" Even if we only influence the behaviour of a small percentage of drivers, it could have a huge impact on emissions "

The nudge theory

With people seemingly more attached to their cars then ever before, how can we 'nudge' drivers into making more environmentally-friendly journeys?

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People do seem to love their cars. In the UK alone, according to the last RAC Annual Report on Motoring, 27 per cent of motorists are using their cars more than the year before, meaning there has been a 12 per cent shift from less to more car use.

With this, of course, comes congestion. A study by traffic data firm INRIX calculated UK drivers wasted an average of 31 hours in traffic in 2017, costing each motorist £1,168, while a previous report found British roads are the most congested in Europe with 20,375 'traffic hotspots' – compared to 8,517 in Germany and 1,844 in France. And things will only get worse: the RAC estimates car traffic will grow between 11 per cent and 43 per cent by 2050.

Behaviour

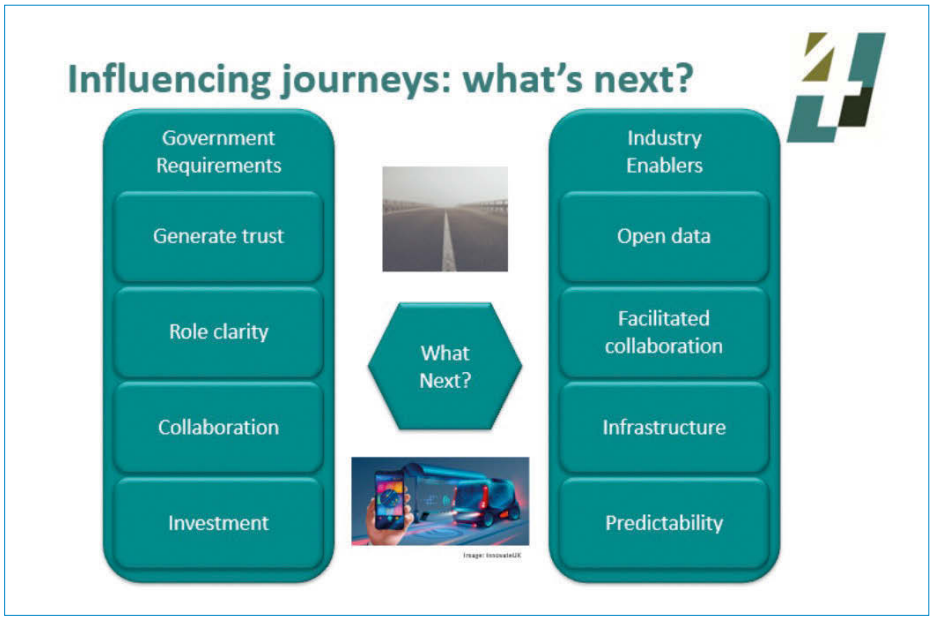
Against this backdrop of cost, delays and inconvenience is the environmental impact. Vehicle emissions have increased by six per cent since 2013 and although cars have become more fuel efficient, this is offset by increasing car travel. Electric car sales may have risen more than 50 per cent in April 2019, but at just over 1,500 units they remain less than one per cent of new cars sold. We're still two decades away from a ban on new petrol and diesel cars, so what can we do in the interim to persuade drivers to use different modes of travel or to adjust their behaviour when driving, both to reduce overall journey times and do less damage to the environment?

Every day when travelling on the road network we can make travel choices based on our individual journey needs. These needs differ from person to person, whether that choice is driven by journey time, journey reliability, safety, sustainability, comfort or pure convenience. Yet our journeys all have one thing in common – they rely on reliable, trusted data on which to base these choices. This trusted data conundrum impacts every element of our journey experience – pre-journey planning, in journey decisions and post journey analysis.

One issue car drivers face is that compared to other modes of transport, they are data-poor. The information they rely on today can be classed as mostly in-journey and reactive – such as looking at GPS sat-nav systems or listening to the traffic update on the radio – hence the tendency for many to just grin and bear it and plough on regardless when a delay affects their journey. Their behaviour therefore remains mostly reactive rather than proactive – there is very little pre-journey influence on travel decisions, and hardly any post-journey analysis available.

Choice

Compare that to someone travelling by train, for example. They can access a choice of digital sites and apps, both to plan their journey as well as understanding any delays during it with trusted, real-time updates more readily available. For car users it's a different



story. It's difficult to find trustworthy data ahead of starting a journey, whilst once the trip is embarked upon there's a lack of access to timely, reliable data against which to make decisions. How many times, for example, have we taken a suggested diversion off a congested motorway, only to find ourselves in a local roads jam watching the motorway further downstream flowing freely?

So what's the solution? Nudge theory – making it easier for drivers to make a decision in the wider benefit – could help. In terms of nudging drivers to considering more environmentally-friendly driving, we may be pushing at a part-open door, especially with the proportion of drivers who are more environmentally conscious. Indeed, a recent survey for the UK's Sky News found that 28 per cent of people said they would be willing to reduce the amount they drive significantly to help protect the environment.

One scheme in the US city of Durham, North Carolina, saw the city partnering with large employers to cut down single-person vehicle trips into the city's core by five per cent. The city emailed personalised route maps from individuals' home to work addresses (that showed routes by bike, bus, and walking, compared to driving). The emails also included trip time comparisons and listed the potential benefits of alternatives to solo driving, including the weight loss potential, savings in fuel money, and time commuters could reclaim. Nudge theory is designed to address the conundrum that people generally aim to behave in ways they know are good for society, but old habits get in the way. The personalised routes helped reduce the barrier between intention and behaviour.

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Compensation

Another scheme involves the Dutch government encouraging companies to pay people to cycle to work to fight worsening congestion on the roads. It has proposed a compensation scheme for working adults in which they receive 19 cents (17p) for each kilometre they cycle as part of their commute. A regional trial showed that even after the financial rewards stopped, people continued to cycle to work.

As the INRIX report recommended, transport authorities should also be taking a closer look at data analytics to reinvent our approach to traffic management. We at 4way Consulting believe there is scope in using data analytics to improve the quality of journey planning data provided to customers before, during, and after they travel on the road network and hence influence their journey.

Connected car-tech company Lightfoot, for example, recently piloted its 'Breathe Exeter' clean air initiative among drivers in the city in southwest England, which aims to save the equivalent of 1,000 cars' worth of emissions by the end of this year. Its 'fitbit for cars' is designed to draw more attention from drivers to the way they drive, such as reminding them that heavy braking and air conditioning usage have a negative impact on emissions. The University of Bath claims it reduces drivers' fuel use and emissions by as much as 20 per cent.

Further

This is a great example of providing real-time information to drivers. But I believe we can go much further, in terms of access to improved pre-journey information against which informed decisions can be made (for example including elements of predictive data based on past network performance compared with real-time information) and access to post-journey analysis, including comparison with other modes and sustainability impact.

In cities there are several emerging apps or initiatives that aggregate and redeploy data in intelligent ways – such as in Exeter – but on our roads there remain very few, and none that bring all this data together.

Individual sources of travel data are already there for UK drivers – for example, Google Maps; Waze (similar, but focused on crowd-sourced data and social media interaction); and live traffic radio broadcasts. Why not bring all these together and add an environmental layer? In France, for example, Geco air, a free eco-mobility app, uses a scoring system, a colour code and an intuitive interface so drivers can see at a glance the impact of their journeys on the environment, helping them adapt their driving style. To date, the app has been adopted by more than 360 companies and organisations and brought together 20,000 permanent users, who have together notched up more than 35 million kilometres travelled in 'eco-mobility' mode. In short, it provides a 'what if' analysis showing drivers how their journey might have been improved had they made certain travel decisions, focused on sustainability and journey experience.

The next stage would be to bring these different sources of data and allow easier access to them pre-journey (for example through an app), during the journey (such as via in-car systems like Mirrorlink or Ford Sync) and post-journey (a 'scorecard' showing analysis of the journey and the possible alternatives).

Drivers often want to do the best thing for the environment, but – as nudge theory recognises – good intentions often get sidelined. By providing journey planning data in a more user-friendly format and including an environmental component we can, over time, aim to nudge customers to select more environmentally-friendly journey options – helping save drivers money and helping save the environment too. Even if we only influence the behaviour of a small percentage of drivers, it could have a huge impact on emissions.

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