

# **The human side of automation: Psychology and behaviour in CCAM systems**

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# Why the “human” still matters in CCAM

- Often framed as a **technical challenge/readiness**

but

some challenges are **human-centred and societal**

- CCAM powered by AI: perception, prediction, decision-making



Hi-Drive: Addressing challenges toward the deployment of higher automation

**Hi-Drive**  
Designing Automation



Resilient and continuous safety assurance methodology for CCAM and its HMI components

# Humans are not “**out-of-the-loop**”

- Automation reshapes human roles:
  - From **driver** → **supervisor** of automation
  - From **manual control** → **intervention**
- Humans remain:
  - Decision-makers → **intervention**
  - Risk perception → **interpretation**
  - Moral and legal aspects → **accountability**

**S**afety

**T**rust

**A**cceptance

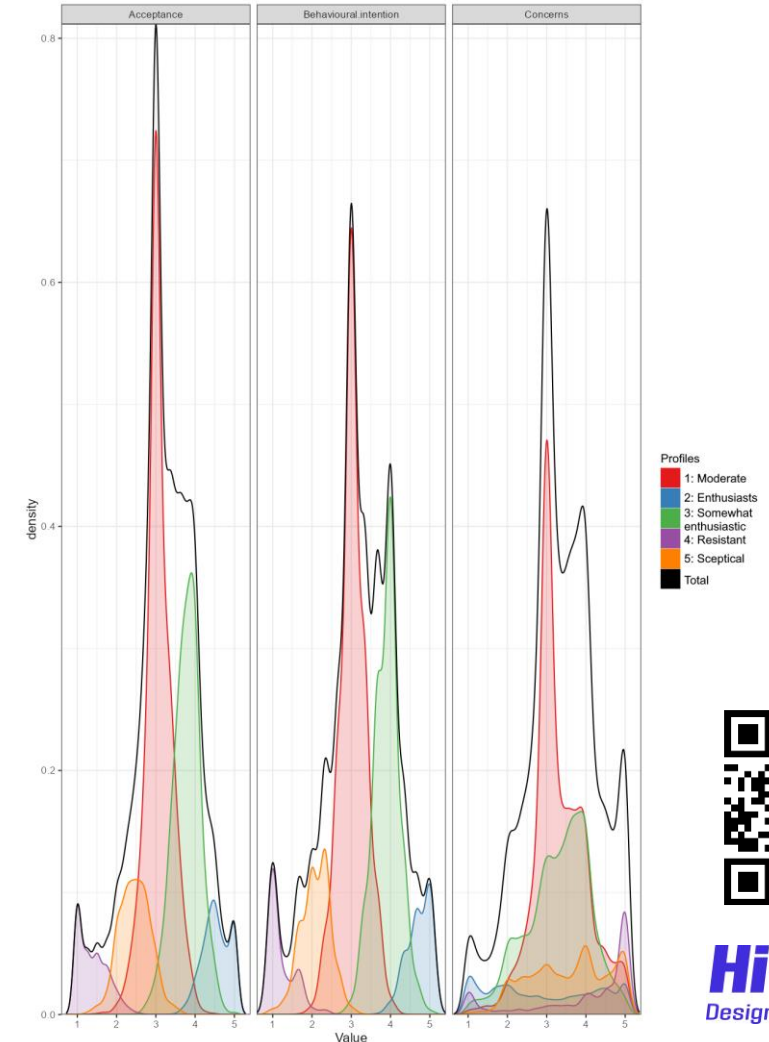
**C**omfort

- Over-trust
  - Under-trust
  - Misuse
  - Disuse
  - Mode confusion
- 
- AI – new uncertainty

# Individual differences in user acceptance

People may accept:

- **Conditionally**
- **Reluctantly**
- **Reject** but still find it **socially acceptable**
- Demographic and psychosocial factors
- Social and cultural factors



# Trust and acceptability $\neq$ actual use

- Calibrated trust: Trust when the system is competent
- CCAM as a socio-technical system
- Interactions between:
  - Human drivers
  - Automated systems
  - Vulnerable road users
- Expectations, norms, traffic culture

# What SSH contributes to CCAM

- Design for **all**, not just ideal average users
- Transparent system feedback and intent communication
  - Explainable and transparent AI
- Training and education aligned with real behaviour
  - Communication of capabilities and uncertainties
- Early integration of SSH in CCAM development



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