

KPMG - Autonomous vehicles: The public policy imperatives

There are five areas in particular where AVs have significant implications for public policy and service:

1. **Transport infrastructure investment decisions:** Accountability for taxpayers' money demands that our public investment decisions are founded on robust cost-benefit analysis. The cost is incurred now but the benefit is typically appraised over a 30 to 50-year period. It is a certainty that AVs will have changed our society within these timeframes. So value for money analysis on transport schemes today should already be based on an AV world.

This will affect decisions on which schemes are the highest priorities, and for those schemes which progress, it will change their design and hence their cost. As an example, an AV road is unlikely to need crash barriers or hard shoulders of today and the lanes could be much closer together, saving significant land use and cost.

2. **Licensing and road traffic regulations:** In an AV world, there are no drivers. So ultimately no need for driver licensing. However in many countries driving licenses also operate as citizen ID. So the implications of withdrawal need to be thought through. Timing is also a consideration.

In the initial years of AV adoption, it is likely most countries will continue to require that a licensed driver can take back control of the vehicle. But eventually trust in the technology should mature so that is no longer necessary. Then there is the licensing of vehicles. Will that still be necessary? From a safety point of view, would it not suffice to put the onus on manufacturers to produce safe products, as is the case for nearly every other consumer good, rather than have a regular testing regime? But vehicle registration may continue to be needed as the basis of revenue raising from AV use. Finally traffic regulations will need to be adapted, and in a pure AV world replaced by connectivity standards, operating like internet protocols.

3. **Revenue:** AVs will still need roads on which to travel, and expensive investment in digital technology to provide the bandwidth for vehicle-to-vehicle and vehicle-to-infrastructure communications. Cities are likely to want to establish control centers so they can intervene to minimize congestion.

The AV revolution creates an opportunity for governments to rethink and improve the funding model for road infrastructure. There is a choice as to whether that infrastructure should be built and maintained by the public or private sector – perhaps all the communication systems, for example, should be left to the market to provide. But where the public sector is paying then new forms of vehicle or usage tax will be needed to replace the loss of taxes from fossil fuels.

4. **Spatial planning:** AVs offer not just a revolution in transport, but how we live. Mobility on demand without the need to own a vehicle means accessibility for all, a huge increase in vehicle miles travelled but potentially much higher levels of vehicle utilization.

We may need fewer vehicles, and if we don't own that vehicle, we don't need to park it. In dense urban environments, garages and hard standings may become a thing of the past. AVs will also be able to pass much closer, so many roads could be narrower. Residential streets could serve both AVs and pedestrians in the same space without the need for curbs. We will face new choices about how we shape our urban environments, and how we use the huge amount of space that could be released.

5. **Security:** In a world of AVs we put our lives in the hands of the systems which control them. We will expect assurance that those systems are failsafe and safe from malicious attack. Governments will need to establish regulations for the systems, and regular testing regimes.

Accident rates will reduce dramatically, and if combined with reduced levels of personal vehicle ownership, will transform the car insurance industry⁹. Personal data security will also be a concern as AV payment systems are likely to rely on detailed knowledge of where we travel.

Public authorities need to start planning now to navigate through these myriad issues, and ensure that our AV dominated world is one designed to maximize social and economic benefit.