



Smart
Mobility
Living Lab
London

INNOVATION COMMUNITY

Accessibility in the transport sector

Accessibility: the great opportunity for the UK

This is a record of a discussion around accessibility and innovation in transport. Participants discuss their roles, experiences, and perspectives on making transport systems more accessible, and the economic implications of not fully catering to all potential users. They explore the need for a more holistic approach and the potential benefits of addressing these challenges for society and the economy.

The context of the discussion

The Office of National Statistics proposes that one in five in the population is carrying some sort of disability; this may be a significant underestimate, particularly when taking into account people move in and out of disability during their life span.

However the general discourse, the cultural norm, and the focus of cost-benefit economics is majoritarian. Everything is designed for "normal", and anyone outside of that central use-case is expected to adapt.

Present for the discussion were representatives from:

- Airport management and airline operations
 - Vehicle recovery and repairs
 - Bus and coach operators
 - Charity supporting disabled travellers
 - Centre for Connected and Autonomous Vehicles
 - Electric and self-driving urban passenger & freight transport solution provider
 - The National Transport Design Centre
 - Transport for London
 - Women in Transport
- The discussion was chaired by Paul Campion, CEO of TRL



What are the forces that are acting against people and organisations doing the right things to make transport more accessible?
How can today's leaders in transport bring about a better future?

The barriers to accessible transport

Lack of definition



Uncertainty of what constitutes a disability or creates an inaccessibility by excluding people makes it hard for organisations to know who to consult with, who to invite to collaborate on design, how to test concepts and prototypes, or how many people are affected. This makes building a business case difficult.

The United Nations Convention on the Rights of Persons with Disabilities (UNCRPD), to which the UK is a signatory, emphasizes the importance of accessibility, to enable persons with disabilities to live independently and participate fully in all aspects of life.

In the UK, various regulations and guidance support transport accessibility, including the Public Service Vehicle Accessibility Regulations (PSVAR), the Rail Vehicle Accessibility Regulations (RVAR), and voluntary guidance on inclusive mobility issued by the Department for Transport.

In the context of transport, "accessibility" generally refers to the ease with which people can reach and use transport services, ensuring that all citizens have equal opportunities to move freely within their communities and beyond.

This concept implies that transport accessibility should consider:

1. Physical access (e.g. lifts, ramps, doors, toilets)
2. Sensory access (e.g. tactile paving, auditory signals, and clear, large print signage).
3. Cognitive access (e.g. simple language and symbols for wayfinding)
4. Economic access (i.e. affordable)
5. Digital access (i.e. online services and apps)



The barriers to accessible transport

Bad product design

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The disabled population is a hugely diverse group whose needs can be met by being given more options to choose from.

Design focussed on improving ease of use would benefit all users. E.g. Alexa was conceived as a disability aid, but it quickly moved into mainstream because the benefits are there for all users. Samsung did the same with the development of a "smart TV" for people with impaired vision ... these features are now the standard for all new TVs.

Other sectors have been forced to deal with this through legislation e.g. all new houses, offices, schools etc are now designed and built with accessibility in mind. The transport sector is keen to avoid the burden of more legislation.



The way forward is to put more effort into designing services and solutions that are appealing to everyone.

For example, in a busy airport, autonomous mobility may be a practical solution for people unable to walk long distances comfortably; but it may also be attractive to mainstream customers simply because it provides a way-finding service, leaving them free to enjoy the airport experience without worrying where they are.

Our leadership role is to educate the next generation of transport innovators to design and cost products and services with the maximum of benefits for the maximum of customers.

From a design (and sales) perspective, having a choice is really meaningful to many people. The consequences of a lack of choice is illustrated by the story of the teenager with severe autism whose only choice was to book a wheelchair service in order to have an agent accompany them through the airport: they didn't actually need the wheelchair, so that solution didn't suit the passenger, and deprived another traveller of the option to use a wheelchair.

The barriers to accessible transport

Exclusivity: the market gets what the market wants

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The traditional view of new product development is to make it attractive for the largest segmented customer group. This then means a narrow brief is given to the engineering team who design something which excludes 20% of the potential market.

This has two impacts: there is a failure to make additional revenue from addressing 100% of the potential customer base, and there is little regard for long term future needs or sustainability of the product/service.



The scale of this issue is unknown.

Our leadership role is to gather the evidence that will convince industry and the public sector of the economic and societal value of not excluding people.



The barriers to accessible transport

The lack of customer representation

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There is huge diversity within disability. One person's lived experience can be completely different to somebody else's. Consultation and engagement is essential.

If accessibility is not part of original thinking about a solution, there is a risk of incurring much higher costs later to retrofit something or adapt it; and in the end it may not be fit for purpose.

Education is definitely a barrier to change. Specifically, disabled people getting the right education which will get them into employment in transport roles.

Adjacent to this is the issue of accessibility for women in transport and the representation of women in leadership roles. Although women account for 50% of the population, transport has been a man's career. More women are taking up senior roles, but not enough yet to provide that vitally important different perspective.



The experience of the airline community and across a number of UK airports – who consult actively with a diverse representation of individuals with disabilities – affirmed that there is real value from in-person representation.

The government set up the National Centre for Accessible Transport explicitly to encourage industry and academia to gain more first hand knowledge about what works for different groups of disabled people. As leaders we should be encouraging more representation at every stage of the product life cycle.

Initiatives like Women in Transport are also to be supported.

We can also encourage representatives from these diverse groups to educate leaders; recent campaigns around the menopause are a really positive example of the impact of education.

A real example is from the new Elizabeth Line on the London Underground. From the eastern end it is possible to travel directly to Heathrow, which takes over an hour's journey time, but there's no toilet on the train. For older persons, menstruating women, or passengers with children, that's not very helpful. The Elizabeth Line was pitched as a service connecting a community, but it wasn't designed for the needs of a community. There is a suspicion that there was a conscious decision not to provide toilets on the trains because it was too expensive and too difficult operationally. Without consultation and engagement, that was deemed to be acceptable.

The barriers to accessible transport

Biased focus on cost



There is a whole industry around representing the needs and views of disabled people, yet still every decision and process seems to relate back to cost.

A focus on cost and siloed operations drives perverse outcomes. For example the decision to centralise medical facilities is productive for the health budget, but increases transport costs for individuals and pushes cost onto the transport budget. Conversely, spending money to make it easier for people to use cars (at the expense of public transport and active travel) reduces the health of transport users and pushes cost onto the health budget.



Cost will always be a key decision criteria, but as leaders we should challenge the basis for the cost calculations.



It is difficult to measure how the cost of transport is valued to the economy.

It's hard to see how the economic case could have been made to put toilets on the Elizabeth Line trains, because there simply is no credible mechanism for it.

The barriers to accessible transport

Ageing infrastructure and short investment cycles



A lot of transport infrastructure has been in place for a really long time and it was developed at a time where people weren't thinking about accessibility.

Retrofitting improvements to make solutions work for the greatest number is possible, but investment decisions are constrained by the existing solution, by growing demand, by operational considerations, by limited funds, and short term pay-back calculations.

And people are fearful of the consequences of their decisions.



One option is using digital technologies like a digital twin, provided that digital twin is able to represent all the different requirements of the diverse disabled population.

The key to successful testing using a digital twin is not to try to predict the future, but to use it to test multiple hypotheses / use cases and evaluate its resilience to changes in use.

A radical suggestion is that there is no need for accessibility to be a design criteria or a standard; flexibility should be the main requirement of sustainability, particularly for big infrastructure projects.

Major projects like the Elizabeth Line are designed for a 60 or 100 year lifespan. It's very hard to predict what the needs of its customers are going to be in 60 years time. Decisions made today about accessibility, made in good faith, may cause a backlash in the future. So it's really important now to be thinking about how to test designs and solutions to ensure that accessibility is baked in with enough flexibility to cope with an unknown future.

The barriers to accessible transport

Change as a disruptor

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Everyone agrees that change is not happening fast enough or widely enough. Is disruption to be welcomed or feared? It could be argued that Apple positively transformed the telecommunications sector.

The traditional Silicon Valley model is all about disruption. It attacks traditional industries claiming there is a better way of doing things. But this model also creates monopolies and exaggerated profits which leads to unequal distribution of costs and benefits. This is not an attractive model for creating a fairer transport system.

Can we learn any lessons from the experiences of changes of women's rights, civil rights, and LGBTQ+ inclusion? Despite them being successful in the end, some of these changes have led to unintended consequences. A current example of this is the adoption of electric vehicles, which started as a process to achieve climate change goals and has become highly politicised.



Rather than encouraging disruptive change, it would be better to pivot the public debate into making accessibility part of the narrative about sustainability and all the good reasons for making long term change.

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Nirvana is making change something that is desirable by the majority.

The impact of COVID-19 is an example of very recent unintended disruption. One view is that the experience of lockdown and working from home was very different for many people and the pandemic has reduced public funding of transport or the prioritisation of public transport, setting the UK back decades. The counter to that is things improved for many white-collar workers. Those companies which listen to their employees will find they want the flexibility to work from home, which means work becomes more available to those who may be unable to travel distances or those with caring responsibilities. The danger is that organisations revert to old ways, despite the evidence of benefits to both employers and employees, reinforcing the view that disabled staff have less value to offer.

The barriers to accessible transport

Narrow thinking: narrow vision

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The reasons for transport rarely seem to figure in debates about transport. Most trips are made for reasons beyond economic activity, such as visiting family or enjoying leisure activities. This is the argument for an entirely new and different cost benefit case.

The transport sector is not facing a series of individual systems failures, it's a system of systems problem. Whole transport systems need to be more accessible.

As leaders we should challenge the status quo and seek to have the viability of projects appraised using new criteria that will be more meaningful to decision makers.

More consultation on major projects will also open up the possibility of more systems thinking.

In western countries, there is a cultural trend for people to defer to strong leaders with visions. When a group of people collaborate however, they can be highly persuasive. Take Apple and the history of the iPhone. Steve Jobs – a powerful authoritarian figure – was not a fan of the iPhone: he was concerned about the cost of production, that its price point would make it unattractive. It was his engineers who had the vision and persuaded him to take the risk.



The barriers to accessible transport

What society demands of its leaders



If as a society we want transport to be more accessible, then society has to demand of its government, the regulators, that accessibility is a key requirement of new designs. The mechanisms available to demand this explicitly, and indicate that society is willing to fund it, are not readily available.

At the same time, politicians claim that policy decisions are made in response to voter demands. Consultation is all well and good, but the output will always reflect the majority view and so accessibility is rarely factored into the final decision.



As leaders, we can try to keep accessibility top of the agenda in any debate about the future of transport and help people understand that it is an issue that affects the lives of everyone in society, not just a few.



Another point of view proposes that change will come naturally from society and what it demands of its leaders over time. Maybe accessibility is closer in analogy to consumer safety regulations. For hundreds of years, it was each man/woman/child for themselves. Then finally government realised it could make things better for everyone by insisting on standards. At some point, when everyone agrees that dealing with accessibility in transport design is the right thing to do, and accepts the cost of doing so, at that point accessibility will become commercially acceptable.

The barriers to accessible transport

The accessibility narrative / rhetoric

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The use of language can be vitally important. Generally, it is unhelpful to talk about “people with disabilities” or “disabled people”; we have a collective responsibility to change the vocabulary and focus more on accessibility as a concept that will encourage the right way to think about overcoming barriers.

Rhetoric conditions thinking in other ways. Roads, along with the NHS, are the only two public services provided universally free at the point of use and paid for out of taxation. Yet the perception is very different, and this does a disservice to any discussion about the cost of transport and its value to the economy.

There is also persistent confusion about the distinction between inclusivity and accessibility.



Language evolves with use. By using appropriate language we can lead by example.



There is a good example in the news at the moment. Residents of a new London development in Colindale are protesting at the temporary closure of the train station serving the community. The station was built in the 1960s, but to make it more accessible requires closing the station for at least six months during the makeover...and by doing so the whole community will be deprived of access to the trains. People chose to live in this neighbourhood because of the convenience of a short 20-minute train journey into the city centre, and they are outraged at the suspension of this core service. This has turned the community against the council and the train operator, and against the disabled people in the community. It is not only a PR disaster but really bad for negatively reinforcing perceptions about the burden of providing services for disabled people. The narrative could so easily have been structured around the benefits of renovating the station to make it more attractive for everyone to use, and made the accessibility features a sub-heading.

Accessibility: the great opportunity for the UK

In summary

The participants largely agreed what the barriers are and what a good future looks like. There is a consensus of hope and expectation that the future of transport is accessible.

As leaders, these are the things that we can do or say today to shape that future:

- Build and reinforce the rhetoric of accessibility by example
- Educate the next generation of transport innovators to design and cost products and service with benefits for everyone
- Ask different questions of leadership and of government about opportunity costs and how to value contributions to the economy
- Remind leaders that the scope of disability includes the elderly, includes people in rural communities, so any business case should take into account a much bigger population
- Persuade leaders to think of accessibility as a huge new customer opportunity
- Encourage representatives from these groups to educate leaders
- Support the collaboration of groups and organisations representing the widest possible diversity of disabled and excluded people
- Explore new processes for collaboration between government, industry and these representatives
- Proactively advocate use of the National Centre for Accessible Transport for wider representation
- Proactively support the career development of women into senior transport roles.
- Point to positive examples abroad
- Encourage leaders in transport to make transport a shining example of an accessible sector
- Encourage leaders to position the UK as a world leader in accessibility
- Define a research pathway, particularly to collect data about the scale of the opportunities in transportation to add value to the economy and to society
- Advocate for a new standard for flexibility as part of sustainability in the design of new services and solutions

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The SMLL Innovation Community members share a vision to be a technology maker, rather than a technology taker, shaping the development of connected, automated, electric and shared mobility to ensure it benefits UK society, UK economy and UK environment – and their organisation.