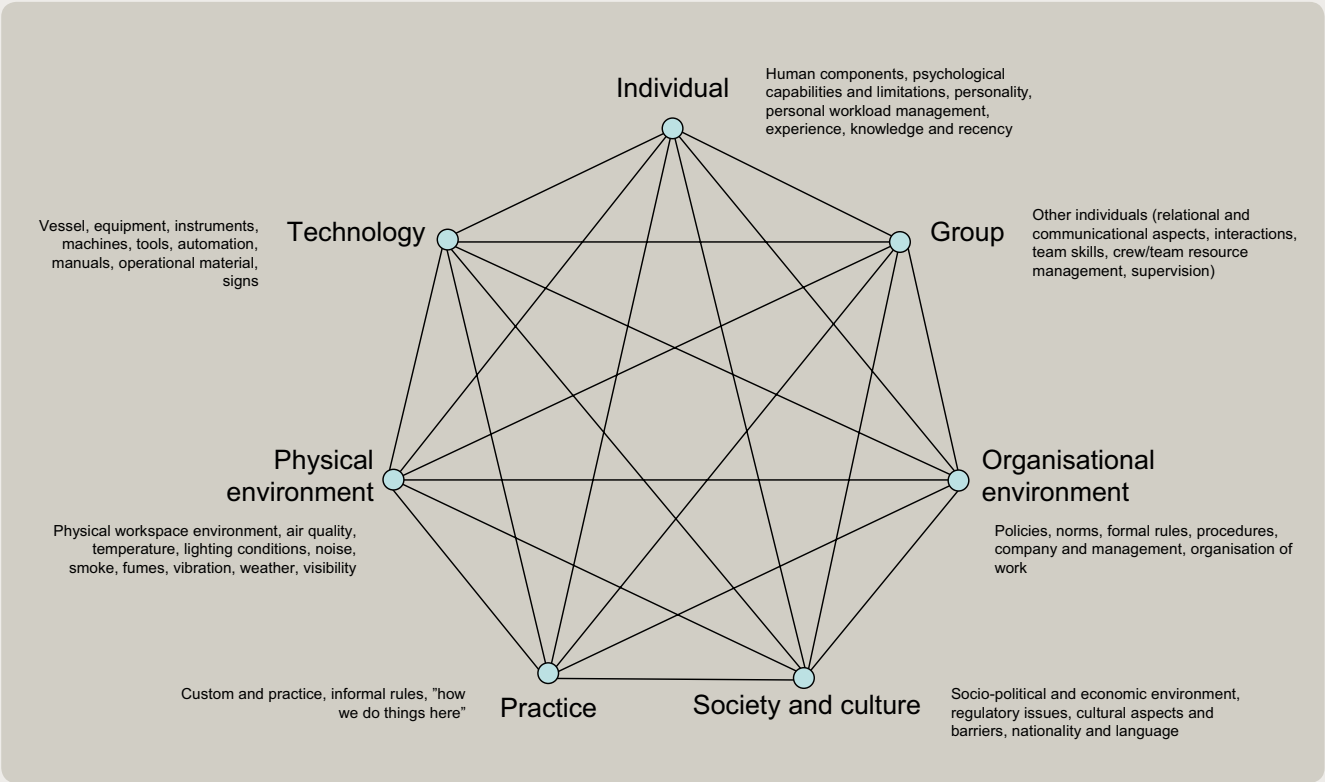
International peer review places DMI in a leading position on Human Factors.

In 1991, a joystick operated Four-thruster ferry hit the pier in Helsingør, and more than 50 persons were injured. The navigator misunderstood the setting of the joystick. He thought it was in harbour mode, but it was in fact still in sea mode. This was the start of the Human Factors (HF) era at DMI.

It started in the maritime domain

Based on this accident, the ferry company initiated a simulator based training and selection program with focus on Human Factors elements. This was also the start of a fruitful cooperation between DMI and the National Research Laboratory Risø. Two important tools were developed to support objective scoring of human behaviour. The Event Log system was used by a simulator instructor to score various safety parameters, and the CommLog system was

The Socio-technical System illustrated by "The Septigon* Model"



Ref.: Koester, T. (2007). Terminology Work in Maritime Human Factors. Situations and Socio-Technical Systems. Copenhagen: Frydenlund Publishers. Septigon refers to Society and Culture, Physical Environment, Practice, Technology, Individual, Group and Organisational Environment Network. Septigon is also the name of a shape with 7 sides – the outline of the model.

Figure A

Effect of Deck Officer Training

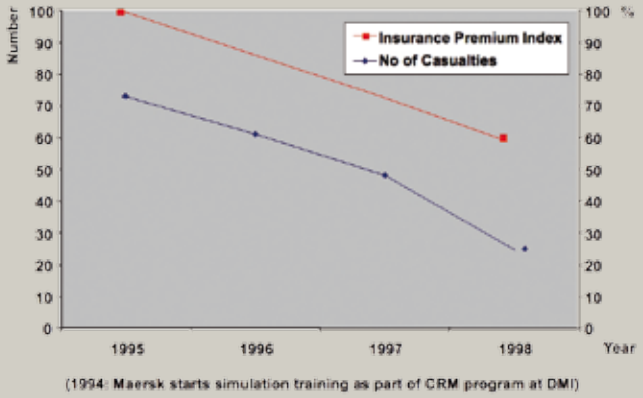
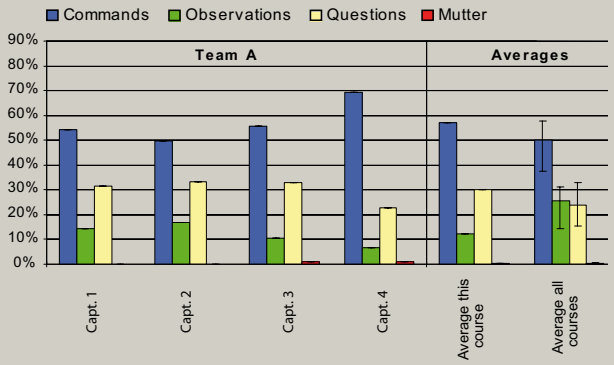


Figure B

Initiative-profile for Captains



used to categorise all utterances during a simulator exercise (see one of the outputs in fig. B).

Soon after these initial events, A.P. Møller-Mærsk, DFDS and the Danish pilots requested assistance for Crew Resource Management training during the mid nineties.

Although being new to the maritime domain, several HF programs were developed for the airline industry at that time. DMI chose to further develop a system from the French company Dedale, who by ICAO was evaluated as supplying the best system based on the most recent knowledge at that time.

A number of years went by servicing the maritime domain with HF services including simulator based training, development of procedures, performance assessment, accident investigation and reporting system development. The effect of the HF training was tremendous and can clearly be seen in figure A.

Transfer to other domains

At first our HF knowledge was requested in other typically safety critical domains related to the maritime sector such as the offshore and energy sectors. But at the turn of the millennium we also covered the healthcare and railroad sectors. The staff now included a number of cognitive psychologists, who studied human behaviour, risk and safety in operational sectors.

The cooperation with Risø continued and was strengthened in 2002 by the formation of Danish Human Factors Centre, which is still chaired by DMI.

Design optimisation

The areas in which HF is seen to make a useful difference as a catalyst ensuring optimal interaction between safety, efficiency and quality in operations are still increasing. As inappropriate design of tools and apparatus may have a negative effect on performance, design is one of these growth areas. This is partly due to a cooperation with industrial and graphical designers which this year has culminated in the formation of a strategic cooperation and branding of design-oriented HF activities. By combining HF knowledge with design, considerable time and effort can be saved in the product development phases by avoiding the effect of e.g. human errors and misunderstandings.

Further and constant development of Human Factors services

We are constantly acquiring and developing new HF knowledge through our international network of HF experts. One of our experienced psychologists, Thomas Koester, has recently developed the Septigon model as part of his Ph.D. dissertation. Today, this new model is used extensively to understand and find the true root causes in accident investigations or as part of prevention programs.

The future

HF will play a significant role for DMI's activities in the future since it is seen as a vital area for being able to enhance industry's competitiveness in a global context as well as supporting DMI's own products and services.