Building Acceptance and Trust in Autonomous Mobility

TRUSTONOMY

Trustonomy will investigate, setup, test and comparatively assess, in terms of performance, ethics and acceptability, different relevant technologies and approaches in a variety of autonomous driving and RtI scenarios, covering different types of users (in terms of age, gender, driving experience, etc.), road transport modes (private cars, trucks, buses), levels of automation (L3 – L5), driving conditions, etc.

The project

Autonomous vehicles are becoming a reality and most of the major automakers have plans to commercially release an autonomous vehicle (nearly or fully self-driving, i.e. SAE levels L4 or L5 vehicles3, respectively) by 2020-20214. Despite these technological breakthroughs, the current projections of market analysts indicate that broad adoption of fully autonomous vehicles might be decades away. This in turn suggests that the human factor will remain essential for the safety and performance of road transport in the forthcoming decades, mainly for two reasons:

- due to the necessary driver-vehicle interaction in cases where the boundaries of the Operational Design Domain (ODD) of an Automated Driving System (ADS) are being reached
- because of the co-existence of fully-, semi- and non- autonomous vehicles, which is likely to be raising unexpected challenges.

The vision of Trustonomy (a neologism from the combination of trust + autonomy) is to raise the safety, trust and acceptance of automated vehicles by helping to address technical and non-technical challenges through a well-integrated and inter-disciplinary approach, bringing domain experts and ordinary citizens to work closely together.

Central to the human role in the Connected Automated Driving (CAD) is the transition from automated to manual driving mode. This might be system-initiated or user-initiated.

Evidently, in such a dynamic driver-vehicle interaction scheme, several challenges arise: to evaluate the driver's availability to intervene; the transition must be supported by an appropriate and comprehensible Human-Machine Interfaces; a proper driver training; legal and ethics perspective.

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The specific objective of Trustonomy are:

- Develop a Methodological Framework for the operational assessment of different Driver State Monitoring (DSM) systems
- Develop a Methodological Framework for the operational assessment of various HMI Designs
- Develop an ethical automated-decision-support framework, covering liability concerns and risk assessment
- Develop novel Driver Training Curricula for human drivers of ADS
- Define a Driver Intervention Performance Assessment (DIPA) Framework
- Measure performance, trust and acceptance (simulations and field trials) of human drivers of ADS
- Organise Communication and Exploitation Actions, Policy Recommendations and Contributions to Standards

PARTNERS

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