



Sciencewise online roundtable on engaging citizens in the future of mobility: Summary report



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understand what measures would provide citizens with reassurance about returning to public transport, and longer term, as shared CAVs and electric vehicles are rolled out.

7. **Connected and Automated Vehicles (CAVs).** A number of areas for citizen engagement that would build on the Department for Transport's public dialogue on CAVs, which was supported by Sciencewise, were suggested. Areas mentioned included broader engagement to explore how CAVs are adopted and issues relating to data and GDPR.
8. **Electric vehicles.** Proactive engagement on the roll out of electric vehicles was recommended. In addition to the broad question of what would encourage citizens to transition from fossil fuel cars to electric vehicles, topics for dialogue included the siting of electric charge points and potential inequalities exposed in a shift towards electric vehicles. As with other topics, understanding the diverse needs of disabled people was highlighted.

These topics were informed by an initial discussion about the strategic challenges and opportunities facing the future of mobility. For further details, see Appendix.

1.2 Whose voices, where and how?

Attendees spent some time discussing who should be involved in citizen engagement on the future of mobility and how processes should be designed to ensure their effectiveness.

- **Whose voices?** Public dialogue should be broadly representative of the (local) population and engage the diversity of users and experiences so that the range of needs and concerns are understood. The most powerful voices should be prevented from dominating the discourse on the future of mobility and seldom heard voices should be proactively engaged. This topic related to a core value about making transport accessible and inclusive to all.
- **Where in the system should engagement take place?** Local engagement was seen as critical because of the need for place-based transport solutions. National engagement should also be used to inform central government policies and regulations. Deciding the most appropriate level for a public dialogue should be informed by: at what level does decision making sit, and where engagement adds the most value to decision making.
- **Approaches to engagement.** Dialogic and deliberative methods were seen as valuable, and using mixed methods, because of the breadth and diversity of people they engaged. Traditional consultations were seen as wanting, both for their failure to reach beyond louder voices and for the narrowness of the choices they typically present to citizens.
- **Engagement must have impacts.** Public engagement and dialogue has to have impact, attendees argued. They raised concerns about poor consultation rubber stamping decisions already taken, resulting in a damage to trust between institutions and citizens.

1.3 Next steps

Attendees gave a clear indication of where they thought citizens need a greater voice in policy making on the future of mobility. We will continue our conversation on these eight priority topics for engagement that were identified, and on how to ensure that public voices are heard in decisions about the future of mobility, with those who attended the roundtable and with other stakeholders.

Engaging citizens with strategic questions that address mobility at the whole system level was seen as important. Attendees identified three levels, as suggested by the questions above: visions for where and how we want to live our lives; visions for the future of mobility; and the role of new technology in supporting those visions. Rather than being isolated themes, attendees saw these three levels as interconnected (see figure 2).

Figure 2: Three interrelated levels of strategic visioning relating to the future of mobility



Covid-19 has shifted citizens' experiences of their local areas and ways of living, as they travel less and use virtual communication tools. Covid-19 has also, attendees noted, reinforced existing inequalities. These experiences and other changes resulting from Covid-19 and the lockdown have, attendees argued, provided an opportunity for longer-term deliberative dialogue that asks big questions about the sort of society we want to live in, and the future of mobility within that society. Framing questions more broadly than the future of mobility was seen as important, with attendees arguing that other sectors will also undergo changes that will impact on mobility:

“It’s not just a new world that we’re living in, as far as how much we’ll be travelling, not travelling, how we get around, but all these knock-on effects of how other sectors are changing, that will affect what kind of mobility systems we need in future.”

While focused engagement to inform policy on specific technologies is needed, whole system dialogue on the role of technology in supporting citizens' visions for a future society and mobility within it, is seen as crucial, providing an opportunity to explore issues of inclusivity, equity and sustainability. There was some discussion on tools that such a dialogue might use. One suggestion was to develop a set of scenarios with citizens that could be used to test attitudes

towards different future visions: for example, a scenario exploring de-urbanisation resulting from reduced levels of commuting. Attendees noted the value of public dialogue exploring trade-offs across different scenarios.³

“The more insight into people’s visions of the future we have, the better we can shape policies to realise these visions in the present.”

Such a broad, whole system dialogue was strongly supported by attendees, but they recognised that this would take time and be difficult to address in a single engagement project. Over the short term, they saw value in understanding more about people's current journeys (see 3.2).

3.2 Transport decarbonisation and avoiding/reducing car usage

- How should we achieve transport decarbonisation and the steps to a green recovery?
- How has Covid-19 affected the types of journeys we make? What are the problems with these journeys? How could we make them differently / more sustainably?
- How can we avoid or reduce car use? What interventions would make it possible for us to make our journeys more sustainable?

Attendees argued that, for the past 70 years, mobility and infrastructure have been designed and built around the car, with a central narrative of modernity being about “*getting quickly to where we want to go*”. The problem is often, they felt, the lack of alternative options to the car: “*it’s not surprising that cars are seen as the most natural way to get around*”.

They emphasised the importance of dialogue with citizens on transport decarbonisation, and on the behaviour changes required if the UK’s climate change commitments are to be met:

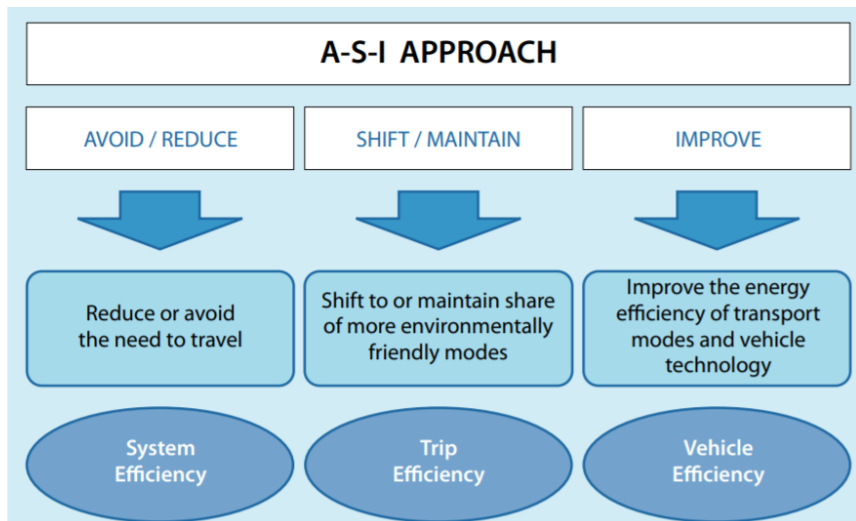
“The challenge is so huge, the change is so massive, we need to engage with people and get their thoughts, take them on a journey, have a narrative around it.”

One of the most important, but undeniably difficult conversations relates to reducing car use. Attendees referred to the ‘Avoid, Shift, Improve’ model for sustainable transport (Figure 3), noting that conversations would get progressively harder as they move through the stages. They commented that less contentious dialogues would relate to the ‘improve’ pillar, such as the roll out of electric vehicles. While conversations about “giving up the car” would be much harder. However, attendees noted that a dialogue on reducing and avoiding car use might be easier in light of people's experiences during Covid-19.

Figure 3: 'The Avoid-Shift-Improve concept' (Source: GIZ⁴)

³ One attendee mentioned the [Government Office for Science’s Future of Mobility](#) foresight report which used scenarios to explore what mobility would look like in 2040.

⁴ https://ledsgp.org/wp-content/uploads/2016/01/SUTP_GIZ_FS_Avoid-Shift-Improve_EN.pdf



Attendees discussed how such a dialogue might take place and who should be involved. Including citizens who may be less likely to accept alternatives to the car was seen as important. They saw value in understanding why people drive, and what motivates them - for example, freedom of choice; what constraints they face, such as a lack of alternatives; what pressures they face, for example financial; what concerns they have, such as health considerations during the pandemic.

One approach to dialogue on difficult topics such as reducing or avoiding car use, or shifting to alternative modes, was suggested. This started with a focus on the benefits arising from driving less and (linking up with the previous topic) on people's broader vision for their neighbourhood, rather than on what they would be giving up.

“There is also an issue around language. We would be asking people to give up their cars and reduce their journeys. But we would also be asking them to help improve their area, have a nicer community, places for children to play, have better health, all these benefits we get from being more sustainable and greener. They are all positive, but normally a negative spin is put on it, you ‘have to give up your car.’”

3.3 Regulation and policies for new technologies / forms of transport

- What concerns and aspirations do citizens have about specific technologies and innovations? How open are they to utilizing new forms of transport?
- How can citizen voices help shape the regulation of new forms of technology?
- How can new technologies assist in creating citizens’ visions for the future?

Attendees commented on the importance of understanding the diversity of views on new forms of transport and innovation systems. Most immediately, policy questions surround the use of e-scooters, dockless bikes, drones, electric vehicles, Mobility as a Service (MaaS)⁵ and CAVs.

⁵ “Mobility as a Service (Maas) is the integration of various forms of transport services into a single mobility service accessible demand.” MaaS Alliance.

Longer-term policy areas include passenger drones.

Early engagement was seen as important, giving policy makers an in-depth understanding of the diversity of citizens' concerns and aspirations in relation to specific technologies before policy is formulated and formal consultations are conducted. Attendees argued that a more anticipatory approach to regulation is needed: this would take into account citizens' views on ethical issues such as access, equity and safety as technologies are developed and deployed.

As noted in other topics, attendees cautioned against starting engagement from the perspective of technology, as this can predetermine solutions. They argued that it is important not to assume that the solution to a given problem is a new mode of transport or a new technology. The scope of engagement needs to be broad enough for concerns to be fully understood and for options beyond specific technologies to be discussed.

3.4 Local infrastructure and space allocation

- What are citizens' views on sustainable transport or active travel⁶ infrastructure being introduced in their local area?
- What do citizens' see as the pros and cons of different proposals, what trade-offs would be more socially acceptable?

Attendees argued that there is a lack of effective public dialogue on local infrastructure decisions, such as the allocation of road space. They felt that traditional engagement channels are too passive and don't encourage engagement from the breadth and diversity of people within a community. This can result in nimbyism and powerful groups blocking change. Processes that engage a wider and more diverse set of voices, including those who are seldom heard, is seen as important: a deliberative model that would allow exploration of the benefits and trade-offs of a range of approaches was seen as valuable.

The paucity of current engagement and its lack of influence on decision making was illustrated by attendees, with an example drawn from the need to prioritise walking and cycling during Covid-19, and the erection of temporary infrastructure to support this. They noted that in some locations more powerful voices had prevented this temporary infrastructure from being made permanent, despite surveys showing that a majority of the population supported such measures. As noted above, another issue with a specific local dimension, as well as being a national policy question, is the siting of electric vehicles charging infrastructure.⁷

3.5 Transport taxes and road user charges

- If there is a reduction in fuel duty as a result of the shift to electric vehicles, how would citizens like to see this loss in revenue addressed?

⁶ Active travel means making journeys by physically active means, such as walking and cycling

⁷ Two groups of attendees also noted that better conversations on big infrastructure plans were needed, and whether they are still fit for purpose or if there needs to be more funding at local level.

- Would they support road user / mobility charging if it also helps to manage traffic on the roads and supports more inclusive transport?
- What are citizens' views on transport funding and the allocation of subsidies?

Attendees saw value in public dialogue on transport taxation and road user charging, noting that tax revenues from fuel duty are expected to decline with the shift from petrol / diesel cars to electric vehicles. Areas for discussion included sources through which to replace the lost revenue; criteria according to which road user charging would be acceptable (e.g., if it helps manage traffic volume), and; citizens' views and preferences on the allocation of transport subsidies.

Attendees commented on how language frames an issue, suggesting that rather than referring to 'road user charging', one might talk of a 'mobility account', into which some would pay and from which others would benefit. Such an account would support mobility services for people with a disability, older people, unemployed people and those in rural areas.

3.6 Shared mobility

- What are citizens' views regarding shared mobility? Has it changed post Covid?
- How do views vary between those who use shared services and those who don't?
- What would encourage citizens to use shared transport services?

As the Sciencewise supported public dialogue on CAVs showed, citizens have some concerns about shared mobility, relating to their personal safety and security. Attendees felt it was important to understand these concerns, including how they might have changed because of the pandemic. They felt too that it was necessary to understand what measures would provide citizens with reassurance about sharing mobility service spaces, in the short term and longer term, as CAVs and electric vehicles are rolled out.

Many attendees noted how perceptions of shared mobility vary depending on the mode of transport. Some reflected that trains and buses are considered public transport and yet airplanes are not. The car was seen as the biggest challenge, as it is considered a private space, as illustrated by Uber's struggle to get customers to use the 'shared ride' option when booking a ride.

3.7 Connected and automated vehicles (CAVs)

- How can CAVs be introduced in a way that meets wider social and environmental objectives?
- What questions do citizens have about the decision-making processes used by autonomous systems, such as CAVs, that could impact on people?
- What are citizens' expectations about data use in the transport sector?

Attendees felt more engagement on the roll out of CAVs is needed. This should build on the [Sciencewise public dialogue on CAVs](#) already carried out by the Department for Transport, and include broader engagement to explore how CAVs are adopted. They expressed concern that "a

4.1 Whose voices?

Looking at who should be involved, attendees drew out a number of factors that were important:

- **Representation:** the public is not a homogenous group and participants selected to take part in public dialogue should be broadly representative, with attention paid to demographic variables including disability, ethnicity, age, gender and socio-economic background⁸.
- **Equality of voice:** the most powerful people or voices should not be allowed to dominate discussions or the decisions made. Attendees were concerned that traditional consultations and existing narratives around the future of mobility are often dominated by these voices.

“Is the strategic question, who calls the shots in the transport sector, who are the currently dominant interests and which are the underrepresented voices?”
- **Diversity of users and interest groups:** In addition to demographic variables, attendees felt it is important to involve the diverse range of transport users and experiences, including people living in rural and urban communities, people with different types of disabilities, car drivers and non-car users and long and short distance travellers.
- **Inclusive of seldom heard voices:** Involving people who are not normally part of the conversation and amplifying less heard voices was seen as important. Attendees suggested that engagement should be tailored to support the participation of these individuals and groups.

In addition to the factors listed above, attendees pointed out that people wear more than one hat, and may occupy a role which enables them to facilitate change towards more sustainable transport – for example, in their working life. Finally, attendees argued that engagement can be particularly effective when citizens are brought together with policy makers, regulators and experts who are knowledgeable about the policy area under discussion.

4.2 Where in the system should engagement take place?

The value of engaging people at and about different parts of the transport and mobility system was discussed. One criterion was suggested for deciding the most appropriate level for a public dialogue: at what level does decision making sit, and where will engagement add most value to policy making?

Local engagement: Local engagement is seen as beneficial because “*lots of transport is inherently local,*” and attendees felt that citizens are more likely to have strong opinions on potential changes at local level. Examples of good local practice included citizens’ assemblies and local authority online platforms on which citizens can raise issues. They noted too that national public dialogues can be designed to draw on local perspectives, for example by including locality-based workshops.

National engagement: Attendees felt that public dialogues at a national level should be used to

⁸ Some attendees noted that deliberative public dialogues and citizens’ assemblies are effective at ensuring representation of voice as they use a sampling method based on demographics that ensures a diverse and inclusive group.

inform the development of central government policies and regulations. They suggested that using deliberative processes at a national level, such as citizens' assemblies, could give Ministers and the Government the confidence to make the "*big difficult decisions*."

4.3 Approaches to engagement

Attendees discussed a range of approaches to engagement, as noted below. One of their main concerns was to ensure that approaches enabled participation from a breadth and diversity of people, as outlined in section 4.1 above. On this measure, traditional consultations were seen as wanting, both for their failure to reach beyond louder voices and for the narrowness of the choices they typically present to citizens. Dialogic and deliberative methods were seen as very valuable, and using mixed methods, to suit the diversity of interests and voices involved, was seen as important.

"Deliberative dialogue is essential, but it is not enough on its own."

- **Traditional consultations:** such as the town hall format.
- **Dialogic methods:** such as citizens' assemblies, deliberative public dialogue, qualitative research and other creative processes such as participatory budgeting and gaming.
- **Experiential methods:** participatory processes where citizens get hands on experience of a new technology, such as smart charging trials and driverless car technology.
- **Continuing engagement:** ongoing as opposed to 'one-off' engagement processes.
- **Mixed methods:** use multiple methods, to encompass a diversity of interests.
- **Co-production:** methods that ask open questions and involve citizens in co-production.

4.4 Engagement must have impacts

Engagement has to have impacts. Attendees raised concerns about poor consultation rubber stamping decisions already taken, resulting in a damage to trust between institutions and citizens. Early engagement, it was suggested, helps policymakers to improve plans by understanding "*the things they might have missed, that they have to think differently about*."

"The public needs to know their views matter, they will be listened to and the findings of the engagement will translate into concrete actions. They need to trust the process."

One element of good engagement, and of a process that is both trustworthy and has impacts on policy development, is understanding the "mood" of participants' contributions. In engagement on technologies, attendees argued, participants may - and have done - express resignation about the inevitability of a new technology being introduced. This can be framed, and read, as acceptance. However, citizens may still have concerns that need to be fully understood and taken into account by policy makers.

"You need to really take what people's concerns are and work with them."

4.5 Building on what we know

One important point was to ensure that any future engagement should build on previous and current work in this area, and what we currently know about public attitudes towards the future of mobility and related policy areas. See Appendix 7.2 for examples of projects mentioned.

5. Strategic challenges and opportunities

The topics identified by attendees as ripe for citizen engagement were seeded in an earlier discussion about strategic opportunities and challenges facing the future of mobility.

This earlier discussion was started with a brief provocation from Paul Campion, CEO, [TRL](#). Paul argued that transport is a derived demand, and that the future of mobility is directly tied to the lives we choose. Covid-19 has exposed flexibility in our lifestyle patterns, showing the potential for change. In particular, Covid-19 has catalysed a dramatic change in working patterns which has had an impact on transport, traffic and congestion. He emphasised the role of the stories we tell and the language we use in shaping our thinking and the importance of shaping shared imaginaries of how we travel in future.

Seven main themes emerged from the small group discussions that followed Paul's comments: framing the future of mobility, Covid-19 - opportunity or challenge, decarbonisation, accessibility and inclusion, rural and urban challenges, technology and services, and the role of Government. For the sake of brevity in this part of the report, the many interesting points and issues that come out of this first discussion are summarised in Appendix 7.3.

6. Next steps

The discussion at the roundtable was wide ranging, with each theme connected to others, and ultimately to the larger question of what kind of future we want to live in, and how different approaches towards mobility might take us towards or away from that future. However, attendees took the time to pause on important themes, and shape some initial ideas for topics on which public dialogue would add value to policy thinking, development and decisions.

We would like to continue our conversation on these topics (see section 3), and on how to ensure that public voices are heard in decisions about the future of mobility, with those who attended the roundtable and with other stakeholders.

As a starting point, we pose a number of questions to those who attended the event and other organisations working on the future of mobility.

- What are your thoughts on next steps for the eight priority themes? Is there a topic area of particular interest to you? See section 3.
- Where do you think UKRI's Sciencewise programme should focus its efforts, given we provide support (match funding and expertise) to government bodies to carry out deliberative public dialogues on policy areas related to science and technology?
- If you work for a government body, do you have a policy question ripe for deliberative public



dialogue, and welcome the financial assistance and expert support that Sciencewise can offer?

- Are there gaps in the topics we identify in this report, and other topics where deliberative public dialogue would add value?
- Who else should we be talking with to take forward ideas in this space?
- Are you aware of other citizen engagement and social research which has been conducted or is planned on these topics? (See Appendix 7.2 for examples of some of the projects mentioned during the meeting.)

To get in touch please email hally@sciencewise.org.uk or madeleine@involve.org.uk, or call us on: 020 3745 4334.

Finally, thank you to those who took part in what was a fascinating and stimulating discussion.



7. Appendix

7.1 Participant list

Attendees

Ransford Achaempong, University of Manchester
Sophie Adams, Office for Low Emission Vehicles
Giles Bailey, Travel Spirit
John Baverstock, Department for Transport (speaker)
Tanya Braun, Living Streets
Antonia Brown, Centre for Connected and Autonomous Vehicles (scribe)
Morgan Campbell, Leeds University
Paul Campion, TRL (speaker)
Jon Chappell, National Infrastructure Commission
Liana Cipcigan, Cardiff University
Claire Clark, Office of Rail and Road
Andy Cope, Sustrans
Caitlin Cottrill, Aberdeen University
Rob Dickin, Transport for the South East
Iain Forbes, Centre for Connected and Autonomous Vehicles (speaker)
Claire Haigh, Greener Journeys
Angela Hands, Public Health England
Andrew Jones, Local Government Association
Philippa Lang, UK Research and Innovation (scribe)
Patrick Middleton, UK Research and Innovation (Host)
Jenny Milne, JLM / Rural and Islands Transport Innovation Group
Kathy Nothstine, Nesta
Kalavati Patel, Better Regulation Executive
Katie Pennick, Transport for All
Graham Parkhurst, University of the West of England
Polyvios Polyviou, Transport for London
Tim Schwanen, Oxford University
Darren Shirley, Campaign for Better Transport



Chris Tennant, UCL

Mark Wagstaff, Centre for Connected and Autonomous Vehicles

Joanna Wooles, Department for Transport

Lorraine Whitmarsh, Centre for Climate Change and Social Transformations / Bath University

Sciencewise team

Diane Beddoes

Simon Burall

Madeleine Gough

Hally Ingram

Roland Jackson

Philippa Lang

Suzannah Lansdell

Fionnuala Ratcliffe

Steve Robinson

Dominic Ward

7.2 Public engagement and social research on the future of mobility

A valuable point made by attendees was that any public engagement should build on previous and current work to understand public views on the future of mobility. Here is a list of some of the research and engagement mentioned at the roundtable:

- [Climate Assembly UK](#). This assembly was commissioned by six cross-party Select Committees of the UK Parliament to explore how the UK should reach its legally-binding target of net zero greenhouse gas emissions by 2050. The final report of Climate Assembly UK was published on 10th September 2020, a few weeks after this roundtable.
- Social research being conducted by the [Department for Transport's Behavioural and Social Research Unit](#).
- A [public dialogue on attitudes towards Connected and Automated Vehicle \(CAV\)](#) commissioned by the Department for Transport in partnership with Sciencewise.

We welcome details of other public engagement and social research that can be added to this list.

7.3 Further detail on strategic challenges and opportunities

This section summarises the themes that emerged during discussions about the strategic

challenges and opportunities facing the future of mobility. This first small group discussion informed the second session which identified priority topics for citizen engagement (see section 3).

Framing the future of mobility

The future of mobility is about more than technology and mobility. Attendees argued that the future of mobility would be multi-modal and hybrid, integrating old and new technologies.

“When we talk about the future of mobility, it has to be more mixed and integrated and multi modal. When we talk about EV and AV, they are whizzy, futurist and exciting. When we talk about public transport cycling and walking, they are old and residualised and the things you do if you are not successful. The future of mobility will involve people doing more walking and cycling. It’s not going to be failure; it’s going to be the future. We need old tech and new technologies combined into one integrated thing.”

They noted as well the importance of framing transport as a derived demand, the shape of which follows from other choices we make, for example about how and where we live. This moved the conversation beyond transport, to focus more closely on how to meet people’s need to work, be mobile and sociable. Attendees raised questions here about how travel patterns will change in the future and the impact this will have on the future of mobility. For example, if we create a future society that is more dependent on deliveries and less on individual travel, this will be reflected in our public spaces and, consequently, in our mobility. Similarly, attendees noted that decreasing car ownership and / or having a licence to drive will shape the future of shared mobility. The focus here informed the discussion described above, on the importance of engagement that explores the kind of world we want to live and work in and the role of technologies within that world.

Covid-19, opportunity or challenge?

Attendees agreed that “*the future of mobility is intertwined with the impact of Covid-19*”, and that the pandemic had shown us that things can change quickly and what looks fixed can be transformed. Their views were mixed on whether the impact of the pandemic on mobility and travel patterns presents an opportunity or a challenge, but the discussions exposed a number of common threads.

- **Frailties in the system:** Covid-19 has shed light on assumptions about mobility in the UK, exposing “*frailties in the system*”. Examples provided included: the temporal organisation of the transport system in line with commuting office-worker hours, to the exclusion of key workers and others whose work patterns do not fit the 9am - 5pm routine, and the assumptions made by some policy makers that “*in a crisis, you can just revert to your car as a way of making mobility work*”, downplaying the many that do not have access to a car.
- **Localisation:** Covid-19 has opened space for re-shaping imaginations of the possible future of mobility. In particular, the increase in local journeys and the use of virtual communications, and how this has led us to re-examine how we think about mobility. The “*hyperlocal*” way of living during lockdown saw a growth in walking, cycling and scooting. Attendees argued that these ways of moving are more robust and sustainable, though they do not provide solutions for all citizens or for the future of longer distance travel.

“Although Covid-19 is awful in so many ways, there are good things we have started to learn and it has shown us we can keep some of those things longer term.”

- **Public Transport.** “[S]hared transit...has collapsed because of Covid-19”, as people worry about the health implications of sharing small enclosed spaces. Attendees noted that the drop in the use of public transport threatens to make it “*not commercially or financially viable*”. One effect of reticence about using public transport could be to “*lock in*” car use for a longer period of time, undoing trends towards greater use of public transport. Uncertainty about citizens’ future travel patterns brings an added challenge to longer term policy making. Attendees emphasised that changes to interactions between people, to working patterns and the uncertainty of returning to “*business as usual*” will demand a more flexible and resilient approach to the future of mobility.

Finally, attendees queried the longevity of the impacts of Covid-19 on transport and mobility. In particular, they placed emphasis on the likelihood of further waves of Covid-19 and the importance of long-term research into its impacts on mobility and transport systems.

Decarbonisation

The roundtable as a whole was framed within the context of achieving net zero carbon emissions by 2050. Attendees felt that transport decarbonisation, and substantial changes in the way we conceptualise and use transport, will be essential to reaching that goal. A number of themes emerged in the discussion:

- **Attitudes and behaviours:** Prior to Covid-19, as awareness of climate change grew, people’s attitudes and behaviours in relation to travel had started to change. However, as noted in the previous section, the pandemic could threaten these changes. Attendees emphasised that political and social choices, as well as individual behaviour change, are necessary to achieve decarbonisation targets.
- **Road use:** Road use was seen as a key obstacle to decarbonisation: attendees suggested that any environmentally viable future of mobility requires “*a reduction in car mobility by around 20-40%*”. They emphasised the importance of government policy in achieving this goal: political decisions about infrastructure should prioritise decarbonisation and move away from road building that undermines this goal.

“Government and policy makers need to make choices. You can’t use transport to stimulate the economy and build roads, and be serious about climate change...”

- **Local mobility:** It was noted that the answer should not be to assume that everyone will be able to work from home. Attendees also highlighted the importance of local transport plans, connected transport systems, and infrastructure which supports more active travel.
- **New technologies:** Finally, there was recognition from attendees that new technologies have an important part to play in reaching net zero.

Accessibility and inclusion

Attendees argued that changing public perceptions towards transport is crucial to ensuring access and inclusion, and that proactively developing policies that demonstrate that public transport caters for the diverse needs of different groups is essential. They felt that emerging technologies should be seen as an opportunity to “*raise the bar regarding accessibility and inclusion*”, emphasising the importance of frequent input and feedback from members of the public, in particular local

communities, passenger groups and disability groups.

They emphasised the failure of current transport infrastructure to meet the needs of disabled people. One person commented that only 79 of 270 London Underground stations have step-free access, leaving many disabled people with cars and taxis as the only viable means of transport at present, which impedes their mobility and is costly.⁹ For people with physical mobility impairments, siting charging points for electric vehicles on pavements may further reduce their access to public space. Attendees felt that older people have difficulty accessing some forms of transport, and may face barriers to using certain new mobility technologies and services.

The future of mobility should cater for all needs, equally, not just start from the needs of “*white male commuters*”. In addition to accessibility for disabled people, this includes meeting the needs of older people, people living in poverty, those in rural communities and those who work non-standard hours. Accessibility for all includes ensuring that active transport is available to the less mobile and that modal connections are well thought through. The potential downsides of technologies should also be considered: whilst automation may increase mobility for those who don't drive, it may also bring congestion, contribute to obesity or simply be unaffordable to many.

Rural and urban challenges

Attendees commented on issues particular to rural and urban areas. Rural areas were characterised as having restricted access to technology, for example quality information technology coverage, which could affect the feasibility of new mobility technologies and services. It was also noted that public transport is more expensive in rural areas because its networks are less dense.

Suppression of car traffic was seen as a critical requirement in densely populated urban landscapes. Attendees placed significant emphasis on solutions to these issues being “*robust*”, “*hyper local*”, and “*truly multi-modal*” in order to serve diverse public needs effectively, whilst simultaneously suppressing car travel to make space for all.

“There is simply not enough room for the car to be the default mode of transport”.

Technology and services

Attendees discussed the potential challenges and opportunities of developing technologies on the future of mobility.

Attendees commented on the benefits that will come with emerging mobility technologies and services, such as economic growth, decarbonisation and reduced emissions. However, attendees also raised concerns about a vision of future mobility centred around CAVs, arguing that replacing cars with self-driving pods is unlikely to address the problem of road overuse. Attendees suggested simple options should be considered first, such as cycle paths, which are known to be robust, before turning to technological solutions. In discussing technology, attendees considered whether or not congestion would continue if vehicles were all electrified. A number of other challenges and opportunities were also noted in relation to the development of electric vehicles.

Attendees had mixed views about data sharing. They noted that efficient data flows are essential to

⁹ <https://tfl.gov.uk/travel-information/improvements-and-projects/step-free-access>



the future of mobility, citing the development of Mobility as a Service, CAVs and goods transit by drones as examples. They emphasised that these examples provide consumers with much greater choice and bring a potential for high economic as well as environmental benefits. However, privacy concerns were also raised, with attendees describing transport data privacy policies as opaque "by design". Issues raised include data ownership, data use and storage and how best to provide assurance to consumers that their data is being held and used ethically. Attendees argued that new technologies must develop with public concerns about data and information security in mind. They also expressed concern over the accessibility of new technologies, pointing to the impact of digital exclusion on people's ability to access services that have become digital by default.

Role of Government

Government was seen as having a crucial role, shaping better regulation to support an accessible and innovative system, supporting citizens to make the choices they wanted, and ensuring that the future of mobility is accessible, protects public interests and goods, and is financially and environmentally sustainable. Attendees argued that these things *"cannot be done without policy interventions"* and were concerned about the potential social and environmental consequences of a failure of regulation. Some attendees argued that poor regulation can constrain innovation, citing the need for *"a fine balance between encouraging new innovative systems and having the right policies"* in place.

The regulatory roles identified included support for the development of a system that enables people to make choices in line with their good intentions. Attendees pointed to the power of government messaging in helping to shape choices and behaviours, citing examples of active travel, e-bikes and shared mobility messaging. However, they argued that the current mobility system constrains people's ability to make their preferred choices and that, in the absence of an effective regulatory framework, new technologies will not change this, as the failure is societal, and not individual or technological.

"We could have had a much better system for the last 30 years if we wanted to, we just haven't chosen to."

Regulating the development of new technologies was seen as vital. Some attendees were concerned that if industry is not regulated, technology will develop to focus on single occupancy transport and *"super cruise on highways"*, which is likely to be expensive and inaccessible to many.

Finally, attendees emphasised the importance of governments and policy makers sharing knowledge and collaborating with others, both in the UK and abroad.

7.4 About UK Research and Innovation's Sciencewise programme

The future of mobility is one of [the Sciencewise programme's priority themes](#), together with the other Grand Challenges and genome editing. This event is one in a series of stakeholder events on our priority themes.

Sciencewise is an internationally recognised public engagement programme led and funded by [UK Research and Innovation](#), with support from the [Department for Business, Energy and Industrial](#)



Strategy. The programme enables policy makers to develop socially informed policy by supporting government bodies to design, commission and deliver public dialogues on issues relating to science and technology. This helps provide in-depth insight into the views, concerns and aspirations of a broadly representative sample of the population, allowing decision makers to develop policy that resonates with the public.

The support we offer includes:

- Funding - match funding to Government bodies to run public dialogues
- Expert support - one-to-one advice and guidance from the start of a project
- Guidance - materials that will help you commission a public dialogue

If you would like to find out more about Sciencewise and the support we can offer, you can:

- Visit our website: <https://sciencewise.org.uk/>
- Follow us on twitter: @Sciencewise
- Contact us by email: info@sciencewise.org.uk or hallyingram@sciencewise.org.uk
- Give us a call on: 020 3745 4334