

driverless vehicles



In publicity for an upcoming meeting, the Fred Roche Foundation asks: 'Will driverless vehicles solve the transport problems of Milton Keynes?' The question (without the MK tail) is a common one in the fields of planning and urban design. Let's park the MK angle for a moment, and take a look.

There is large-scale commercial investment in driverless vehicles. For example, the 52 companies approved by the California Department of Motor Vehicles to test autonomous vehicles on the road include Apple, Waymo, Tesla, Ford, Honda, BMW, Nissan, Intel, and Uber. The market appears to be undaunted by an incident in March 2018 when a self-driving Uber car in Tempe, Arizona, caused the first pedestrian death by autonomous vehicle. Elaine Herzberg was walking her bicycle across the street, and died later in hospital as a result of her injuries.¹

The UK's push to compete in this technology is stimulated by public money, the trail of which is not easy for the public to follow. The websites are often animated and bitty (the medium fuzzes the message), and the language of the industry is as prone to acronyms and jargon as our own. It is also fast moving (one initiative begets another, begets another...).

Tracing public money, the main lily pads across the pond appear to start in 2009 with the then Department for Business, Enterprise and Regulatory Reform's *New Industry, New Jobs*.² Then came the same department's *Going for Growth: Our Future Prosperity*, of January 2010,³ a policy initiative which included 'Fostering knowledge creation and its innovative application' and 'Building on our industrial strengths in sectors where we have expertise and investing to foster new comparative advantage'.⁴ This was under the Gordon Brown New Labour government (which was soon to end, in May 2010).

Dr Hermann Hauser had been commissioned to examine the future of Technology and Innovation Centres (TICs) to underpin this initiative, and he reported to Secretary of State Lord Mandelson in March 2010.⁵ Dr Hauser called TICs 'translational

innovation centres', saying 'it has become clear that the leisurely translation of scientific discoveries into new industries has been replaced by a race between nations to take advantage of these discoveries and translate them into economic success stories before others do so'. He referenced our national proclivity to invent, only to see others apply the research and profit from it as we stand idly by (those are not his actual words!).

The TICs vision was taken up by the Cameron/Clegg coalition government after May 2010, and the midwife for the TICs was to be Innovate UK, part of UK Research and Innovation (a non-departmental public body funded by a grant-in-aid from the UK Government). Its job is to 'drive productivity and economic growth by supporting businesses to develop and realise the potential of new ideas, including those from the UK's world-class research base',⁶ and its 500 staff are based in Swindon, with a budget of £7 billion.

The TICs have been instituted as Catapults,⁷ and ten are listed (emphasis added here): Cell and Gene Therapy, Compound Semi-Conductor Applications, Digital, Energy Systems, *Future Cities* (now you know where all those emails come from), High Value Manufacturing, Medicines Discovery, Offshore Renewable Energy, Satellite Applications, and *Transport Systems*. Future Cities and Transport Systems were merged on 1 April, which one hopes might help ground the latter in practicability!

The Transport Systems Catapult is based in Milton Keynes,⁸ where driverless Aurrigo vehicles ('pods') can be seen trundling around a fenced compound in the city centre, and occasionally (with a driver, in case) on footpaths and in public squares (not regularly on public roads, yet). Formal UK Autodrive⁹ pod trials concluded on October 2018, involving 15 pods travelling up to 15 miles per hour and capable of running 60 miles off one charge. Other participants in the three-year UK Autodrive programme in Milton Keynes and also Coventry are reported to have included Jaguar Land Rover and Tata. The Aurrigo Sales and Marketing Director says: 'We have advanced autonomous technology that works in a live public environment, and pods that can provide that crucial first and last mile transport solution for towns and cities throughout the world ... we are already in discussions with a



Ian Wate

One of the Aurrigo autonomous pods in Milton Keynes

number of potential customers to take our pods for use on university campuses, theme parks, shopping malls and retirement villages. The potential is huge and we are projecting increases in turnover that could reach £100 million over the next three years.'

So with commercial investment in driverless vehicles as briefly mentioned in the opening, and UK public money stimulating exciting programmes with fabulous claims of success and future wonder, we must put aside the queasy feeling that this seems an awful lot of effort to make drivers redundant, and return to our starting question of whether it will solve our transport problems. The answers are shaping up like this:

- The first applications, confirmed by Aurrigo, will be in highly controlled environments. That is to say on motorways (where vehicles on busy stretches will be effectively made into a virtual train, and speed limits perfectly observed); on specially built dedicated roads or pathways from which all other traffic is banned (how prescient was Runcorn's busway, or North Kent's Fastrack!). Maybe other controlled and CCTV-supervised environments will also see them – collecting passengers from car parks at airports, and moving

people around theme parks, regional shopping centres and rock festivals like land trains. But for town and country environments there are too many unpredictable features in play (other vehicles, people of all types and ages, weather, animals) for us to be wholly at ease with driverless vehicles, or find advantage in their necessarily cautious way of moving around.

The tests in Coventry and Milton Keynes do not appear to have been 'real' in the common ordinary sense of the word. Even the Docklands Light Railway, which is driverless and on its own specialist track, still needs human operatives to watch over its human travellers. A change of vehicle and fuel type, then, but not a change of travel mode, nor increased mobility for anyone.

- Not-for-profit or commercial fleets of driverless vehicles will need to be large in number to meet need (our geography is spread, our people are many and diverse, and our journey patterns are infinitely varied in space and time); and they will need intensive maintenance programmes, including for cleaning and repair, posing a major logistical challenge. Imagine Santander bikes and scale it all up.
- Driverless vehicles seem likely to be expensive at the point of use unless there is ongoing subsidy

like that enjoyed by bus companies on many routes throughout the UK. If successful on some public routes, they could undermine the viability of more conventional forms of public transport on which those with less money must rely. It would be awkward if public money were used to create pods just for the pleasure and convenience of relatively rich people.

Overall, driverless vehicles seem unlikely to change the design of cities. They are still a land use – they take up space – whether stationary, or moving around. At best they can be as effective as a train, tram, bus, taxi or mini-cab system or car-sharing scheme in helping us meet our transport needs with reducing land use impact (because people share the use of a vehicle, rather than keeping their own), but they will not all be in use all of the time, and space is needed for parking at the start and finish of journeys (wherever those places may be) and for maintenance and repair.

As for Milton Keynes, with a lazy grid of movement corridors designed for any transport mode with all homes and other destinations within 500 metres of that grid, but where privatised bus systems have resulted in services that are thin on the ground and uncompetitive (to say the least), it is difficult to see how driverless vehicles could make much difference.

MK Council's future transport strategy, submitted to the National Infrastructure Commission's studies on the Cambridge-Milton Keynes-Oxford Arc, is at heart the conventional vision of 'high density development along transit corridors with people able to access a transport system that meets their needs based on rapid mass transit and shared use of vehicles such as autonomous pods, electric car share and demand responsive services', just like everywhere else.¹⁰ MK would get normalised, in that sense. Note that 'autonomous pods' are not a cornerstone – they are just automated 'demand responsive services' (a euphemism for taxis and mini-cabs, or even rickshaws).

Overall, would the absence of drivers save enough money for the investor/operator to make driverless vehicles a significant mode of public transport? Perhaps that's not the point – maybe the UK needs to be out in front on this technology for reasons not yet known, or maybe not yet stated?

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Notes

- 1 B Hutchinson and J Cook: 'Woman killed by self-driving Uber car identified, as company suspends testing'. *ABC News*, 19 Mar. 2018. <https://abcnews.go.com/US/woman-killed-driving-uber-car-identified-company-suspends/story?id=53853861>
- 2 *New Industry, New Jobs*. HM Government. Department for Business, Enterprise and Regulatory Reform, Apr. 2009. https://webarchive.nationalarchives.gov.uk/20100512232040tf_/http://www.bis.gov.uk/ninj, with a summary at www.researchonline.org.uk/sds/search/go.do?action=document&ref=B11956
- 3 *Going for Growth: Our Future Prosperity*. HM Government. Department of Business, Innovation and Skills, Jan. 2010. <https://webarchive.nationalarchives.gov.uk/+http://www.bis.gov.uk/wp-content/uploads/2010/01/GoingForGrowth.pdf>
- 4 As summarised by the Network for Europe, at www.networkforeurope.eu/going-growth-our-future-prosperity
- 5 *The Current and Future Role of Technology and Innovation Centres in the UK*. Report by Dr Hermann Hauser for the Department of Business, Innovation and Skills, Mar. 2010. <https://webarchive.nationalarchives.gov.uk/20121205223008/http://www.bis.gov.uk/assets/biscore/innovation/docs/10-843-role-of-technology-innovation-centres-hauser-review>
- 6 See the Innovate UK website, at www.gov.uk/government/organisations/innovate-uk/about. *Innovate UK Delivery Plan – Shaping the Future 2017 to 2018* (Innovate UK, Dec. 2017. www.gov.uk/government/publications/innovate-uk-delivery-plan-2017-to-2018) is the context for the Innovate UK website statement that 'since 2007, we have invested around £2.5 billion to help businesses across the country to innovate, with match funding from industry taking the total value of projects above £4.3 billion. We have helped 8,500 organisations create around 70,000 jobs and added an estimated £18 billion of value to the UK economy.'
- 7 See the Catapult website, at <https://catapult.org.uk/about-us/about-catapult/>
- 8 See the Transport Systems Catapult website, at <https://ts.catapult.org.uk/about-us/contact-us/>
- 9 See the UK Autodrive project website, at www.ukautodrive.com/
- 10 *Strategy for First Last Mile Travel*. MK Council (undated but Nov. 2017). www.nic.org.uk/wp-content/uploads/Milton-Keynes-First-Last-mile-strategy-report-2017.pdf. The strategy includes a bid for funding to participate in an Arc-long Advanced (in some documents 'Affordable') Very Rapid Transport (AVRT) system, by which driverless vehicles running at 120 mph might whiz people across the Arc. It is not yet embedded in a statutory Local Transport Plan – it has not yet been subject to public consultation, full council approval or statutory process, but its heart beats