

Future of mobility call for evidence

Complete online

You can use this form to respond or there is an online version of this response form here - <https://www.smartsurvey.co.uk/s/FUTMOB/>

The online version allows you to:

- save and continue your progress
- print off or save a copy of your response

Introduction

This call for evidence seeks views and evidence to inform government's work on the Future of Mobility Grand Challenge, including our Future of Urban Mobility strategy and regulatory review. Thank you for taking the time to read the document and to respond to the questions.

Confidentiality and data protection

We're not asking for any personal data as part of this consultation. If we receive any it will be securely deleted in line with [DfT's privacy policy](#).

Organisation details

2. Organisation name

3. What type of organisation are you responding for?

Local or regional council or transport authority
Trade association
Transport provider
Other business
Non-governmental organisation
Other:

Future of Urban Mobility Strategy – emerging technologies

4. We have identified in our call for evidence the main technologies and trends that we believe will affect urban mobility in the coming decades. Are there any missing?

As a background section, the consultation document considers significant social and behavioural trends and separates these from technology-oriented ‘trends’, developments and prospects. We suggest that **a holistic view of trends should be taken that encompass social, technical, economic, environmental and political drivers of change that together will shape the future of urban mobility.**

Transport is a derived demand and the consultation document focuses heavily upon travel behaviours, mobility consumption behaviours and transport technology developments. **What is less apparent is a consideration of ‘upstream’ trends that are affecting why, how and to what extent people are travelling and what goods need to be moved.** There are trends in a changing labour market, working practices, land use, household structures, diet and physical exercise and leisure pursuits.

Until recently, the Government (through the Office for National Statistics) produced an annual ‘Social Trends’ publication that was described as ‘painting a picture of UK society’. Such a publication is needed now more than ever in order to place transport in its social and technological context. There is otherwise **a risk that any future of urban mobility strategy is too inwards looking and monopolised by transport sector thinking.** Such a focus will help understand and guide urban travel trends through non-transport policy means.

Little is said in the consultation document concerning non-transport technologies. We would define these as technologies that do not directly influence transport, but which bring about indirect consequences for the transport system’s use through influencing social and business practices. For instance, changes in young people’s development (i.e. buying a house and having children later) have knock-on effects on land-use and transport use. Similarly, communication practices in business have been changing over time leading in turn to changes in working practice. This can manifest in the possibility to avoid travel in favour of communicating digitally rather than face-to-face and should be considered an alternative mode, the trends of which should be understood better to assess the impact this will have on travel modes. **Fundamentally the purpose of the transport system is to provide access to people, goods, services and opportunities. Yet the telecommunications system is now also doing this to a substantial extent. This is surely one of the most profound trends of all in relation to technology and one which has consequences for future mobility.**

The consultation document points to some things that are considered unlikely to change – including that the vast majority of urban trips will continue to be short. This may well be the case, but the Government’s own data has highlighted the decline in trip rates and further analysis has revealed that such declines are particularly related to short trips. Allied to this – and something not mentioned as a trend in the consultation – is that cycling traffic has grown by 25% in the last 10 years. While absolute numbers may be modest in the overall context of urban mobility, this is not a trend to be overlooked. The consultation does point towards projected global growth in e-bike / e-scooter sales. Yet the figures given indicate a 26% increase from 2016 to 2023. Media reports indicate that Halfords reported a 220% increase in e-bike sales in a single year (2017). The trends in docked and dock-less cycle availability should surely also be of important note. **Unlike CAVs and MaaS, take up of cycling, e-bikes and bike sharing schemes are already a phenomenon in cities across the world,** and despite some UK setbacks for cycle share schemes, we believe this is worth noting.

We would also suggest that **the supposed trend in sharing requires much closer scrutiny**. Sharing is a necessary condition for new transport technologies and services to be able to deliver some of the benefits that are being promised. There is an important distinction between sharing asynchronous use of vehicles and synchronous use – i.e. ride sharing. Only the latter makes possible a new trend of increasing vehicle occupancies.

The relationship between traditional modal splits is rightly pointed out, but the evidenced change this is having on our transport sector should be considered. For instance, in the US, Schaller report that about 20% of app-based taxi/ride-sharing trips replace personal car trips, a further 20% replace traditional taxi trips, and the remaining 60% public transport, biking or walking (or are a 'new' trip). **Evidence in the UK is also needed so that policy around 'shared' mobility can be steered to achieve the overall goals of the transport system.**

5. We want our urban infrastructure to support these trends and deliver benefits to society. What changes are required to urban infrastructure?

We consider this question somewhat ambiguous since the consultation document refers both to social and behavioural trends and to technological developments and possibilities (also termed trends). Indeed, **it implies that all trends highlighted are to be taken prima facie as trends that merit supporting**. In this sense, the urban infrastructure should help shape the future we want and mitigate against the future we do not. Drones are a case in point (with notable growth in retail sales). There may be use cases where drones offer a net benefit to other means of connectivity for instance in relation to movement of high value, time critical goods. Yet on what basis is it to be taken that a trend in drone transport (and other forms of airborne transport) is universally a positive development for our urban areas? Urban areas have, for decades, faced the challenge of the externalities of a 2-D surface transport system and the need for responsible innovation is surely imperative if we are to avoid such externalities becoming 3-dimensional.

Not all the trends (or aspirations for technological innovation) set out in the consultation are necessarily in harmony with one another from the perspective of an urban mobility system that is sustainable in economic, social and environmental terms. For instance, would autonomous vehicles lead to increasing appeal for segregation between pedestrians and cyclists in relation to motor vehicles? Would autonomous vehicles be appropriate to introduce into shared space environments that may (otherwise) be conducive to enhancing the urban realm and placemaking? Can reallocation of road space in favour of active travel modes be progressed if it is believed that the 'four pillars' of future mobility – namely connected, electric, autonomous and shared vehicles – will lead to more efficient movement of people by such vehicles and a reduced need for parking? If not, then is this because there are doubts regarding some of the claims by the 'four pillars' protagonists?

We would suggest that ongoing development of urban infrastructure should be aligned to fulfilment of higher level 'sustainable cities' goals rather than being aligned (solely) to the facilitation of technological innovation. **We should be firmly considering what technological innovation can do for our urban goals as opposed to what our cities can do for technological innovation.** There may be circumstances where enabling innovation does indeed further the higher-level goals which is to be welcomed but responsible innovation must be the key to any changes to our urban infrastructure. Regulators in our urban environments, e.g. Transport for London, are essential in this regard with innovations supporting campaigns like Healthy Streets.

One of the challenges for ongoing development of urban infrastructure is the degree of uncertainty in how far, how fast and in what directions the present trends and signals of future possibility might take us. We are already – it would appear – in the transitional period from the old regime of automobility towards a new regime. Given the uncertainty over the

transitional period there is a need to identify which infrastructure developments we can make that have a high degree of uncertainty with regard to their compatibility with future conditions and which developments are higher risk to contemplate in the shorter term due to uncertainty. **Key to developments will be the importance of determining how adaptive design can be prioritised.** For instance, installation of more vehicle charging points may be seen as a sound investment and yet the design and placement of such charging points may need to be flexible to allow change at minimal cost and disruption in future.

6. What evidence do you have to enhance our overview of the impacts of these trends on cities and their use of urban space? Are any impacts missing?

We have begun testing scenarios with a partner to understand the impact that an increased uptake of shared mobility would have on parking at community facilities using data gathered on the percentage of travel now made by Uber and others in our study region. Our results suggest that there will be significantly less demand for parking facilities, but it also creates an issue with increased congestion on the networks around the facilities and an increased requirement for pick-up and drop-off spaces. **This raises the need for more ‘what-if’ modelling as opposed to responsive modelling.**

Future of Urban Mobility Strategy - role of government

7. What possible market failures might emerging technologies and trends give rise to that could require intervention by government?

Private sector providers of future mobility solutions are rational actors. They are seeking to fulfil their own objectives within the framework conditions set. **A mobility provider in the private sector is ultimately seeking profit.** This must surely be the expectation behind the huge sums of venture capital backing for mobility ‘disruptors’ reported in the media. It would seem reasonable to assume that greater (or any) profit will derive from greater volumes of mobility (supported by that particular provider) or from higher margins in the provision of mobility (which may ultimately mean higher prices per unit of mobility for consumers – or could mean strong incentives on the part of providers to encouraging higher occupancies of vehicles). There are also arguments to suggest that financial gains may be possible through selling mobility users’ data or capitalising on their attention and time while mobile. Once again, however, more mobility would appear more attractive than less.

On the basis of the reasoning above, we consider it **highly plausible that an upwards pressure on overall mobility (per capita) could be created** without a commensurate uplift in economic output and with adverse consequences for our urban areas as attractive places for people to live and in turn for businesses to locate. As noted in our response to question 5, this calls for responsible innovation with appropriate intervention by government nationally or locally to avoid increased vehicle kilometres and cannibalisation of existing shared services (such as bus). This could involve pricing controls to help support genuine use of ride shares and avoid asynchronous use of such services. In the Greenwich MERGE study, minimum pricing was introduced to avoid unacceptable cannibalisation of public transport. Such policies should be guided by sustainability goals, either in encouraging alternatives to single car (or ride ‘share’) occupancy or rewarding low emissions alternatives.

There are already examples emerging of cities in the US considering holding back on their investment in public transport provision on the basis that new mobility offerings in the form of ride hailing in particular offer a more attractive proposition for the public purse and the citizens. Yet **the erosion of mass transit should surely be a concern for urban mobility since trends in urbanisation demand more efficient not less efficient people movement within limited transport system capacity.**

MaaS solutions might also take revenue out of the urban transport “pot” for shareholder return that might otherwise be invested in system improvements like new rolling stock.

8. We are committed to a transport network that works for everyone. What role should government play in helping ensure that future transport technologies and services are developed in an inclusive manner?

This is not a new challenge or imperative. There is a need to address macro considerations to avoid exacerbating social exclusion. Past experience has brought into question whether the answer to promoting greater inclusion in society is to help ensure everyone can be more mobile. It has been the very liberating force of the motor car that has played its part in land use changes that have moved services and opportunities further away from people. In short, **we encourage the government to take a systems’ level view of future mobility developments in**

examining how second and third order consequences might arise that are unintended and undesirable.

9. How can government ensure that future urban transport systems support people's wellbeing and flourishing, healthy communities?

There are clearly some strongly appealing benefits that could be realised from emerging transport technologies and services in terms of improvements to road safety, means of mobility that increase access for all and the ability to undertake journeys that are, or appear to be, more seamless or require reduced effort thanks to connectivity and information. In addition, the impact of the transport system on non-users should be considered, I.e. the effect of poor air quality on people who live close to busy roads is a growing concern and one that the Government should treat equitably. However, wellbeing encompasses a much broader set of considerations than these. There is, for instance **an important distinction between health and safety when it comes to the design of our urban mobility system**. Safety through the use of autonomous vehicles could be improved and extended through segregation between pedestrians and cyclists and motor vehicles. Yet this could further erode social interaction in urban environments and discourage walking and cycling to the detriment of public health.

The promise of turning time at the wheel of a car into time to be enjoyed or made productive through activities on the move is having some large economic figures attached to it in terms of prospective benefits. Yet, motorised journeys serve other functions at the moment in relation to providing transition time and 'me time' when moving between different locations and responsibilities. **It may not be conducive to improved mental health to lose that 'interspace' time**. Conversely, autonomous vehicles may reduce the efforts involved in mobility and provide people with more opportunity to put their time to good use outside of their travel.

We suggest such considerations point towards **a research agenda that is much less about pursuit of how to deliver future mobility but instead how to look ahead to examine plausible scenarios in terms of health and wellbeing and in turn to take steps to guide the pathway of development to ensure the most beneficial outcomes**.

10. What role should government play in understanding, shaping and responding to public attitudes to emerging technologies and services?

It is welcome to see Government-funded research already exploring public reactions to emerging transport technologies and services. It is important that an independent view is taken here and is not something that should be left to the transport providers. However, in so doing we suggest there are three quite different questions that may be at play: (i) do the public find the future prospects appealing?; (ii) *will* the public find the prospects appealing?; and (iii) how to get the public to find the future prospects appealing? There is a paucity of evidence regarding public attitudes and this can be hard to develop given the innovative nature of the developments being considered. Careful attention needs to be given to how these three questions are being distinguished between in terms of the motivations for, design of and outcomes of research into public attitudes. **It can sometimes appear that it is already a given that the solution to future urban mobility will be connected, electric, autonomous and shared and the task is to work out how to get the public on side. This feels like a solution looking for a problem and if the public are not indicating they are on side then new ways need to be found to change this.**

In previous government-funded research into the public acceptability of road pricing, there was a notable distinction that emerged between acceptability and inevitability – are we considering the

public reaction to whether or not they would like to have a particular solution (acceptability) or to what their reaction is to the solution that will be going to get (inevitability)?

Future of Mobility Grand Challenge – fostering innovation

14. How should government funding be targeted to help UK innovators build and scale transport solutions?

Government funding should seek a wider and broader systematic approach to mobility and help provide incentives to the deployment of innovative solutions that support societal and equitable aims. Such funding would help to de-risk the creation of new ideas in adapting, modifying and seeking independent solutions to match the requirement, rather than trying to match need to technology. As our previous comments suggest, the future of mobility should be societally driven, with transport-related technology as an enabler. **Funding should therefore seek to shift a culture towards developing requirement pull rather than technology push.**

16. How could the experience of working with local and / or national regulators be improved for transport innovators?

Government has a key role in acting as the broker in seeking local and national organisations to shape and scope an approach that encourages and de-risks invested interests. Local and national regulators combined with businesses who are impartial to the technology are key to determining the right regulations and standards to better mobility services. Better engagement through thought leadership being led by Government should encourage an open forum not only for regulators but should create a basis for how transport innovators can work with each other to offer the right solutions.

How to respond

The consultation period began on 30 July 2018 and will run until **10 September 2018**. Please ensure that your response reaches us before the closing date. If you would like further copies of this consultation document, it can be found at <https://bit.ly/2zJGbae> or you can contact futureofmobility@dft.gov.uk for alternative formats (Braille, etc.)

It would be helpful if you would respond [online](#). Alternatively, you can send your response to:

Department for Transport Zone
1/33 Great Minster House
33 Horseferry Road London
SW1P 4DR

Email: futureofmobility@dft.gov.uk.

If sending responses by email, please keep responses to a **maximum of 10 pages**.

When responding, please state whether you are responding as an individual or representing the views of an organisation. If responding on behalf of a larger organisation, please make it clear who the organisation represents and, where applicable, how the views of members were assembled.

Please note that we do **not** expect you to submit evidence or views in response to every question listed if not applicable.