

**'Move fast and  
break things.  
Unless you are  
breaking stuff,  
you are not  
moving fast  
enough'**

*Mark Zuckerberg*

Is the Government acting quickly enough to keep up with the development of mobility modes such as autonomous vehicles and e-scooters?

**Beate Kubitz** reports

for Government is whether we push back and fit these innovations into the legislative frameworks of existing industries?

Or should it devise new approaches for future transport?

For some in the field, like Paul Hodgins, CEO of shared micromobility operator Ginger, the danger is in delay as much as in new modes.

"The challenge of regulation for the UK is that we have very congested roads, and are potentially the biggest market for micromobility," he says.

"If we don't move faster than we are, we will have the same issues in future as we have with Amazon, Google and Uber now. We are avid consumers of their products but their decision-making sits in Silicon Valley. Our market is an afterthought. If we move too slowly, we won't have things developed here by people who know the UK."

While e-scooters are legal in many European countries, the UK Government has opted to trial schemes and collect data on their use and safety before, potentially, changing the law.

E-scooters are currently neither legal on pavements because they are powered, nor legal on roads because they don't fall into any of the types of vehicle permitted. Also there are no relevant provisions for who ▶▶

**W**hen Mark Zuckerberg's infamous Silicon Valley 'move fast and break things' mantra meets transport, the consequences can be rather more consequential than a website simply going down or an app disappearing.

Where the 'things' are vehicles, there is a potential for instant catastrophe and/or death. There is also the slowly catastrophic impact of unintended consequences, such as the rising tide of congestion caused by uncapped private hire vehicles powered by Uber or the increasing size and number of sport utility vehicles (SUVs) which are increasing carbon dioxide emissions by more than the decrease achieved by those switching to electric vehicles (EVs).

Whatever the concerns, the tech wave is breaking over transport, sweeping new vehicles, new business models and new technologies onto the streets (and, in some cases, into our airspace). The question

#### ABOUT THE AUTHOR

**Beate Kubitz** is a writer, researcher and consultant in new mobility. She is the author of the *Annual Survey of Mobility as a Service in the UK*, as well as reports on car clubs, bike-share, open data and transport innovation. She is director of policy and communications for TravelSpirit and previously worked for CoMoUK.



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▲ **Ginger e-scooters are well suited for delivery services**

can 'drive' them or the standards they need to meet.

Despite this, retailers such as Halfords are selling increasing numbers and they have become a common sight on roads and pavements. Occasional crackdowns have seen them seized by the police and users are warned that they risk points on their

licence. However, there seems to be no impact on sales – with retailers campaigning for legalisation rather than curtailing their activities.

Debate has raged about their utility. On the one hand they can, at best, intimidate and, at worst, injure pedestrians, putting vulnerable people off walking. On the other, the harm caused by cars and drivers is many orders of magnitude greater and, advocates argue that permitting scooters and other smaller vehicles which get people out of cars can only be a good thing.

There is no lesser debate about where their use should (in theory) be allowed. On pavements would be safer for the e-scooter user, but less so for pedestrians; on roads it would be safer for pedestrians, but place the e-scooter riders at the mercy of much larger vehicles.

A 2019 survey of transport professionals found 31% thought they should only be used on cycleways and bridleways, 28% only where local conditions and legislation permits, 11% everywhere, 6% on roads only, 5% everywhere except roads, 3% on roads and cycleways, and 2% on pavements and footpaths only with just 2% advocating the current position of on private land only [11].

Rather than change legislation in isolation, the Department for Transport (DfT) has (following an initial consultation on their potential legalisation), created trial areas

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PAUL HODGINS, GINGER

where shared e-scooter schemes, run in accordance with local authority specifications, are legal.

The shared e-scooter trials require riders, who hire the e-scooters from operators, to have driving licences. Helmets are recommended (but not legally required). The e-scooters are insured by the operators and are permitted on roads (except motorways) and cycle lanes (not pavements). The maximum legal speed is 15.5mph.

Some towns and cities licensed multiple operators, others only one across the area. Some e-scooters are 'free floating' and others must be returned to fixed bays.

Ginger has eight pilots around the UK. While London has been the 'go-to' trial area for many transport innovations, the operator has a diverse portfolio of trials in small and large towns spanning Great Yarmouth and Whitehaven on the east and west coasts respectively, with Hartlepool in the north and down to Milton Keynes.

Hodgins is pleased with the uptake, showing that the scooters are not just a metropolitan phenomenon.

"When you introduce e-scooters you go through the novelty phase in the first couple of months," he says.

"However, after this, we have seen it settle into sustained adoption and an increased use of straight point-to-point journeys (that imply purposeful trips).

"The other interesting thing is that, as we've grown our fleets and added vehicles, we've seen not just sustained, but increased, demand."

While some of the trials have free-floating scooters which can be left anywhere (provided they're not blocking the pavements), Ginger scooters are parked in bays which are planned with each area's local authority, targeting transport hubs, hospitals and town centres.

The idea behind their pricing structures is to be more like public transport (a fixed £2 fee for 20 minutes, equal to three-to-four miles' travel). Other schemes charge an unlocking fee (usually about £1) and a per minute cost which can mount up quite quickly over longer distances, making the scooters more comparable to taxis.

What is common to all schemes is that they use and collect a great deal of data. The areas they operate in can be precisely defined, such as slowing them down on specific roads or areas and preventing them from functioning at all outside their operational area.

In addition, operators provide local authorities with usage data so they can see how many trips are made, where and when.

In the first trial period of the e-scooter experiment by Transport for London (TfL) [1], a total of 600 e-scooters were available for rent in Ealing, Hammersmith and Fulham, Kensington and Chelsea, Richmond upon Thames, Tower Hamlets and the Canary Wharf estate.

Within these trial areas, a total of 35,000 trips were recorded across all three operators. The average trip taken was 2.9km (1.8 miles) and average duration was 24 minutes. There was one serious injury reported to TfL in the initial trial.

#### PRIVATELY OWNED E-SCOOTERS

While safety is a concern for the trials, their regulated nature means that risk can be seen clearly and the schemes amended.

There are also around 500,000 privately-owned e-scooters currently being used on public roads and pavements, according to David Davies at the Parliamentary Advisory Council for Transport Safety (PACTS).

"PACTS is conducting research into the private use of e-scooters and taking

evidence about collisions and casualties because, at present, that information doesn't exist," he says.

Road safety statistics only collate data on pedestrian, motor and cycling casualties. The team is taking evidence from a group including trauma surgeons, insurance industry representatives, lawyers and people from the bike industry.

Davies says: "We want to make the information available to Government – we think there's a qualitative difference in casualties learning from elsewhere.

"For instance, there's a Danish study which shows that there are 10 times as many head injuries per kilometre when compared with pedal cycles.

"It could be to do with the nature of the fall as cyclists tend to fall sideways whereas e-scooter riders fall forwards."

While Davies is keen to ensure that the Government has relevant information about the relative dangers of private e-scooter use, he's clear that this is not the gravest issue on the roads.

"We are concerned about all road casualties. The problem is with collisions involving cars. Half of road casualties die in cars, and 80% die in collisions with them."

It's this hierarchy of risk and the potential to increase the space for non-car transport that motivates those working to promote e-scooters.

Hodgins says: "The issue at the moment is that we have conflict when you put in cycle infrastructure because cycling isn't seen as accessible to all.

"But, when you have options like scooters that anyone can use, then more people will have a common interest in 'cycle + lanes'."

#### E-SCOOTERS – ATYPICAL REGULATION

Although e-scooters are just one type of vehicle, many of the issues related to them go to the heart of what regulation is for. Fundamentally, the law is about people's safety, but it also provides important elements of consumer protection (ensuring the fair treatment of customers, value for money and transparency), standardisation (which keeps things simple to use and maintain, not locking people into one system unfairly) and constraints to prevent the over-exploitation of public (and global) resources.

E-scooter trials are, by road traffic standards, highly regulated. They put upper limits on the number of e-scooters in an area and the operator acts as controller, ►

#### SOURCES

[1] Annual Survey of Mobility as a Service 2019, Landor Links

31%

say e-scooters should only be used on cycleways and bridleways

► reducing the opportunities for dangerous and anti-social use of the e-scooters. Speeds are restricted to a maximum of 15.5mph, but may be further restricted in different locations using geofencing (for instance, to walking pace on a town square) and the scooters stop working outside of their allotted areas. Good parking practice is also enforced by geofencing.

When contrasted with the legal framework around privately-owned vehicles, they seem locked into socially approved use-cases in a way that cars are not.

By contrast, we have no theoretical upper limit on the number of privately-owned vehicles in the UK, few incentives to promote car-sharing or rules to prevent single car occupancy trips. Speed restrictions rely on human observance of the rules and even routes have been made more accessible as sat-navs have opened up quiet roads and shortcuts rather than restricted access. Only parking is restricted in some areas.

**NEW TECHNOLOGY REGULATION – AN OPPORTUNITY?**

With this in mind, is it possible that new technology could give the Government the opportunity to create more pro-social and environmentally-positive transport patterns through regulation?

Essentially, decarbonising transport means increasing cycling, bus, rail and shared transport trips while switching to EVs and decreasing privately-owned car travel.

New technologies such as connected and autonomous cars could, theoretically, assist by moving journeys to shared, zero emission modes and reducing the dependence on private vehicles. New business models that blur the boundaries between bus and taxi could have a similar impact.

Whether they do or not depends, to some extent, on regulation.

While the e-scooter trials are quite novel ways of regulating transport, insisting on a high level of data transparency and giving local areas more control over the vehicles on their streets at quite a granular level, at present, autonomous vehicle legislation is cut from the same cloth as the laws regulating ordinary motor traffic.

The Government has consulted on the wording of the Highway Code governing the safe use of automated vehicles and is analysing responses.

It expects to publish these and put amendments to the Highway Code before

Parliament in advance of any automated lane-keeping system vehicles being available to buy.

However, in parallel, the Law Commission of England & Wales and the Scottish Law Commission have considered (in a second consultation paper) how completely automated trips might be supplied to the public in vehicles that can travel empty or only with passengers and no driver or user-in-charge. Their paper proposed a new licensing framework for Highly Automated Road Passenger Services (HARPS), which would apply to vehicles carrying passengers with no one on-board responsible for that vehicle. The framework would apply to vehicles regardless of seat number or fare structure (unlike the current licencing regime which regulates vehicles up to eight seats as taxis or private hire and larger vehicles – such as buses – which are registered with the Traffic Commissioner).

How these two frameworks interact will shape the direction of autonomous driving – whether it will consist of shared vehicles that cut the number of cars in circulation or simply replace the existing fleet (all 38 million private cars) with self-driving versions, exacerbating current issues around road congestion.

There are no plans to directly regulate the routes that autonomous vehicles take or the speeds they travel at. However, the DfT is currently creating a data model and architecture to digitise Traffic Regulation Orders (TROs) which will enable digital map providers to access all regulatory changes to the road network in a standardised format.

Through this, it would be possible – in theory – for local authorities to amend their TROs to direct the flow of traffic to some extent – and, if autonomous vehicles are required to be programmed to obey speed limits, then there is potential for authorities to have some of the same control they have over cars as they do over e-scooters.

**With safety technology such as emergency braking and intelligent speed assistance, we can see the benefits really quickly as they will be fitted to all new cars in the EU**

**DAVID DAVIES, PARLIAMENTARY ADVISORY COUNCIL FOR TRANSPORT SAFETY**

**ALTERNATIVES TO CARS**

While the regulation governing motor vehicles develops, at the same time regulation will play a role in whether or how alternatives to the private car are able to grow. This will depend on how elements that support different alternatives are mandated or enabled.

Mobility as a service (MaaS) and multi-modal journey planners require access to transport data to be able to plan and book journeys across the fastest and cheapest routes.

Without committing to a Finnish approach – where the Finnish Act on Transport Services requires all transport service providers to open up their essential data (routes, stops, timetables, prices, availability and accessibility) in machine-readable formats via open interfaces – the UK Government recognises the importance of access to data from transport operators for MaaS platforms to develop.

There is work underway to open up data across modes, working with a variety of stakeholders contributing to the department’s data strategy, which is in development.

The Bus Services Act 2017 mandated the provision of open bus data which compels bus operators to provide real time information about their services, improving their passengers’ experiences and also lays the foundations for future MaaS platforms in the UK.

**WHERE ARE WE GOING?**

The utility of autonomous vehicles has yet to be proven. While a number of autonomous shuttle projects have been launched, results have been mixed. Most recently, the Viennese transport authorities concluded after a three-year project that their state-of-the-art self-driving shuttles were not effective. Autonomous vehicles were used to shuttle people around Seestadt, an area selected because it had few cars and wide routes. The shuttles needed constant supervision because of unfore-

**11%**

**of transport professionals believe e-scooters should be allowed everywhere**

seen 'obstacles', with their software baulking at all manner of things from poor weather to the daisies growing out of cracks that developed in the tarmac in spring.

Despite this uncertain progress and unclear benefit, the technologies used in driverless vehicles already have their advocates.

Davies says: "We're learning a lot through the development of autonomous vehicles. We can already benefit from the safety benefits of vehicle-to-vehicle (V2V) and vehicle-to-infrastructure (V2I) connectivity. With safety technology such as emergency braking and intelligent speed assistance, we can see the benefits really quickly as they will be fitted to all new cars in the EU."

These standards – for V2V, V2I and vehicle-to-everything (V2X) – already exist and continue to be developed at the international, European and UK level.

The British Standards Institution is working on UK standards in parallel to other standards bodies. The DfT maintains an overview of standards development as well

as funding pilots and trials where standards can be tested – these include the A2/M2 Connected Corridor linking London with the port of Dover, and the UK Cite project with 40 miles of connected roads in the Midlands.

It could well be that these technologies, which provide the foundations of the more futuristic vision of automated driving – are those that need the smartest regulation. After all, they will be the 'rails' along which the next generation of transport runs. **ST**

▼ **Autonomous shuttle projects have been launched and results have been mixed**

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