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SELLING THE AUTONOMOUS VEHICLE SOLUTION: CAN THE BENEFITS EFFECT CHANGE?

It's fairly easy to espouse the pluses of autonomous vehicle (AV) uptake, especially in terms of the environment and safety. Writing for Smart Transport, AECOM's **Damien Lambert** asks if we are overlooking the fact that some just like to drive.

The widespread deployment of autonomous vehicles (AV) promises to bring about a transformation in convenience for users. Proponents of AVs cite a host of benefits that will make automobile transport greener, safer and faster. But as with any emerging technology there are risks. What is missing from many debates, however, is what do car owners feel about this?

For owners of conventional vehicles, their relationship with their cars and how this is likely to change will be key. If not addressed, the role of the motor vehicle in our society and its connection with our sense of identity and status could prove significant challenges to the deployment of AVs.

If we get the technology right, the benefits of moving to significant AV deployment are potentially huge. Such a system could result in huge reductions in the volume, severity and cost of road collisions — problems transport planners have been grappling with for decades.

Autonomous vehicles use artificial intelligence (AI) and digital sensors to analyse data relating to demand, delays and constraints across networks. This means they can respond with increased capacity, timetable changes and updates to passengers in real time to make better use of the latent capacity within our transport system. The result is less congestion, more efficient journeys and reductions in fuel consumption. Emissions will also be reduced thanks to electric propulsion systems installed in fully autonomous vehicles.

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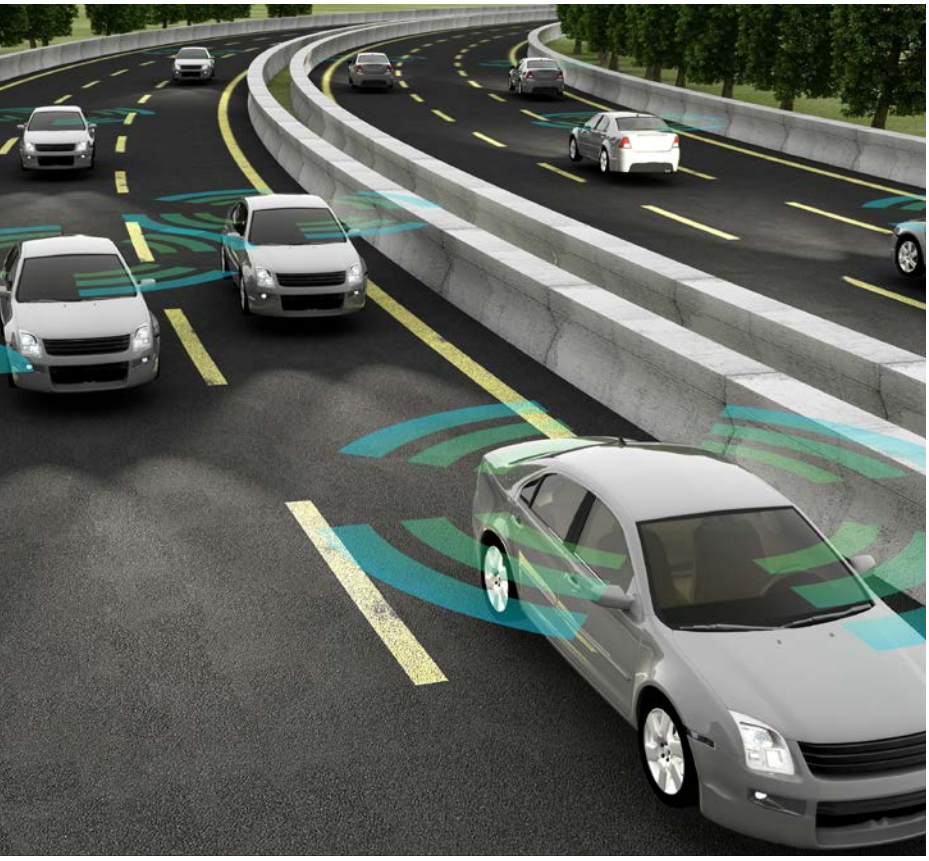

SUCCESSFUL DEPLOYMENT OF AUTONOMOUS VEHICLES IS NOT JUST ABOUT THE TECHNOLOGY.

In addition, mobility-as-a-service (MaaS) providers operating 'available on demand' AV services represent a cheaper alternative to owning a car. Overall, there would be a need for less cars across the network and when not in use, vehicles could be kept on the outskirts of cities. This could free up huge chunks of kerbside real estate and allow parking lots to be re-purposed. No longer will large areas of land be required to accommodate parking; instead these areas will be redeveloped to provide parks and new public spaces, resulting in a cleaner, healthier and happier society.

Successful deployment of AVs is not just about the technology. While work continues on developing the technical solutions to support widespread AV deployment, the path to solving these problems is relatively clear and will be solved in time. What is less understood is the relationship drivers have with their vehicles and how this change in this intangible relationship will be affected by autonomy. To transition to the adoption of AVs as part of a fully integrated and connected network, manufacturers and policy makers will need to address these issues to convince a public so ingrained with the conventional transport network.

76%

of households in the UK own a car or van.

The vehicle love affair

Western society has a long-standing love affair with cars. Private vehicle ownership is ingrained in our cultural identity. The private motor car has played a leading role in movies, music, television and art for more than 100 years.

There is of course a wide spectrum of attitudes towards the motor vehicle, with opinions differing country to country, across generations and in regard to an individual's social setting and personal beliefs. Millennials seem less enamoured, perhaps because of the expense of owning and maintaining a car, improvements in public transport in cities, carpooling and sharing services, and the rise of ride-sharing services such as Uber. While, for some, the car is simply a mechanism for getting from A to B, for others, car ownership persists as an indicator of personal status and wealth.

According to the RAC Foundation[1], about 76 per cent of households in the UK own a car or van. The mass adoption of AV transport requires a more collaborative use of vehicles than is currently common. This needs a step change in the vehicle-owner relationship so the vehicle is viewed as a facilitator of mobility as opposed to a possession.

An understanding of what makes car ownership fundamental for some and not for others is needed to be able to appropriately define and target policies. Autonomy without a communal approach to transport could increase the attractiveness of private vehicle ownership, prompt a reduction in public transport utilisation and thus lead to a net increase in vehicle numbers, an unsustainable outcome within congested cities regardless of the level of autonomy.

Driver-to-vehicle connectivity

A century of motoring advertising has influenced the human-vehicle relationship. Drivers are wooed by the physical and tangible aspects of vehicle design, aesthetic and the materials used in their construction. The 'performance' of a vehicle is a key factor in determining vehicle selection and generally one of the first criteria used to rank vehicle desirability, along with efficiency and followed by safety.

For many, personal control confers a sense of ownership and security. The removal of this connection, the idea of a redundant steering wheel (depending on the specifics of the AV design), makes people uneasy.

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Fears associated with the level of maturity of the underlying technology and the risk of hacking, software failure, corruption and/or security breaches are widespread. According to a recent MIT study, this is a key reason why full autonomy is not desirable within the current marketplace.

To address these concerns, AV developers have heavily focused on the demonstration and validation of the technology to support the safety case and to develop solutions where the potential for collisions is rigorously controlled and mitigated. This work has been important in building public support for the technology, although this could be seriously undermined in the event of a catastrophic accident for example.

What is not being addressed is the sense of control (we all know we are more likely to die in a traffic accident than on a plane, yet still the fear of flying is prevalent). Our ability to accelerate and decelerate and to react to road conditions is also part of the enjoyment of driving. For many, the switch to AV is suggestive of a mundane and lifeless future for motor vehicles.

While it is probably unrealistic to imagine a scenario where conventional motor vehicles disappear entirely, what is conceivable is that their role would change over time. Their use could become a recreational pursuit or perhaps driven by enthusiasts in the way vintage cars are today (legalities permitting). It would be unwise to underplay the importance of the sense of occasion and enjoyment that many car owners feel behind the wheels of their cars. ‘Vehicle to vehicle’ and ‘vehicle to everything’ connectivity are terms commonly used in the discussion of connected and autonomous vehicles. Debate about the erosion of the ‘driver to vehicle’ connectivity is rare. This needs to change. Fundamental to successful implementation of AVs is the need to win the hearts and minds of the public and to soften the most stubborn of human traits, ‘a resistance to change’. Failure to address this could risk people just not wanting AVs. To this end, sociologists and behavioural specialists will be needed on autonomous vehicle deployment teams as much as engineers and scientists. WL

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