BUILDING TRUST IN AUTOMATED DRIVING

DRIVE ME – HMI AND USER EXPERIENCE

Annie Rydström, PhD
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• Why autonomous driving?

• The Drive Me project

• HMI and user experience

• Test methods for HMI and user experience
WHY AUTONOMOUS DRIVING?
GLOBAL TRENDS

- Urbanisation
- Growing mega cities
- Air quality major health problem
- Traffic accident global health issue
- Time for commuting
- Desire for time efficiency
- Desire for constant connectivity
TODAY’S REALITY
SHAPING THE FUTURE MOBILITY

• AD will be important for a sustainable mobility
• Improved traffic safety
• Improved environmental outcomes
• Regain time
IT WAS ALWAYS ABOUT FREEDOM
AND IT’S STILL ABOUT FREEDOM
HOW DO WE MAKE AD COME TRUE?
THE DRIVE ME PROJECT
By joint effort and proper research

- Global challenges – Demand a joint effort
- Drive Me – Nordic model of collaboration
- Research platform – How autonomous cars can contribute to a sustainable development
- Pilots with real customers in real traffic
THE PILOTS - ALL ABOUT LEARNING

• Traffic environments
• Customer preferences
• Gothenburg – proof of concept
• China and London – verify our technology
PILOT IN GOTECHNURG

- The world’s first large scale project for self-driving cars
- Starting in 2017
- 100 customers on real roads (~50 km)
- Verifying our technology
HMI AND USER EXPERIENCE
• What makes people trust the AD car? What makes them feel safe and in control?

• How shall the AD car behave in traffic so that the driver feels comfortable?

• How can we make people feel free, relaxed and flexible?
• Driver needs to have a good perception and comprehension of the current context as well as have an understanding of future upcoming events

• System must be clear on which automation level is active and how it works

• System information needs to be simple, clear and understandable

• Information must be presented in a correct way for the user to fully understand the information

Ref: Fredrick Ekman & Mikael Johansson
The Drive Me HMI

https://www.youtube.com/watch?v=xYqtu39d3CU
TEST METHODS FOR HMI AND USER EXPERIENCE
ETHNOGRAPHIC PRE-STUDIES

• To understand peoples **expectations, needs and hopes** of the AD car

• Interviews, video recordings, enactments, “shadowing”
SIMULATOR STUDIES

• Testing the **usability** of AD interface prototypes

• Simulate different AD scenarios, e.g. handovers, where interface information is important
TEST TRACK STUDIES

• Testing the **usability** and **experience** of AD interface prototypes, **trust** of the AD car, and **experience** of the car behavior

• Prototype cars

• “Wizard of OZ” methodology

Asta Zero
• Testing real AD **experience** in the DriveMe filed study

• Interviewing methods, video and digital techniques to investigate aspects of AD use and experience
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