Long-Term Effects of Automation on User Behaviour

Naomi Y. Mbelekani
SHAPE-IT ESR 2
The Chair of Ergonomics, Technical University of Munich, Germany

This project focuses on using advanced driving simulators as a basis for improving understanding of how AV users' experience, trust, and acceptance of automation change with long-term/repeated use in urban traffic. An evaluation of AV interaction design strategies will be performed, and patterns of learning strategies of AV users ("drivers/passengers") by user types will be established.

INDUSTRY-CENTRED STUDY

As the vehicle industry has been in the automation business for decades, it is of interest to explore their differences and similarities in how they approach automation success, as ground and airspace systems. Thus, a study was conducted, with a focus on AV industry's long-term experiences with automation.

STUDY DESIGN

Method: Industry-centred interviews, Data analysis using content analysis

Participants: 20 industry experts: airspace (Aviation/Aerospace) and ground (Cars, Trucks and Agriculture).

- Different expertise in automation (e.g. Implementers, HMI, UX, Test trackers, Directors, Software developers etc.)

Figure 1. The data gathering phases

The following are topics covered in the interview.

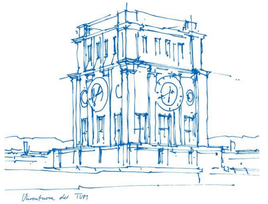
Table 1. The interview information topics

Marked automation industry 4.0 outlook	
Risks and benefits.	Market value and automation benefits
	Risks encountered and AV regulations
Marked automation design: how does industry design users' experience and successful interaction with their system?	
Designing for user experiences.	User Mental workload, cognitive ergonomics mechanisms
	HFE factors on user behaviour (mental models)
	High-level system architectures on safety
	Functions, Performance and system complexity
Marked learning process: how does industry approach system learnability?	
Approaches for training and learning	Learning approach and efforts
	Learning effects and mental models
	PEOU, PU
Marked attitudes and behaviour: how do users experience the system?	
User experiences	The users behaviour changes, Motivation to use
	Acceptability and Trustworthiness of automation

FUTURE OUTLOOK

In our forthcoming study,

- We plan to investigate users' long-term experiences with automation.
- The aim is to align the user-centred study findings to our current industry-centred study results, in order to fully understand what needs to be further improved.



LATEST RESEARCH OUTPUTS

The results for the industry-centred study will be published and made available soon.

If you are interested in the findings or have any inquiries, please contact the main researcher, see contact details below.

SUPERVISION AND CONTACT DETAILS

Supervisors:
Prof. Dr. Klaus Bengler (TUM)
Prof. Dr. Natasha Merat (Leeds)
Contact Details:
Naomi Y. Mbelekani
ny.mbelekani@tum.de

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