

Self-driving but guided by people

Developing ethical behaviours for self-driving vehicles

Background

This project was funded by the Rees Jeffreys Road Fund to explore how we can progress towards a future vision of roads aligned to their founder's vision, whose life's work was about creating better, more attractive, safer and more accessible roads.

Project team - Reed Mobility (lead); DG Cities; TRL; April 6; Humanising Autonomy

Introduction

Self-driving vehicles (SDVs) have been promised for many years and are now approaching commercial readiness – but how does society want and expect these vehicles to behave as they are deployed into the public realm? This project was designed to explore public attitudes and expectations towards the ethical behaviours of SDVs so that regulators and developers can optimise how this technology should operate.



Figure 1. Example SDV shuttle bus

The project

We ran surveys and workshops to capture public preferences for SDV operation, using a self-driving bus (see figure 1), examining their priorities across eight ethical dimensions: Mobility; Legality; Trust; Safety (passengers); Safety (others); Cost; Fairness; Urban Design. Using social media tools, the survey attracted more than 2,000 respondents across a wide range of people.



Figure 2. Workshop at the Smart Mobility Living Lab, Woolwich

Results

Our results highlighted the diversity of opinion for some preferences of SDV operation, confirming how difficult it will be to develop SDVs that please all of the people all of the time. Trust, legality and safety (of other road users and passengers) were the most important features of the operation of SDVs. Participants felt that safety must not be sacrificed for cost or time-saving reasons, and that we must learn from incidents involving SDVs to prevent them happening in future. To achieve this, participants highlighted the importance of transparency and data sharing for safety whilst ensuring data protection and privacy. Trust in service providers and vehicle manufacturers would further be enhanced by creating a high-level governance framework. Safety performance should be standardised, but operators should be able to tailor driving styles to suit the driving environment.

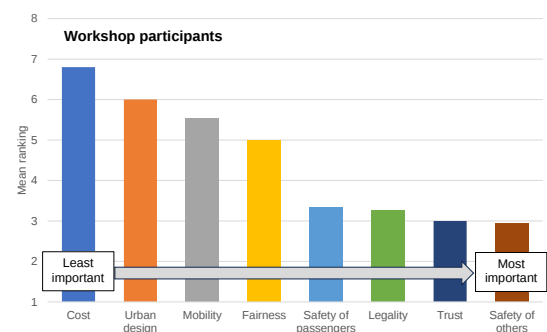


Figure 3. Workshop participants' ranking of SDV ethical dimensions

Outcomes

The project explored how society wants and expects SDVs to behave, bringing us closer to understanding how they can be optimised with ethical behaviours aligned to societal expectations. We propose further work using virtual simulations to explore and quantify these preferences, giving technology developers and regulators greater guidance on how SDVs should be operated. As technology companies are likely to encounter some societal resistance to their vehicles (e.g. activist groups placing cones on the bonnet of SDVs to disable them) so effective public engagement techniques will be essential. By ensuring transport technologies operate in ways that are compatible with society's needs and desires, we can have greater confidence that our future will be more aligned to William Rees Jeffreys's vision, delivering better, more attractive, safer and more accessible roads that work for us all.

The full report can be downloaded from <https://www.reed-mobility.co.uk/ethicalroads>