

Covid-19 and the future of transport: predicting and navigating uncertainty

Covid-19 has turned the transport world **upside down**, with most national governments imposing lockdowns and travel bans causing journey numbers to plummet across **all modes**, jeopardising the future of many transport businesses. One major impact of Covid-19 will be on socio-cultural behaviour, with differing views on the degree to which various features of the current lockdown will continue once the crisis has abated.

These features include home working, home schooling, retail choices and travel choices from the local to the international scale. This paper will explore initial industry thinking on what these could mean for the future of transport, and which techniques we at Mott MacDonald think transport planners could use to navigate the uncertainty.



Home working and schooling

Many business and transport commentators anticipate a **'new normal'** of home working for many employees, as they find they can do their jobs perfectly adequately – if not better – from their kitchen table using digital tools, while saving time and money on commuting. Firms may also consider the potential for reducing the cost and risk of office space, business travel and (in-person) industry conferences. According to Capita Consulting, “when combined with the climate crisis...it may be hard to justify such events”.



This means there is no guarantee that the peak period travel market will fully recover to previous levels, and even if so, this may be with a significantly different modal split. Either way, this could impact the viability of rail franchises and bus services, made worse by the unknown pace of any change back to normal. Nevertheless, this offers **an opportunity** to re-imagine a more centralised, if not nationalised, public transport system, focused on core services maintained to ensure long-term commercial viability. This, coupled with funding for community transport to capture hard-to-reach groups, is critical to avoid a mass return to private cars aided by cheaper fuel prices.

A long-term reduction in travel demand may also lead to further challenges to major infrastructure investments. For example, the case for HS2 is built on the need for an increase in capacity along the spine of the rail network, so a fall in demand will lead some to ask whether the significant cost might be better spent on the economic recovery from Covid-19, or the roll-out of fibre-optic broadband across the country. It could be argued that access to high-quality broadband is as fundamental as heating, electricity and running water, but 13% of homes still have no internet access while UK-wide internet usage continues to rise (**Ofcom**). Nevertheless, two points do favour continued HS2 spend: the likely return to demand for intercity rail as the economy recovers allied to the decline of regional aviation (see **FlyBe**), and the Keynesian economic multiplier offered by megaprojects such as HS2 that dwarfs the expected stimulus from projects such as broadband works. One counterpoint is the difficulty parents have faced in home schooling their children during this time. However, as education is provided by teachers and lecturers through video and other applications, methods and outcomes will improve and may become increasingly normalised. University students may be able to undertake most or all of their course remotely, further reducing travel demand and changing the social experience of university forever.



Retail and high streets

We expect that a major loser from the Covid-19 crisis will be physical retail and high streets, with the trend towards online shopping becoming increasingly pronounced. The proportion of retail spending online **topped 20%** for the first time last year and many high streets across the country have already experienced rising vacancy rates. Many high street retailers are at risk of collapse with **Debenhams** recently entering administration, but the danger goes beyond retail, with 59% of restaurants and 57% of pubs now at risk of failure (**Company Watch**) and likely to be among the last outlets to reopen.

This is despite the former Bank of England governor Mark Carney advising that the crisis and corresponding economic shock would “ultimately be temporary”.

The government has rapidly developed measures to support businesses and workers through its 80% furlough scheme and financial assistance, but the underlying difficulties facing many high street brands are likely to prove too great for many. A reconfiguration of our town centres may be required, but the same principles of mixed-use development, good urban design which prioritises pedestrians and focusing on the needs of residents and businesses still hold true.

The impact of Covid-19 on the vitality of our high streets will decrease private travel as well as public transport demand from those who rely on the town centre offer, such as the elderly and parents with young children. However, the effects of ‘induced demand’ may cause freed-up capacity in the transport system to encourage additional trips by others. For example, van deliveries of online orders are likely to increase.

Travel choices

When people do travel locally, they may do so differently as a result of the virus. Active travel will remain popular as we continue with our permitted daily exercise outdoors when things get back to normal. An increase in cycling has been reported in **New York**, for example, which could improve public health. However, avoidance (where possible) of crowded public transport to prevent virus transmission could engrain a lasting paranoia of close contact travel. This is not to predict the end for busy metro systems, but to highlight the potential for a long-term reduction in demand – possibly accompanied by a welcome shift in travel behaviour towards active modes and the unwelcome risk of increased short-distance car trips. There will be a change, but the scale of this change and its longevity are uncertain.

For longer distance trips, private modes of transport may grow in popularity where these are available. A reduction in public transport use in favour of the ‘personal bubble’ of the private car would cause rising congestion and pollution, while making public transport less viable as it receives fewer fares and – in the case of buses – become stuck in traffic. Those most vulnerable to socio-economic challenges are also likely to be bus users, facing a ‘Hobson’s choice’ of travel modes available to them.

On the supply side, it will be up to national and regional governments to invest in their public transport infrastructure and provide positive, informative messaging to let citizens know they are safe to travel as normal. On the demand side, there may be a need to constrain car demand through measures such as congestion charging and the long-term implementation of ‘**filtered permeability**’ schemes to prioritise walking and cycling. **Bogota**, for example, has recently delivered 117km of new cycle routes to provide additional capacity for users during and after the Covid-19 pandemic.



This major reduction in travel demand has seen improved **air quality** and **water quality**, aided further by the suspension of almost all international travel. It remains to be seen whether air travel returns to similar levels, but Covid-19 has exposed the ‘dark side’ of globalisation and may create more insular economies which look to decrease their dependence on international trade. Moreover, recreational travel abroad may also decrease as people become more acquainted with their local areas and seek to avoid further travel risk.

Furthermore, uncertainty remains over how long lockdown measures will last and what state the UK and global economy will be in following the crisis, although it appears likely that we will see a gradual easing from May onwards with social distancing still in place. Travel is a derived demand, and metrics such as car miles per person have traditionally tracked economic activity – although this correlation has become **less clear** in recent years. The only point of certainty is that the severity of an economic downturn (and its impact on transport) will vary across occupations and regions, and will be **felt disproportionately** by lower-income groups. This is unlikely to help with the government’s ambition to ‘level-up’ economic and social opportunity across the UK, which will require ambitious spending where possible.

Planning for uncertainty

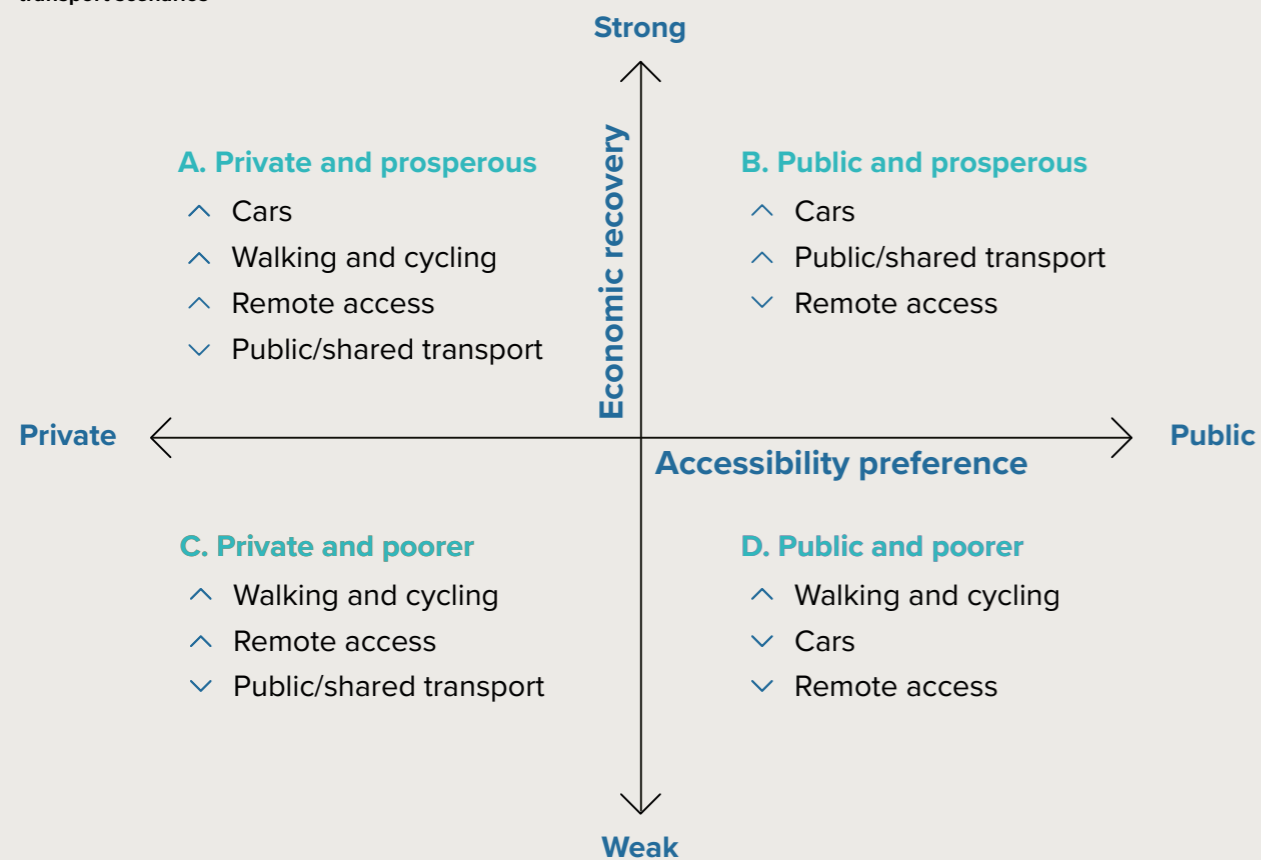
The Covid-19 pandemic is a stark reminder to transport planners of the need to account for the unexpected. The sector was already facing a period of deep uncertainty due to rapid technological innovation, including the rise of electric and connected autonomous vehicles and changing socio-economic trends such as **young people driving less** and the growing popularity of shared mobility.

A **RethinkX** report states, for example, that we are ‘on the cusp of one of the fastest, deepest, most consequential disruptions of transportation in history’, while the government’s recent **appraisal and modelling strategy** says ‘the future of travel is highly uncertain, largely due to a combination of technological and behavioural uncertainties’. Amid this uncertainty it is increasingly difficult, if not impossible, to make accurate forecasts about transport’s future, now exacerbated by the impact of Covid-19.



Scenario planning

Figure 1: Covid-19 future transport scenarios



A technique that offers hope is scenario planning. Instead of forecasting a single future, it develops scenarios which depict multiple plausible futures. For example, if the key Covid-19 uncertainties of ‘economic prosperity’ and ‘accessibility preference’ were to be combined as shown in figure 1, they produce four transport scenarios: a) private and prosperous, b) public and prosperous, c) private and poorer and d) public and poorer.

Each of these plausible scenarios provides a narrative illustrating potential effects on travel. A ‘private and prosperous’ future, for instance, will likely result in increased car use and reduced public transport use.

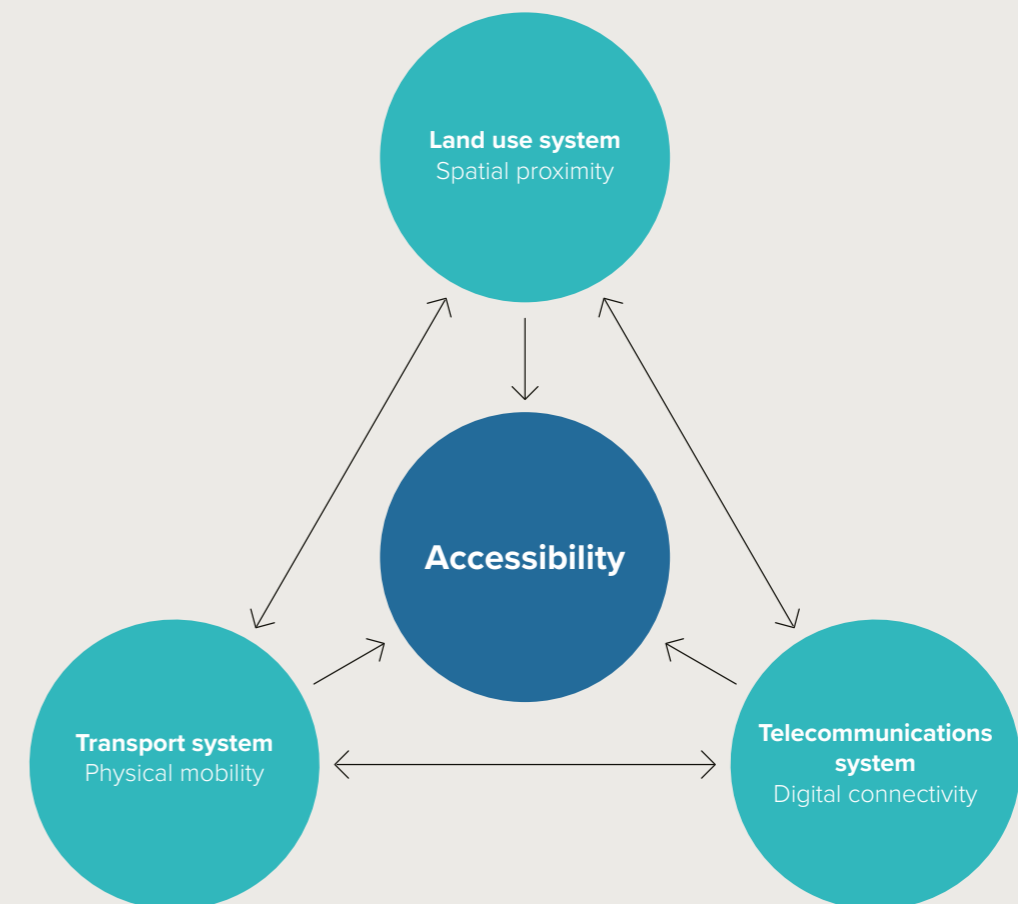
One of the benefits of scenario planning is that it removes some of our biases and assumptions about what we think the future will be, by drawing our attention to the multiplicity of futures which could occur. Furthermore, the technique helps us to imagine the future we want to see, rather than an unsatisfactory future planned for using the common ‘predict and provide’ regime. Defining a preferred future vision, then developing policies which will help to deliver it amid uncertainty is **referred to** as the ‘decide and provide’ approach.

FUTURES

Scenario planning enables examination of the resilience of policies to perform – in support of the vision – across different plausible scenarios. For example, policies that achieve reasonable results across multiple scenarios may be preferred to those which are highly effective in just one scenario. Such a scenario planning approach was recently applied in the UK in both **Norwich** and **Scotland**, as well as further afield in **New Zealand**, and is provided by Mott MacDonald through **FUTURES** – our Future Uncertainty Toolkit for Understanding and Responding to an Evolving Society.

The FUTURES approach takes transport as a means to an end, providing access to people, goods, services and opportunities. Accessibility underpins economic prosperity and social wellbeing, meaning that any vision for the future must reach beyond transport and consider the ‘triple access system’ in articulating a preferred future for transport and society (figure 2). Covid-19 has illustrated how adaptable society has become to using digital connectivity in order to access key services. Assessing the ‘triple access system’ will result in diverse option generation and help transport planners keep an open mind as to the plausible futures we can hope to deliver.

Figure 2: The triple access system



Best practice interventions

Allied with scenario planning, the transport industry can use techniques that allow us to respond to – and, in some cases, take advantage of – unforeseeable events and circumstances as they happen. For example, as noted previously, roads and streets have been unusually car-free, quiet and unpolluted of late, resulting in a temporary boon to walkers, joggers and cyclists. In line with recent government policy to encourage walking and cycling, transport planners could – with buy-in from local government – intervene during the crisis to reallocate some of this road space to active modes, ensuring that in the event of a ‘prosperous and private’ future scenario, increased car use in urban areas is constrained.

Some local and national governments are already taking such an approach. In Australia, the **Australian Road Research Board** is considering the following questions: “We need to take this opportunity to reimagine what post-Covid-19 back-to-work should look like. Do we take the opportunity to change the way in which our freeways are used? Can we re-imagine the work people do? Perhaps work from home staggered across the workforce for one or two days a week. There is also now an opportunity to better understand the choices people make before they get back into their cars and spend hours a day on congested roads.”

Several cities in the USA including **Minneapolis, Denver** and Philadelphia, as well as in Europe such as **Berlin, Budapest** and **Vienna** have already implemented road space re-allocation schemes, with **growing calls** to do the same in the UK following the Department for Transport’s temporary updates to traffic regulation orders (TROs). These include the temporary segregation of cycle lanes, road closures, widening of footways, pedestrianisation and the designation of ‘meeting zones’ where areas of high population density are closed to traffic to enable social distancing.

These ideas are not new. In New York, an example of rapid, experimental implementation occurred a decade ago in Times Square, where a six-month pilot closed Broadway from 42nd to 47th Street, creating 2.5 acres of new pedestrian space (figure 3). **This initiative**, an example of **tactical urbanism**, used temporary, reversible materials such as paint and deckchairs, which both allowed rapid implementation and enabled public ‘buy-in’ to the scheme: if it didn’t work, “no harm, no foul, we could put it back the way that it was”. As it turned out, pedestrian injuries were reduced by 35%, travel time improved by up to 17%, and Times Square became one of the top retail destinations on the planet. The pedestrianisation was made permanent.



Figure 3: Times Square before and after

Conclusions

Ultimately, we cannot predict what the future of transport will look like once the Covid-19 crisis is over.

We can be sure that the sector, as well as the towns and cities in which we live and work, the systems we use to travel, and the reasons for our travel will have changed. Working from home may become as normal as going into the office. Public transport may suffer significant decline in certain locations. Air quality may continue to recover, improving public health for generations to come. Or they may not.

Mott MacDonald is uniquely placed to respond to this deep uncertainty through our experience of doing so for clients, both public and private. Covid-19 adds a new layer of uncertainty to a sector which was already undergoing rapid change. Our experts – including Mott MacDonald professor of future mobility Glenn Lyons, global practice leader for economics Paul Hammond and projects principal for Integrated Transport Annette Smith – are leading our initiatives in this space. Scenario planning through FUTURES offers all our clients the chance to define the future they want to see – then work towards it. Speak to us to understand how we can develop these opportunities together. In the midst of the current crisis there is cause for cautious optimism that we can make our preferred transport vision a reality.

Engineering. Management. Development.

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