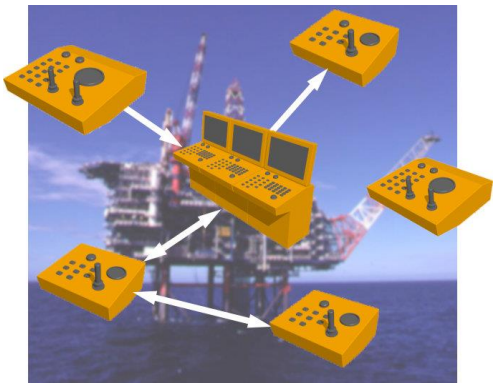
Human Factors (HF) is methods and knowledge to analyse and improve the collaboration between man, technology and organisation.



Exploration of new technology such as automation, remote support, remote operations or integrated operations (IO) implies human collaboration between different organisations integrating different technologies and perceptions. Making human factors (HF) a part of the concept, design and operations of this complex system can improve safety, continuity and resilience (as the ability to handle surprises).

IThe International Ergonomics Association (IEA) defines HF as:

"Human Factors (or Ergonomics) is the scientific discipline concerned with the understanding of interactions among humans and other elements of a system, and the profession that applies theory, principles, data, and other methods to design in order to optimize human well-being and overall system performance".

Human Factors domains are: **Organizational factors** (communication, teamwork, CRM…); **Cognitive factors** (perceptions, information processing, HMI…); **Physical ergonomics** (Layout, Working Environment, ….)

Forum for Human Factors in Control (HFC)

- A forum for users, researchers and consultants of HF methods; meeting twice a year.
- A forum for knowledge transfer that contributes to research and the further development of HF methods in design and evaluation of operational concepts.

Attendees:

ABB, Agility Group, BP, ConocoPhillips, CIRIS, CGM, DnV, Det norske, Eni Norge AS, Human Centred Design, Human Factors Solutions, IFE, Kongsberg Intellifield, Lundin, Norske Shell, National Oilwell Varco, Petroleum Safety Authority, Proactima, Statoil ASA, Scandpower, Safetec, SINTEF, Siemens, NTNU.

Information to become a member or participate:

HFC forum at http://www.hfc.sintef.no with material. Collaboration (courses) with the Swedish Human Factor Network at http://www.humanfactorsnetwork.se/

User: hfn, Password: human.

Comments/contact : HFC@SINTEF.NO

HF training courses has been established:

Courses at UiS and NTNU.

“Introduction to human factors theory”, see http://videre.ntnu.no/link/ nv13119.

HFC activities

- Exchange experiences and ideas on HF in control systems, by arranging yearly seminars and experience transfer on topics such as:
    - Human Factors experiences and challenges using ISO 11064; Competence and skills related to HF; Best practice of HF in integrated operations and control centres; Learning from errors/ HF in remote operations of process plants; Error tolerance in complex settings; Collaboration in distributed teams; Future remote operations; Organisational and human factors in accident analysis; Visualisation and HMI; HF in operations; HF in an international perspective.
- Promote knowledge and good solutions for managing and monitoring future operations
    - This has been done by involving key note speakers from academia, such as: Prof. Erik Hollnagel, Prof. M. Grabowski, Dr. John Wood, Dr. Phil Duffey, Prof. Patrick Hudson, Prof. Sidney Dekker, Prof. M. Rosen, Prof. N. Stanton, Prof Morten Lind, Dr. J.E. Vinnem, Prof K. Mearns, Prof G.A. Jamieson, Dr. R. Boring, Dr. D. Lucas, R. Miles.
- Contribute to further development of CRIOP to keep it a distinguished HF method for control solutions.
- Contribute to teaching in colleges and universities.

Human Factor Network

There are several Human Factors organizations. HFC are affiliated to HFES - The Human Factors and Ergonomics Society.

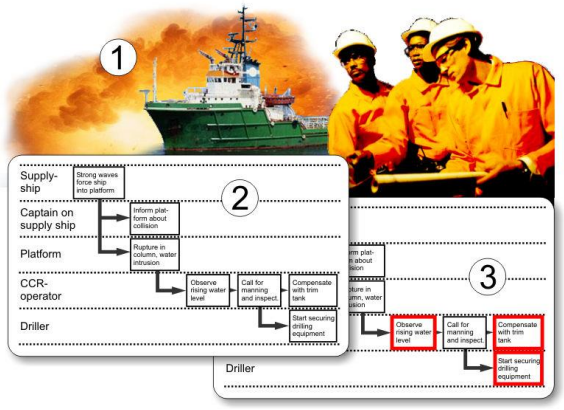
- IEA - The International Ergonomics Association is the federation of ergonomics and human factors societies around the world. See http://www.iea.cc/ . (Represented in Norway.)

- **HFES - The Human Factors and Ergonomics Society** is a multidisciplinary professional association of more than 4500 persons in the United States and throughout the world. Its members include psychologists, engineers, designers, and scientists, all of whom have a common interest in designing systems and equipment to be safe and effective for the people who operate and maintain them. See http://www.hfes.org. HFES is a member of IEA.

- **HFES – Europe Chapter.** The Human Factors and Ergonomics Society, Europe Chapter, is organised to serve the needs of the human factors profession in Europe. Its purpose is to promote and advance through the interchange of knowledge and methodology in the behavioural, biological, and physical sciences, the understanding of the human factors involved in, and the application of that understanding to the design, acquisition, and use of hardware, software, and personnel aspects of tools, devices, machines, equipment, computers, vehicles, systems, and artificial environments of all kinds. The Chapter is an affiliate of the Human Factors and Ergonomics Society, Inc. See http://www.conference.hfes-europe.org/ .

In Norway we have established a social network through a LinkedIn site called www.linkedin.com/groups/Human-Factors-in-Control-News-4262740

CRIOP – a HF tool for analyses of control rooms



CRIOP contributes to safe and effective operations through verification and validation of factors related to man, technology and organisation in control rooms.

- Consists of checklists and scenario analyses and takes 2-5 days to accomplish.
- Gives a cost effective learning process between users and designers.
- Developed by Norsk Hydro, Statoil, SINTEF, Scandpower, HFS, IFE and NTNU.
- Freely available to all users. Send improvements and suggestions to criop@sintef.no

CRIOP – see the web site at www.criop.sintef.no