Submission to the Economy, Infrastructure and Skills Committee inquiry into automation.

Connected and Autonomous Vehicles (CAV) – a summary of the Milton Keynes experience and wider considerations

The Open University (OU) is pleased to offer this short paper to the committee in respect of its inquiry into automation and the Welsh economy. The OU has considerable experience in both the automation and smart city fields and is a key partner in the MK:Smart project. This paper draws on the published documents from the UK Autodrive project (a project in which Milton Keynes Council and The Open University are partners) and provides evidence based conclusions on the implications of Self-Driving Vehicles in Milton Keynes and the wider context.

The potential for Self-Driving Vehicles

According to research automated driving will:

- Increase road safety, as human error is involved in more than 90% of all EU traffic accidents.
- Reduce congestion as vehicles can travel in closer proximity
- Reduce emissions by automating driving behaviours and adopting greater use of Electric Vehicles
- Automate delivery services

Milton Keynes are engaged with three R&D scenarios. Namely, last mile autonomous passenger transport, delivery pod services and the test of CAV M1 vehicles on public roads.

The last mile passenger pods will run on the pedestrianised areas of the city centre, not on public roads, to comply with governance for road use. The potential benefits of the service include ease of people movement, wider accessibility for less able citizens, reduction in motorised vehicle journeys in the city centre and increased visitors to the city.

Starship delivery pods are already running a grocery delivery service in one residential district of Milton Keynes. This is testing the feasibility of increased delivery capacity for last minute, low volume, low value goods using small Autonomous Robots using pavements. This has proved very popular in the area of trial.

Trials of M1 passenger vehicles have already taken place on the roads of MK. The potential for these is the development of global traffic management solutions.

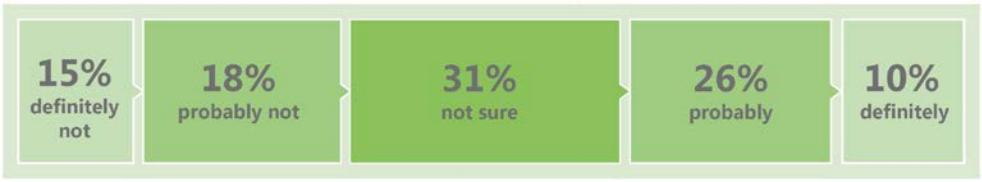
The potential for rolling them out across the UK and beyond.

“UK and Europe have the chance to lead the transition towards an integrated and truly multimodal transport system. CAVs can play a significant part in that system but, in order to do so, they need to be able to operate in a connected way that allows traffic flows to be optimised. Simply adding autonomous but unconnected vehicles onto our roads could in fact be counter-productive as AVs replace journeys previously taken on shared public transport and AVs behave in an ultra-cautious manner slowing down traffic flows. AVs must be connected in order to reap the networked benefits and form part of a multi-modal transport system.” Stuart Young, Gowling WLG, UK Autodrive.

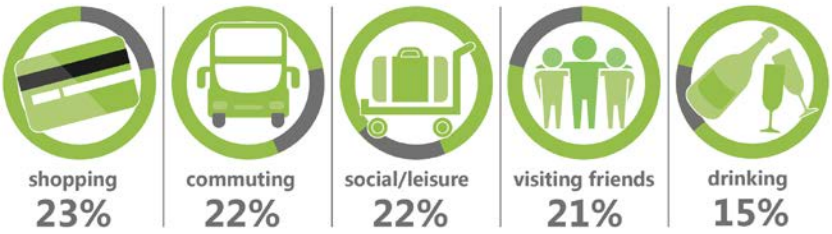
How people are responding to them

The UK Autodrive Public Attitudes Survey worked with data from 2850 validated responses to a survey to determine Attitudinal Findings and identify Social Segments. Below are some key infographics representing the findings.

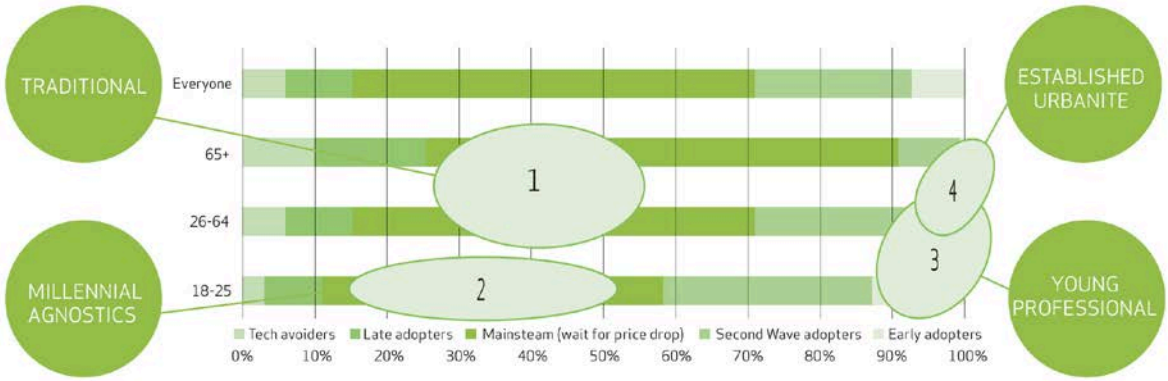
Would you use a driverless vehicle?



What do you consider the benefits to be?



Social Grouping adoption of AVs



Potential policy/regulatory problems for governments

Regulation of automated vehicles faces challenges to establish rules for technologies not yet applied. In particular, appropriate safety requirements have to be agreed. Traffic rules and the regulatory framework need to be adapted. In addition, it has to be decided how the safety of automated vehicles should be tested and by whom. The further development of vehicle automation will demand an adaption of driving education and licensing. For example:

The Vienna Convention on Road Traffic 1968 applies in EU (UK has not ratified this) One of the fundamental principles of the Vienna Convention is the concept, as laid down in Article 8, that a driver is always fully in control and responsible for the behaviour of a vehicle in traffic.
(1): Every moving vehicle or combination of vehicles shall have a driver.
(5): Every driver shall at all times be able to control his vehicle.

Type Approval
The common legal framework for the approval of motor vehicles and their trailers is provided by Framework Directive 2007/46/EC. Within the EU, mass-produced cars may only be used on public roads if they are type-approved in compliance with the administrative procedures and technical requirements established by the Directive. This will need to be adapted to Connected and Autonomous Vehicle development.

Cybersecurity
As our vehicles become increasingly connected they increase the number of opportunities for hackers to intercept and manipulate data. In 2015, the Alliance of Automobile Manufacturers formed a voluntary information sharing and analysis centre (Auto ISAC) for the industry, to target the threat of hackers. The European Automobile Manufacturers Association (ACEA) has agreed on principles of data protection in relation to connected vehicles and services.

GDPR
GDPR will result in compliance obligations and significant fines for those that do not comply. This could suppress R&D or any connected car related services which involve personal data.

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