

Highways

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FOR THOSE WHO BUILD, MANAGE, SUPPORT & SUPPLY THE UK ROAD NETWORK

Planning for uncertainty

Facing a time of accelerated change and the challenge of the net zero transition, how can we plan for the future of mobility? This vital question is something Mott MacDonald has dedicated considerable intelligence and research to, formulating a system to develop both vision and policy. The diagnosis can be tricky, the prognosis even harder, and whether the patient takes the treatment is up to us. Dominic Browne reports

Has the UK finally reached the end of demand-led transport supply? If so, how will history chart this demise? Did it begin with our knowledge of induced demand? Or will it be peak car, the internet and travel apps, infrastructure maturity, funding constraints, Covid and working from home, refined consumer expectations, or the impact of net zero that ended this transport era?

Mott MacDonald is vying to be one of the key influencers of this turning point. Its answer seems to be that it involves all of the above and so we need to plan for all these issues and more. What better way to tackle future uncertainty than to plan from all sides and for eventualities – to hedge in the variables?

The consultancy has been working on this for some time and more recently as part of the Triple Access Planning for Uncertain Futures project – a three-year pan-European scheme, running between May 2021 and April 2024 with funding from the European Union's Horizon 2020 research and innovation programme.

Mott MacDonald is working with national and local authorities, including Transport Scotland and Bristol City Council, academic partners including the University of the West of England (UWE) and consultancy partners Panteia on the research, which 'aims to improve Sustainable Urban Mobility Plans (SUMP) through two significant new considerations':

- **Triple Access Planning (TAP)** – future sustainable urban accessibility can be achieved through the transport system (physical mobility), the land-use system (spatial proximity) and the telecommunications system (digital connectivity); together constituting a Triple Access System (TAS).

- **Accommodating uncertainty** – unpredictable change dynamics such as demographics, economic developments, locational choices, regulatory context, technological breakthroughs, travel demand, and stakeholder behaviour can be explicitly taken into account in the plan, in terms of development and implementation.

"You cannot look at an outcome for highways without looking at an outcome for transport" **Liz Baldwin**



A key figure in the work is Mott MacDonald professor of future mobility at the UWE, Glenn Lyons. No doubt acting as the conduit, he has helped dovetail this research project with Mott MacDonald's FUTURES initiative – 'a six-stage vision-led approach to strategic planning for an uncertain world.' Hands-on experience of this toolkit is available through an online interactive workshop called the FUTURES Relay, which allows academics, practitioners and the public to explore how TAP can be applied. While strategic planning in general is a complex subject, Mott MacDonald has come up with an admirably self-explanatory process. In simple terms, the six stage FUTURES process involves:

1. gearing up (a preparatory stage to understand the process)
2. preferred futures (with consideration of TAP)

3. opening out (scenario planning for plausible future contexts)
4. options (developing a strong set of options to create a direction of travel)
5. closing down (examining how options individually and in combination perform in different futures)
6. and review (putting in place regular monitoring processes)

In practice, a city or authority might draw up a transport-related SWOT (strengths, weaknesses, opportunities and threats) analysis and combine this with physical mobility, spatial proximity and digital connectivity factors. The authority would then identify critical uncertainties – political, social, environmental, legal, economic and technological – and the characteristics that would represent success for the city's net zero transport system, to build a shared vision.

The authority then goes on to explore alternative futures in detail. In the FUTURES Relay, a city might take two of the most critical uncertainties, such as car ownership and quality of infrastructure, and develop four scenarios which 'may play out and form the backdrop to pursuing the preferred future'. Then it considers what policy measures would be effective in each of the four scenarios.

'A sequence of such policy measures creates a pathway towards the shared vision. A robust strategy for moving towards the shared vision would involve policy measures that are effective in all four scenarios that reflect future uncertainty,' Mott MacDonald says.

In this way a transport or highway authority may arrive at the 'sweet spot' as Liz Baldwin, managing director for Mott MacDonald's Highways and Intelligent Transport Systems Division, tells *Highways*.

'I believe you cannot look at an outcome for



highways without looking at an outcome for transport or [other areas like] health. A lot of these decisions in reality are interwoven. It's a bit of a Venn diagram,' she says.

A recent report from Mott MacDonald on its FUTURES Relay work with the public in Bristol sets this thinking in a citizen-focused context. The report throws up some interesting issues, including identifying two of the most critical and interconnecting uncertainties outside of transport itself – 'the consistency of the political agenda and the extent to which citizens themselves are willing (or able) to embrace social change'.

For highways, a key political and social uncertainty is its future role as the UK transitions to a net zero economy. The Welsh and Scottish governments and National Highways have all signalled a shift away from major road building projects to varying degrees.

'We at Mott MacDonald really do believe highways have a role in the net zero economy. It's about making better use of the assets that we've got, so not necessarily about building new,' Ms Baldwin says. '[It's about] using technology for example to improve the use of those assets and perhaps to discourage travel and encourage people to think about other modes of transportation. So, very much a system of systems approach. We have mobility as a service, in which highways provides a part of the overall service people want.'

Steve Ellis, highways divisional development manager at Mott MacDonald, says: 'In relation to the strategic road network, there is a different utopia involving better social outcomes for people, more active travel provision, more biodiversity. There may be [new] roads in the sense of bypasses, to categorise a section of roads, but they won't

look like the bypasses of the 1990s or the 2000s. They will have a different look and feel because we're employing more of a holistic approach to how they are planned and delivered.'

Professor Lyons adds: 'We ended up coining the phrase poly-mathematics. You need to create a culture where people are not just experts in one or more territories, but they can see the bigger picture and work across disciplines both in terms of developing their own skillsets and genuinely collaborating.'

"We've deluded ourselves for too long that we can know the future and that we're giving facts about it"

Prof Glenn Lyons



An interesting companion to this thinking comes from Rory Sutherland and Peter Dyson. They are somewhat outsiders to the sector, though Mr Dyson worked as principal behavioural scientist in the Department for Transport. They wowed the crowd at the recent JCT Symposium making very similar points to Mott MacDonald, which suggests these are ideas whose time (particularly post-Covid) has come. Their book *Transport for Humans: Are we nearly there yet?* was published in 2021, the same year the Triple Access Planning for Uncertain Futures project began.

While Mott MacDonald's main driver seems to come from uncertainty and net zero, Mr Sutherland and Mr Dyson's bugbear is 'homo-transporticus' planning – where a passenger supposedly has 'stable preferences, makes lightning-fast calculations about cost, convenience, and travel time, and always chooses better options when available'.

Mr Sutherland and Mr Dyson point out: 'The greatest fallacy is that travel time is wasted time, so the only option is to speed it up or cut it out. In reality, we need to invest in higher-quality travel for more people, while also enabling some people to travel less or by different means.'

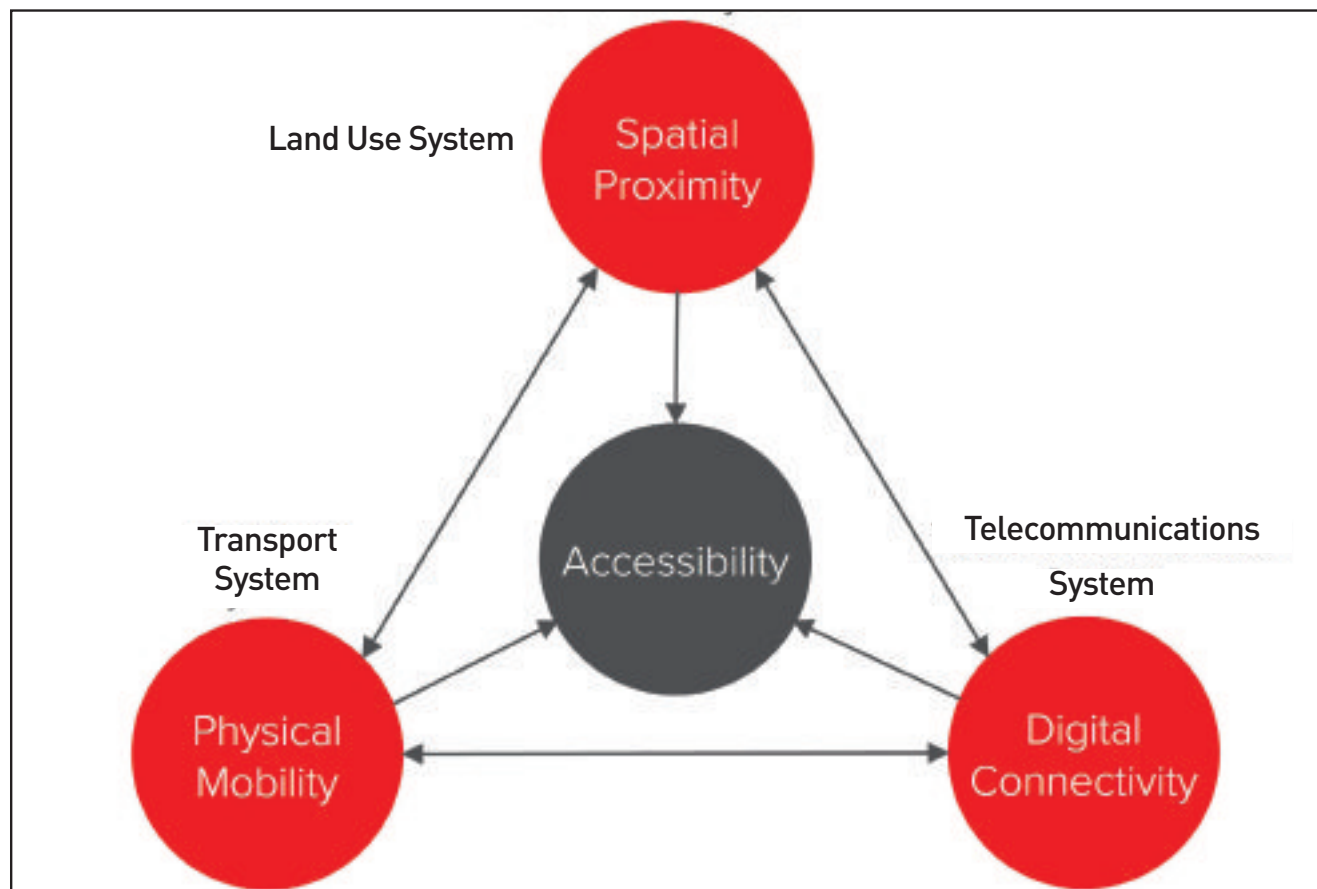
On the need for a holistic approach, Ms Baldwin says: 'While we continue to operate in isolation, we will actually never address the social challenges that come with mobility.'

Mr Sutherland uses a direct analogy: 'You cannot solve a Sudoku problem with nine different people each working on one square.'

There is a problem here, however, at least at the national level. Schemes seldom come down the procurement pipeline in the form of some abstract, open tender. You might work towards a multi-access mobility ecosystem, but the DfT still works in terms of road, rail, bus, aviation and active travel schemes. So how can you make these two approaches meet?

Professor Lyons, who has an in-depth knowledge of civil service and ministerial thinking, suggests that the appraisal guidance should guard against anyone fixating on one type of scheme as a solution but admits in practice 'it does not always work like that'. Engineers like to find engineering solutions, after all.

He argues that the DfT's recent introduction of 'Common Analytical Scenarios' is 'an overt recognition that the future's deeply uncertain'.



'If we were talking about particularly nationally significant infrastructure projects, you jolly well better demonstrate you're going to get value for money across a diversity of plausible futures, which wasn't the case hitherto, say 10, 15 years ago. National Highways is required to do its own risk assessment over its asset base into the future. It's entertained two and four degree changes in global temperatures, which you know, to paraphrase other sources, is the stuff of nightmares.'

He states: 'The problem in the transport sector, is we've deluded ourselves for too long that we can know the future and that we're giving facts about it. In fact, we're still falling into the trap of false precision where we're giving estimates of road traffic levels in 30 or 40 years time to multiple significant figures, creating the illusion that we've got control over the future.'

'Where the shift is coming, is realising we are no longer in the era of demand-led supply, where once upon a time the forecast was sacrosanct. What we're saying is, well, what type of future do we want? And that means we're determining the supply, which then influences the demand.'

Some forms of demand management are still off the table, however, as recent government rhetoric against 'the war on the motorist' shows. As Professor Lyons briefs *Highways*: 'I've not recently discussed it inside DfT, but I'm certainly aware it has been blasphemous to use the term road pricing and I suspect it may still be the standard briefing

for a new minister that road user charging is at least 10 years away.'

One ultimate solution could be more outcomes-based procurement. Ms Baldwin certainly seems to agree: 'I don't want them to think about procuring a scheme. I'd like us to think about procuring an outcome.'

Professor Lyons adds that the sector needs to foster, through bringing together different perspectives, more 'creative means to deliver the outcome we want in the best possible way'.

'If all we're given as a company is "we need one of those", then we're limited and we don't have the freedom to bring all of our capability to bear, really being creative.'

Of course, he accepts that ministers will make their own decisions. These may be guided by a benefit cost ratio (BCR) – to "prove" public money is well spent – or indeed they might overrule the BCR because of a wider strategy. This strategy might aim for improved social benefits, as Mott MacDonald hopes, but it also could come down to localised (spatial or temporal) politics, or simply what the Government thinks it can afford.

Of course, it is not just governments that are hard up for cash right now. The need for roads as part of a functioning multi-modal system is combined with a need for all to access roads, Ms Baldwin stresses.

'I feel really passionately about making sure that highways is still available to all, regardless of your earning potential. We want to make sure that access to highways and vehicles is available to all people across the breadth of

society as we move into this new future that we face,' she states.

This is one area where the personal and the financial overlap with the commercial and behavioural insights of Mr Sutherland and Mr Dyson.

Mr Sutherland points out the Elizabeth Line and the London Overground carry comparable passenger numbers. The Elizabeth Line was built from scratch at a cost of around £19bn. The Overground was a fraction of the cost as most of it already existed but was drastically underused. Transport for London completed some missing links and bought some new rolling stock, but the main thing it did was give the route a coherent brand – rather than a set of disparate London connections – and its own colour line on the famous Tube map.

'It was an exercise in marketing over engineering. The Elizabeth Line was built with infrastructure, the Overground was built with ink,' Mr Sutherland says.

It is this type of creative thinking the team at Mott MacDonald would no doubt applaud.

Mott MacDonald has developed a sophisticated approach to transport planning that can help achieve better future outcomes. To its great credit, it has built actual mechanics around the much-fabled 'holistic approach'. The company is off to a great start with its FUTURES initiative, working with authorities across the world, but it will still have to contend with human behaviour – personal, social and political – if it is to really make history using it. —