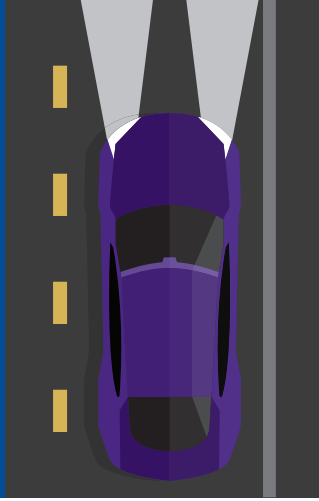




Reimagining Travel

Driverless cars will redefine our roads



The transport model based the self-driven car, first popularised by Henry Ford's Model T, has survived largely intact for more than a century. Within 20 years, that world could be swept away. Fully-driverless vehicles, and the digital technologies to which they connect, are posed to redefine the whole way we use our roads and the vehicles on them.

For drivers, fully automated vehicles offer a way to reclaim all those wasted driving hours, while avoiding the tedious chore of searching for a parking space. And travel should become safer, too: the Association of British Insurers thinks driverless vehicles could be "as important a road safety innovation as the seatbelt."

The potential benefits of self-driving vehicles – go well beyond saving time and improving safety for individual travellers. Given an innovative and disruptive set of new business models, this emerging technology could also generate substantial improvements in urban congestion, pollution and public health – providing a major boost for public policy goals. And there are big potential wins for travellers in the shape of lower costs and greater convenience.

It's important that we realise these wider benefits, for our existing approach to road travel creates massive economic and social costs. Earlier this year, the Environment, Food and Rural Affairs Select Committee called air pollution a "public health emergency," blaming it for economic costs of £15 - 20bn and the deaths of 40-50,000 people every year. Congestion also creates drag on the UK economy, with the annual bill estimated to reach £22bn to £24bn by 2025-2030.

Reinventing the wheel

The government has recognised the potential of driverless vehicles to, as former transport secretary Patrick McLoughlin said on 11 July, "revolutionise the way we travel and deliver better journeys". Machines can, for example, react extremely quickly and communicate with each other in real-time; so vehicles can make better use of road space and eliminate the 'bunching' problems that create tailbacks. But to reduce the number of vehicles on our roads while offering benefits for travellers, we'll need to reconsider the underlying business model. It's time to rethink our system of individual car ownership.

The average car is parked for 96% of the time, making for very inefficient asset use. What's more, its owner has only one choice of vehicle, no matter the task at hand. Ride-sharing services such as Uber is one solution gaining traction. Carpools are another. Yet carpools have made only limited inroads into private ownership. In part, that is because travellers must get themselves to the nearest car location to pick it up. This weakens one of the car's greatest benefits: convenience.

Driverless vehicles, on the other hand, will be able to deliver themselves to the traveller. And a flexible rental system run by a major provider – perhaps an established car hire firm or manufacturer – could provide people with the vehicle they need, whenever and wherever they need it. A motorway cruiser for a long-haul trip; a sports convertible for a date; a 4x4 for a country weekend or an MPV for a family holiday – travellers could simply select their chosen model, and set a pickup time and location. And because people would only be using vehicles in a particular role, manufacturers could create designs even better adapted to the task at hand.

There's an app for that

Under this business model, travellers would pay the provider a membership fee plus a charge based on the rental duration, distance travelled and type of vehicle – perhaps incorporating a peak time charge to push demand towards less busy periods. Customers would manage their vehicle use via a smartphone app; and this too provides opportunities to improve the system's convenience and flexibility.

The vehicle provider could, for example, have access to the customer's digital diary, enabling it to line up journeys and vehicle types meeting their needs. And they could track each client's location, ensuring that the vehicle arrives promptly even if they're running early or late.

Transport provider apps could also link in with other companies' systems. Customers could, for example, buy groceries or other goods online and pass the order to their vehicle provider – enabling their last car of the day to visit a collection depot before meeting them for the homeward journey. No need to wait in for a delivery; no need to crowd the sky with delivery drones; no need for delivery vans blocking up minor roads: just let your car carry you home, and grab your goods out of the boot. Eventually, vehicle providers could even transport unaccompanied children, greatly easing logistical headaches for busy parents.

Under this business model, the efficient use of assets offers useful cost savings – but there are ways to further drive down prices. People could agree to share vehicles with other customers, accepting extra pick-ups and drop-offs in exchange for a discount. And operators could offer 'bus' services, running high-capacity vehicles along routes that constantly adapt to meet changing demand.

A helping hand from government

This raises another possibility – to subsidise driverless vehicles in a similar way to public transport. After all, this business model offers many of the same benefits: cutting congestion, pollution and parking requirements. Given the many advantages of realising automated vehicles' potential, the government might choose to give them a fiscal boost.

It's already halfway there. Ultra-low emission vehicles are exempt from the London Congestion Charge and Transport for London is consulting on proposals both to add a £10 premium to less efficient vehicles, and to expand central London's Ultra-Low Emission Zone. Congestion Charge revenues are ploughed back into public transport; similarly, city or national authorities could choose to ramp up taxation on traditional cars and subsidise driverless vehicle rental.

This kind of ring-fencing of tax revenue could give automated vehicles a helpful push. But ultimately, evolving digital and driverless technologies, market forces and customer choice are likely to lead us away from individual car ownership anyway.

The challenge for transport providers and public authorities is to make sure that fully-automated cars both benefit individual travellers, and help us address some of our most pressing problems in transport. There will be challenges. Some consumers will have concerns about their privacy given the 'digital exhaust' of personal data trailing behind connected cars.

The technology will soon be upon us. Used fully, it has the potential to change transport as radically as those first Model Ts. Our mission now is to realise that potential.

¹ <https://www.gov.uk/government/news/new-measures-to-help-britain-lead-the-way-in-developing-driverless-technology>

² <http://www.publications.parliament.uk/pa/cm201516/cmselect/cmenvfru/479/47902.htm>

³ <http://inrix.com/economic-environment-cost-congestion/>

⁴ <http://www.publications.parliament.uk/pa/cm201012/cmselect/cmtran/872/87204.htm>

⁵ <https://www.gov.uk/government/consultations/advanced-driver-assistance-systems-and-automated-vehicle-technologies-supporting-their-use-in-the-uk>

⁶ http://www.racfoundation.org/assets/rac_foundation/content/downloadables/spaced_out-bates_leibling-jul12.pdf

⁷ <https://www.london.gov.uk/press-releases/mayoral/mayor-unveils-action-plan-to-battle-toxic-air>



Justin Zatouroff

Partner, Global Head of Post and Express

T: +44 (0)20 7311 8415

E: justin.zatouroff@kpmg.co.uk

kpmg.com/uk



The information contained here is of a general nature and is not intended to address the circumstances of any particular individual or entity. Although we endeavour to provide accurate and timely information, there can be no guarantee that such information is accurate as of the date it is received or that it will continue to be accurate in the future. No one should act on such information without appropriate professional advice after a thorough examination of the particular situation.

© 2016 KPMG LLP, a UK limited liability partnership and a member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative ("KPMG International"), a Swiss entity. All rights reserved. The KPMG name and logo are registered trademarks or trademarks of KPMG International.

Produced by Create I CRT066460