

Project ENSURE

Cooperation project between TUC & UK

Fabian Fritsch (UK)

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- *Room tour: Virtual Space*

ENSURE



- M. Sc. Industrial and Organizational Psychology
- B. Sc. in Psychology & Health Psychology
- Occupational Safety Specialist

What is ENSURE?

- Short: „Endlagersicherheit: Ungewissheiten und Regulatorische Aspekte“
- Cooperation project between Technical University of Clausthal and the University of Kassel, the Institute of Repository Research and the Institute of Industrial and Organizational Psychology

What are we particularly concerned with?

- We regard the human factors part as well as the scientific and technology part in a linked way
- Human factors part → University of Kassel
- Scientific and technology part → Technical University of Clausthal

ENSURE – aims in detail:

- Analysis of possible influences of psychological aspects on the assessment process
- Making assessment and consideration processes more robust
- Derive holistic approaches and methodologies for the consideration of human factor uncertainties

Human Factors

- How humans interact with systems, products, environments, and other people
- Exploring human behavior, cognition, perception
- Aims to design safe systems



<https://tuftshumanfactors.wixsite.com/thfes>

Human Factors

- What are those?
- → Psychological, cognitive and social influencing factors in socio-technical systems and man-machine systems
- Technical systems are becoming more and more reliable
- The characteristics of humans therefore play a major role

- What are human factors in process of modelling?

Human Factors - example

- **Groupthink** in individual research teams (e.g. ENSURE)
- The desire for conformity and agreement takes primacy over critical thinking and correct evaluation.
- Alternative actions are not (realistically) evaluated
- 3 out of 4 persons in the group are of the opinion that an insufficient measurement result x has no influence on a safety-relevant statement (e.g. final storage container fulfils all product requirements). The 4th person adjusts his/her opinion to the group in order to maintain consistency in the group.

Human Factors - example

- **Conflict of Objectives**
- Several decision alternatives are available and suitable, but only one can be chosen (e.g. assessment procedure A or B, method A,B,C,..)
- High knowledge of assessment procedure A or good experience with assessment procedure A leads to the use of this procedure, although other procedures may be more suitable.
- People often do the things they are used to doing.

Human factors influencing modelling

- Human beings are information processors
- Not all information can be consciously processed (bounded rationality)
- → leads to the use of heuristics
- = simple problem-solving mechanisms or mental shortcuts



<https://www.deutschlandfunk.de/regierungschef-mitsotakis-zugunglueck-auf-menschliches-fehlverhalten-zurueckzufuehren-102.html>

<https://www.manager-magazin.de/unternehmen/international/germanwings-absturz-wichtigste-reaktionen-im-ueberblick-a-1025451.html>

Human factors influencing modelling

- Cost less time and mental effort
- Can lead to distortions of judgement in decision-making situations → wrong decisions or assessments
- Heuristics are just only one example

- Article → mattermost?

Future topics

- Development of a questionnaire to assess human reliability
- Evaluation of one's own actions and procedures
- Provide recommendations to increase quality

The questionnaire is intended as a
self-assessment to increase your
confidence in your own work

Thank you for your attention