Go-Ahead

MOVING
THE CITY
FOR GOOD
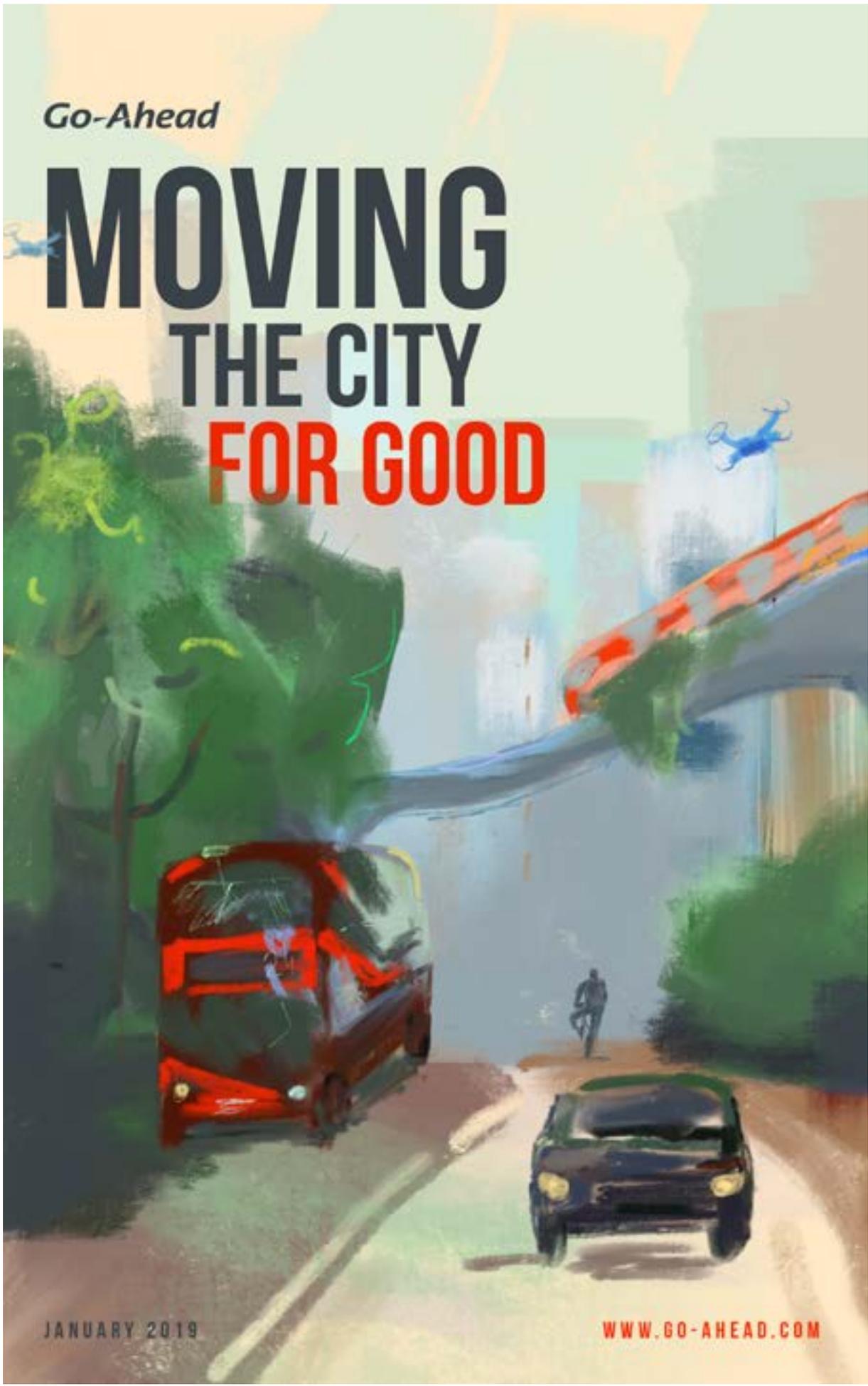
JANUARY 2019

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JERICHO
CHAMBERS

January 2019

Edited by Matthew Gwyther and Eve Harris
Jericho Chambers,
January 2019

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INTRODUCTION

DAVID BROWN CEO, GO-AHEAD GROUP

The world is changing rapidly and so is the way that we get around. Even such norms as the daily commute are changing in a world where flexible working and self-employment has risen by over a third in 22 years. In the UK the number of people working exclusively from home grew from 2.9 million in 1998 to 4.2 million in 2014. Many more people now work from home on at least one day a week. And how many of us who would have in the past made a trip to a retailer now buy online and receive the package at home? It has become the norm.

Change has come with everyone carrying a computer in their pocket in the form of a smartphone. Increased use of online sharing platforms, shared bikes, ordering items online rather than making a trip to a retailer. We live in an age of individual choice and technological freedom. Travel is on the move.

Go-Ahead is at the forefront of the future of transport. In Oxford, we have launched our new demand responsive bus service, giving people the chance to summon a minibus service to pick them up at the street corner of their choice. Last year we invested in an all-electric car sharing business in Germany called Mobileeee, and in Southampton we have piloted the UK's first bus ticketing using iBeacons, terminals that link to an app on a customer's smartphone enabling them to be automatically charged the correct fare for their journey.

Across our networks we are investing heavily in low emission buses to help tackle the serious problem of air pollution, and we are now the largest operator of electric buses in Europe, with the UK's only all-electric bus garage in London. In Southampton we now operate the UK's first air filtering bus, which cleans the air as it travels.

Cleaner buses are just one response to one challenge. Top down solutions from civil servants in Whitehall aren't going to provide solutions to all the challenges we face at this time. Neither, however, will all the answers come from promoters of specific schemes or defenders of particular interests. Go-Ahead set up the 'Moving the City for Good' programme last year because we realised that solutions to these challenges require conversations that stretch beyond boundaries, move people out of their comfort zones and enable new collaborations. This report reflects some of the thinking that has emerged from this process.

In developing sharper and better integrated thinking around future transport needs in the UK, we sow the seeds for projects and policies that lead to effective delivery in our communities. We must look beyond the obvious and headline grabbing initiatives, the mega projects such as Crossrail and HS2, and get to grips with some of the more profound issues of our time: air quality; social inclusion; health and wellbeing; the provision of public services in an age of austerity; or even the issue of providing 21st century mobility with a 19th/ 20th century regulatory framework. This is going to demand **courageous political leadership.**

Some decisions may be unpopular. There will be times when the public good outweighs some people's desire for unlimited journeys, and one-hour deliveries to the door. So how do we have this honest conversation, and how do we trade-off public transport, freight, walking, cycling, cars and public space? Is this the time for road pricing? Or have the 'gilets jaunes' in France shown what happens if you tamper with car costs?

Ever-advancing technology can help if we harness its energy. In the roundtable on **Smart Cities**, there was broad consensus that the internal combustion engine is pretty much doomed but, equally, broad concern at what a Google-dominated city might look like – possibly a dystopian vision?

There has been a general agreement that **the smartest cities are about people not, tech.** And individualism isn't the answer. City citizens are all in it together. Public transport is a public good. Our system in the UK has many merits and many challenges. There are few who don't hold strong opinions about how to put things right. Maybe this is no bad thing – at least it shows the British public cares and is committed to our collective futures. Indifference to our infrastructure would be worse.

As an *Economist* editorial put it recently: 'Like it or not – and many people do not – mass public

transport does some things very well. It provides a service for people who are too old, too young, too poor, too fearful or too drunk to drive or ride a bike. Trains and subways cause less pollution than cars and move people at far higher densities. The danger is that public transport could become a rump service, ever less popular and ever less good partly because of its unpopularity.'

And the fact that public transport systems are declining in many wealthy, developed cities is concerning. In New York bus trips in the first four months of this year were 7.6% lower than expected by the transport agency. In London, bus journeys are down by 5% since 2014-15 and now tube passenger numbers are dropping despite annual population growth in the capital of about 1%.

In the future it's questionable whether ordinary travelling members of the public will make distinctions between public and private transport. You can, after all, share in either sector, as the success of businesses like Zipcar have shown. The future probably promises a tech-enabled system where individuals can move across cities for one payment using a combination of trains, taxis, electric scooters, bikes and buses as is their wish and depending on what matters to them – speed, cost, comfort. One thing is for sure - mass public transport is far from finished.

So, for Go-Ahead, there is everything to play for. And, finally, a word about my own personal hero in the world of public transport: the bus. Buses are not as glitzy or aspirational as a brand new billion-pound project such as the excellent soon-to-be opened Elizabeth Line in London. But they are the backbone of our transport network and they are often relied upon by the less affluent in our society.

Six out of 10 public transport journeys are by bus but this is a mode of travel that national politicians rarely use and routinely ignore. It's beginning to show. The UK's bus network has shrunk to its smallest size in over 20 years. In the last four years alone, 134 million miles of bus routes across the UK have been lost. That's an astonishing drop comparable in size to Dr Richard Beeching's cuts

to the rail network back in the Sixties.

Can you imagine the outcry if any other crucial public service shrunk to such an extent over a short period? If, for example, 30% of schools, or prisons, or airports closed their doors? Or, perish the thought, if 30% of parking spaces for motorists were removed?

The imbalance needs addressing and our decision-makers need to understand the value buses bring to society. If we want to provide more support for the least well-off and enable them to access economic and social opportunities then we must invest more in buses. Nearly eight out of 10 jobseekers have no access to a car, van or motorbike and are reliant on buses to get to interviews. Many people rely on buses for the social contact GPs are now prescribing as essential to wellbeing. Improved public transport (and streets that are less 'car orientated') can enable healthy lifestyles that incorporate active travel within the daily commute. And given the clear link between congestion and air pollution (noxious emissions soar as traffic grinds to a crawl), low or zero emission buses, each taking up to 75 cars off the road, are vital to improving air quality in our major cities.

These clear benefits and opportunities are there to be grasped. But it needs collaboration involving transport providers, business, central and local government and genuine, meaningful engagement with the public to deliver sustainable change. There are many insights in this report that describe what that change could look like.

I hope you enjoy reading it.

2. TRANSPORT MINISTERS' LUNCH

OVER LUNCH IN WESTMINSTER, MATTHEW GWYTHER INTERVIEWS TWO FORMER TRANSPORT MINISTERS. STEVE NORRIS (IN OFFICE 1992 - 1997) AND NORMAN BAKER (2010 - 2013), WHO PUT THE WORLD TO RIGHTS. IF THEY FOUND THEMSELVES RECALLED TO POWER AGAIN WHAT WOULD THEY DO?

Matthew Gwyther: *Steve Norris, you became Minister of Transport in 1992. What were the highs and lows of your time in office?*

Steve Norris: When I was first appointed as Minister of Transport in 1992 I was in fact *disappointed*. There was no politics of transport then. The opposition criticised the lack of engagement in transport issues, and the government responded, saying it had other priorities.

There was a prevailing governmental consensus around predict-and-provide models. The assumption being: "Roads are good... Let's have more roads." But even then, out there in 'the real world', many were questioning the sanity of that proposition.

One of the great lessons you learn in government is that the ministers – as Robin Day famously said – are "here today and gone tomorrow, but civil servants have collective memory that goes on forever..." They never forget. About a minister and their schemes, civil servants just say, "well, (s)he was wrong, let's wait til they go and we will do it". And that does genuinely happen. *Yes, Minister* wasn't a comedy, it was a tragic documentary.

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With the railways, I was absolutely convinced that British Rail – in its 1992 incarnation – simply wasn't doing its job. From 1993 onwards I was the only minister who saw the whole transformative bill – The Railways Act – through from start to finish. With hindsight my view is that it was actually wrong to have attempted to privatise the track, which we originally did with Railtrack, but it was right to get private enterprise in to run the trains. Although there are currently some real issues around the way franchises are operating, you only have to look at the graph of what happened to passenger numbers to see the positive hockey stick – and it's a huge hockey stick. It goes from gradual decline from WWII, all the way around to about 1992/3 when it starts to pick up. The reason for this is that you finally had people running the trains who actually wanted to get more passengers! It did away with the approach: "Well, the railway runs, and if it suits you – great, but if it doesn't [shrug] – well it doesn't affect my job... in fact the less people I have on this bloody train the easier it is to manage..."

Years later, we persuaded the then Tory shadow

transport secretary, Theresa Villiers, to change the franchising arrangement, offering much longer franchises. Franchise-owning companies could plan for the long-term, less vulnerable to short-term market vagaries. When she explained to her officials her idea of longer franchises, they said: "Oh no, Minister, that's a very bad idea – you'd lose control." To which the proper answer is: "Exactly! That's exactly what we should do! You should butt out of things you know nothing about and you should let the people who know the railway and how to run the railway – run it!"

Matthew Gwyther: *Norman, over to you – tell us your story about your time in the ministry.*

Norman Baker: Well I think transport is generally a department characterised by consensus. During the coalition years I had a happy time at the DfT working with people who agreed on a number of issues. Philip Hammond, Justine Greening, Patrick Mcloughlin. We were influenced by what was happening outside and we listened to people. In this sense the department worked well.

I remember my first meeting with the bus industry. Philip Hammond had of course expected to be at the Treasury, not at the DfT, and had very little interest in buses. I found this quite a blessing, as he just let me get on with it.

We looked at little schemes that made a difference. I'm a great believer in spending quite a lot quite widely on small interventions rather than trying to have one massive scheme which may or may not work, with myriad unforeseen consequences.

Where it went wrong was the Treasury's outside intervention. For example it froze fuel tax for 7-8 years. That's a nonsensical policy. Particularly when oil prices are going down. It's throwing money away but what it's also doing is implicitly saying to people – stay in your car, clog up the streets... and suddenly the country has a congestion problem.

Equally, George Osborne (he's the villain of the piece here, not the transport secretary), decided in 2012 that we were spending too much money

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on buses and trains and we should instead spend on motorists. He seemed to think it was a rather macho thing to do to. So he rang up two weeks before the budget, asking to see all the road schemes we had, meaning *all* road schemes, in all states of preparation. So, irrespective of their cost/benefit analyses, these were all bunged over to the Treasury, and Osborne just slotted them into the budget. That's no way to behave, either with public money or in terms of assessing schemes.

The thing I am most proud of is the Local Sustainable Transport Fund. It has been fantastically successful, as confirmed by a DfT analysis. This was a scheme whereby you set high-level objectives – for the economy, for carbon usage – and asked councils to set plans. By demonstrating how they would meet these two objectives, they were allocated money. We had an independent panel looking into these schemes, analysing and scoring them, with minimal interference from central government. We had £1 billion to support these schemes – £660m from the public purse and the rest from local government or business – and all had a return of about 3:1 or 4:1.

They were all tiny interventions. A bus lane here, an intervention here, a station there, a cycle route between housing estates and workplaces. Small interventions make a real difference – and I am very proud of that.

Steve Norris: We agree on more things than we disagree on because the differences are not tra-

ditional Left vs Right differences.

Norman Baker: It's becoming more political now, with Labour wanting to renationalise, although the railway lines are actually renationalised anyway to a large degree.

Steve Norris: Parties have traditionally differed on ownership, but frankly that is yesterday's argument. For many reasons having the track in the private sector was going to be difficult to justify. So the real debate is ironically about whether road-building is the answer to issues like economic regeneration – and often I'd say it is not. There's a whole latticework of motorways in the North East that sadly haven't resulted in the great economic dynamism they were presumably intended for.

We were also relying on Victorian railway and a lot of Victorian roadbuilding. And this only changed, almost accidentally, when Osborne and Cameron realised this was quite a good way of generating some early employment and that maybe they should rehabilitate the word 'infrastructure'. The problem is – as we have seen with the Northern Powerhouse – words are cheap and actions are a whole lot more expensive.

Norman Baker:: It's also easier to make a decision without necessarily appreciating it cannot be delivered subsequently. Theresa Villiers and I were very keen to put in electrification and in the end we identified about 700 – 800 miles of track to be electrified compared to 9 miles by Labour in 13 years. We didn't believe it. We went ahead, but of course what we didn't factor in was that Network Rail were not geared up for this. No expertise. And there was no one to implement these electrification schemes. I remember one Christmas there was chaos on the East Anglian railways because there weren't enough people to reassemble the railway.

MG: *What about the Northern Powerhouse and HS2. Many worry what its beneficial effects might be on levelling the North-South economic playing field. Some say it might have the reverse effect to that desired; with people opting to live in Manchester and commute to London, rather than concentrating economic growth and strength in the North.*

NB: The point about HS2 is that it shouldn't have been called 'HS2'. You get to HS2 first by recognising there's a shortage of capacity, with the railways having grown quite significantly over the past 25 years. You can't get much more capacity on the West Coast Mainline. We spent £9bn on Labour's West Coast Mainline maintenance which caused years of disruption and hasn't solved anything. Therefore you need a new line. And if you're going to have a new line you might as well have a high speed line. But it was wrong to call it 'HS2' – why would you want to get to Birmingham so much quicker than you do now? That's not the argument. We need HS2 because if we didn't have it we'd need a lot more roads. There is demand from that corridor that needs to be met.

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SN: Inequality is surely one of the greatest social issues the country faces, something the current government pledges to be very concerned about. The regional impact of inequality is impossible to ignore. It's clear the North does (economically) less well than London and the South East – and increasing connectivity between the two would help equalise. If someone chooses to live in Manchester and work in London they are at least adding to the Manchester economy – it shouldn't pose a significant problem.

What is interesting is the shift in where the work is being done. Sensible people are saying: "I need to be in London to meet those serious overseas clients, the ones who want to be seen in a nice office in Mayfair (or even Westminster), but that doesn't mean work should be completed in Mayfair or Westminster." Work can be done – as with several major law firms, like the Big Four accountancy firms – somewhere in Leeds or Manchester. HSBC has just moved 1000 people up to Birming-

gham, many companies have moved to Manchester – all in anticipation of HS2. These businesses recognise that internet connectivity, allied to physical connectivity, has squeezed the country, making London a whole lot more accessible.

HS2 should be enormously important in terms of reducing inequality, but here's the rub. George Osborne isn't the Chancellor, maybe George Osborne would have actually turned words into deeds, but sadly, ever since he has gone, we have heard a lot about 'The Northern Powerhouse', there are plenty of thoughts about where it is going, but cold hard cash hasn't actually been spent yet. In addition to the North-South connection, it's important to think strategically about how to connect people and cities within the Northern area, journeys between Leeds, Manchester, Liverpool and Hull. If you connect 10 million people in ways that make sense, 10 million people together will start to generate economic activity. This is another way in which you can reduce inequality.

MG: *Norman what is your view on inequality and what is your view on buses? What is it about buses that has made them the 'Aunt Sally' of the transport world, generally used by the less well-off? They are always at the bottom of anyone's conversation topics. What was going on with buses when you were minister, and what is happening now?*

NB: Well here is where I might disagree with Steve. I am reminded of Mrs Thatcher's famous quote about anyone over the age of 26 using a bus… There was an impression that you didn't use a bus unless you had to. This mentality actually still exists. I think there is a psychological aspect to this. A car is something you control yourself. With trains and trams you at least have confidence they will show up (they have fixed rails and timetables) but you don't have the same confidence in a bus. If you live in a village you don't know the bus will be there next week to take you to work. But buses remain the most commonly used form of transport – in that sense it is an 'Aunt Sally'. But we are still seeing a slow reduction in bus usage, and a reduction in routes.

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The reason for this is not the companies, because by and large the 80% of routes which are commercially viable have held up or even been extended. The problem has been the catastrophic reduction in funding from local councils, a consequence of restrictions in funding received from central government. It's all very well having these routes along the main roads, which these commercial companies do very well. But if you're on a subsidised route it is probably gone, or is going. And whole sections of the community are going to be left bereft, with no bus and with no alternative.

The point I wanted to make is that the DfT can only do so much within its budget. You can't control what the Treasury or what the Ministry of Housing, Communities & Local Government are doing. Philip Hammond and I were both very keen on ensuring new buildings had charge points for electric cars. Eric Pickles stopped us because he argued that it cost £35 to put in and was a burden to housebuilders. I mean it's just mad.

SN: Of course the irony is just how expensive driving is. Parking my car here [in Westminster] would cost me £37 per day.

NB: I tried to get MPs to agree to car parking charges in the underground car park at HoC. It wasn't my most popular move…

MG: *What's going on in London at the moment – congestion and therefore buses are getting slower,*

they're losing passengers as people get off to walk or use bikes… Has London got a problem or is it a natural process of squeezing cars out and making it an entirely public system?

NB: London's got less of a problem than other places. It's taken steps towards cycle routes and good bus networks. Just about wherever you are, a bus shows up at a bus stop in a couple of minutes. I got the Northern Line today and there were four trains scheduled within the next ten minutes – off-peak. The public transport system is really quite good. The average speed is slowing up and this is a consequence of various forms of car travel becoming more attractive than it was five years ago, and public transport less so. The worse congestion is, the less attractive the bus becomes. Other cities are even worse. I would just say to the DfT officials: Before you start building roads, look at Birmingham. Birmingham has more roads than anywhere else, but the worst traffic jams. You can't build your way out of a problem. You have to do something different.

SN: London has some specific issues. Over the last 2-3 years 40,000 extra private hire drivers have arrived on the scene (ushered in by app-based hail-and-ride systems), most of whom are circling around Zone 1. For the first time the question arises whether we should limit the number of licenses we issue. The second issue is the prevalence of last-mile delivery by the Amazons of this world. Office-based delivery kills Zone 1. In short, Amazon and Uber bring their own issues.

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> *"Changing workplace models are having a profound affect. Now we are finding the busiest exit night from London is Thursday, not Friday."*
>
> STEVE NORRIS

That's partly why we have lost bus travel. Uber is so cheap and millenials for example pay to use Uber out of habit, rather than face the indignity of waiting at a bus-stop.

Another transport trend connects to changing workplace models. In the last quarter of 2017, TfL noted both tube and bus journeys were down. Normally when congestion forces bus journeys down, we see increases in tube ridership. This didn't happen. And we think the reason for this is that people are working more flexibly. We used to sell Travelcards catering for 5-day 9-5ers. Now we are finding the busiest exit night from London is Thursday, not Friday. People are extending the weekend and working from home. There is a strong sentiment in business that says, if you think the only way to manage your staff is looking at the back of their heads, you're not a very creative employer. People work where their laptop is, at home, in a cafe or in almost any other place outside the official workplace. The implications for public transport are profound.

NB: I was the first 'Minister for Not Travelling' – this was actually part of my brief when I was appointed, based on the fact there's economic value in not travelling. The premise was to prevent needlessly spending money on travelling and also because a lot of travel time – particularly in the car – is unproductive. A factor here was the 2012 Olympics, which were going to be a complete nightmare for London in terms of congestion and so on, so we had to persuade people to not travel. There was good co-ordination between the

DfT, the GLA and TfL on the issue. The upshot of this was that people did not travel, but we saw how business carried on, people made profits, people got paid, things got delivered. Everything worked, but a lot of people stayed put.

SN: How about not travelling? The way work is changing is utterly profound. Not only does email remove all sorts of connectivity issues, email plus efficient public transport allows us to change the whole face of work.

NB: As far as buses are concerned, it's quite astonishing the number of people you see on journeys today who are using the free WiFi many bus companies provide. It makes buses feel more modern. When I was MD of The Big Lemon in Brighton – the electric bus company (solar-powered, to be exact) – we were branding the buses as something for the future, not from the past. I am a great believer in nudging people quite heavily in the right direction through economic incentives and disincentives. You can do this with public transport. We were told workplace charging schemes were going to shut Nottingham down. Nottingham is doing rather well as far as I am concerned – it hasn't been affected. They have money for buses, trams and everything else. Brighton has quite high car-parking charges, but is heaving with business and doing very well. Because there is an alternative. There's a train every 10 minutes to Lewes, there's 4 to 5 each hour from Brighton to London, and the buses are fantastic. You don't need cars. My daughter and her friends, say: "What do you want a car for? We can get there by bus or train, we drink when we get there…"

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MG: *Norman, what is your view on renationalisation of the railways, is that worthwhile?*

NB: It's a ludicrous diversion from reality. Steven started by saying the renaissance began about 1992/93 when British Rail went. I opposed all this at the time but I think I was wrong. By and large, while not being perfect, handing over train the trains to private companies has been a good idea. I think Railtrack was a basket case but the train companies themselves have done reasonably well.

On the railways we've now got the problem of success, rather than failure. We have the issue where, on some lines, there's a train at every signal on the way up to London. So one train's technical issues cause huge problems for the whole network. No other country has this problem. There is much to be celebrated with British trains. I take my hat off to Network Rail for how they reconstructed Blackfriars station with everything still running. What a fantastic achievement that was.

So now track and signalling are back in public hands. 'Renationalised' isn't the word the government uses but that's what it is. The government effectively controls timetables, let out contracts as they want and don't always stick to their own rules in terms of how long they are and when they let them out. The government decides when to move rolling stock around between companies and tells them what they are doing. So what is there to renationalise? I don't understand this 'policy'. The Labour Party says they want to renationalise because the railways are a mess created by [transport secretary] Chris Grayling, but presumably they want to hand the whole lot to Chris Grayling, because. That's a consequence of renationalisation and that makes no intellectual sense whatsoever.

SN: As Norman says, our railway system is unique. We flog our railway harder than any other country in the world. There are larger systems, like the Indian railway, and there are faster systems, like some of the Japanese railway, but there is no country on earth that uses its railway as much as we do, that gets as many trains down its

> *"We flog our railway harder than any other country in the world."*
>
> STEVE NORRIS

pieces of track in an hour, in a day – we're leading in terms of moving block signalling.

The reason people are going to Newark, Ipswich, Bristol, Brighton to live, while being comfortable to work in London, is because actually despite all of its occasional upheavals, the railway is a very efficient way to travel. This is something quite extraordinary.

Also the people who work in Network Rail now, they are the people who worked in British Rail. If you look at the people in the train operating companies, they are a very different species. The people that took over those first franchises came out of the bus industry. They were real entrepreneurs. They bought municipal bus companies, built them up... It was the Moir Lockheads of this world, the Brian Souters – they were they ones that said: "We can make money out of this. "The British Rail attitude would have been along the lines: "'How do we make money??'"... "We're not here to make money, we're here to run a railway! Passengers? Well passengers get on the train when the train arrives, not our problem if it doesn't. But if it does, they're more than welcome to use it..."

The train operating companies are different. People are running WiFi, flexible ticketing, demand-related transport and all that sort of thing.

NB: Another aspect to this is that railways are extremely safe in this country – something I would never want to compromise. On the rare occasion that there is an accident,- the last significant one happened in Hatfield in 2000 – there is a massive push by the press to improve safety in the railways. What I subsequently found out was that

more people were killed on the roads that weekend, than in the one big rail crash.

MG: *If tomorrow the call came from No. 10 to return to the helm of the DfT, what would be top of your list of priorities?*

NB: Tie the economy and transport together far more. Carbon pricing, definitely. Tie in the cost of transport with the cost of carbon emitted. I would also use road pricing for 'social engineering' if you like. If you charge, for example, for driving on the motorways, you are saying, here is an alternative, you can pay more, or you can take the parallel railway line. Most motorways have a parallel railway line. And if you can take the money that is raised from this, so that overall it is revenue neutral for the motorists, that's important. You can't be seen to tax you have to reinvest the money. If you then use that money to cut road tax or fuel duty, you can then have an equation whereby people driving up motorways when they could be taking the train must pay more. In rural areas – where people have no alternative [but to drive] and we want to help them to survive – people pay less. So the Treasury and the DfT has got to work together far more closely and have a joined-up approach. That is what I would like to see.

SN: I too would say to the Treasury, "you're haemorrhaging money" because the next car you buy is twice as fuel-efficient as the one you trade in. That means the way government collected £30 billion in the past simply won't work in future. Now you could raise income tax by 6p in the pound – that is not very palatable, you could add 5% to the rate of corporation tax, you could do all sorts of things. Unpopular things ...or ... you could scrap fuel duty and you could say to people: "For every 100p you pay at the pump you will now pay 40p, because believe it or not duty is 60%. However you will pay x pence per mile and maybe up to 25,000 miles per year and then after that you will pay x plus 10%". The nudge factor is the real gain. First of all you restabilise around the idea of a carbon-free economy. You can use the (economic) nudge factor to encourage people to travel at different times of day, to make travel easier for people living in rural areas, or to discourage people from driving through certain places. Nudging

behaviour enables us to get much more efficiency out of the road network as well as preparing us for a carbon-free future.

What I'd then do on the railways is that I'd say to the Treasury, I'll fire about a third of the department. I'm going to fire almost everyone involved in trying to second guess how to run the railway. I'm going to abolish all the franchises. I'm going to create about a dozen concessions. Which would be sign or die concessions, you will buy permission to run it, you will have to pass a competency test to run it, and you will run that railway for as long as you live, like you would run any other factory you own or anything else. If you fail, then you will sell the railway, it's entirely your loss. You invest, you lose. That would enable train operating companies to commit to rebuilding infrastructure because over 10/15/20 years they can get their money back.

MG: *gentlemen thank you both for sharing your collective wisdom.*
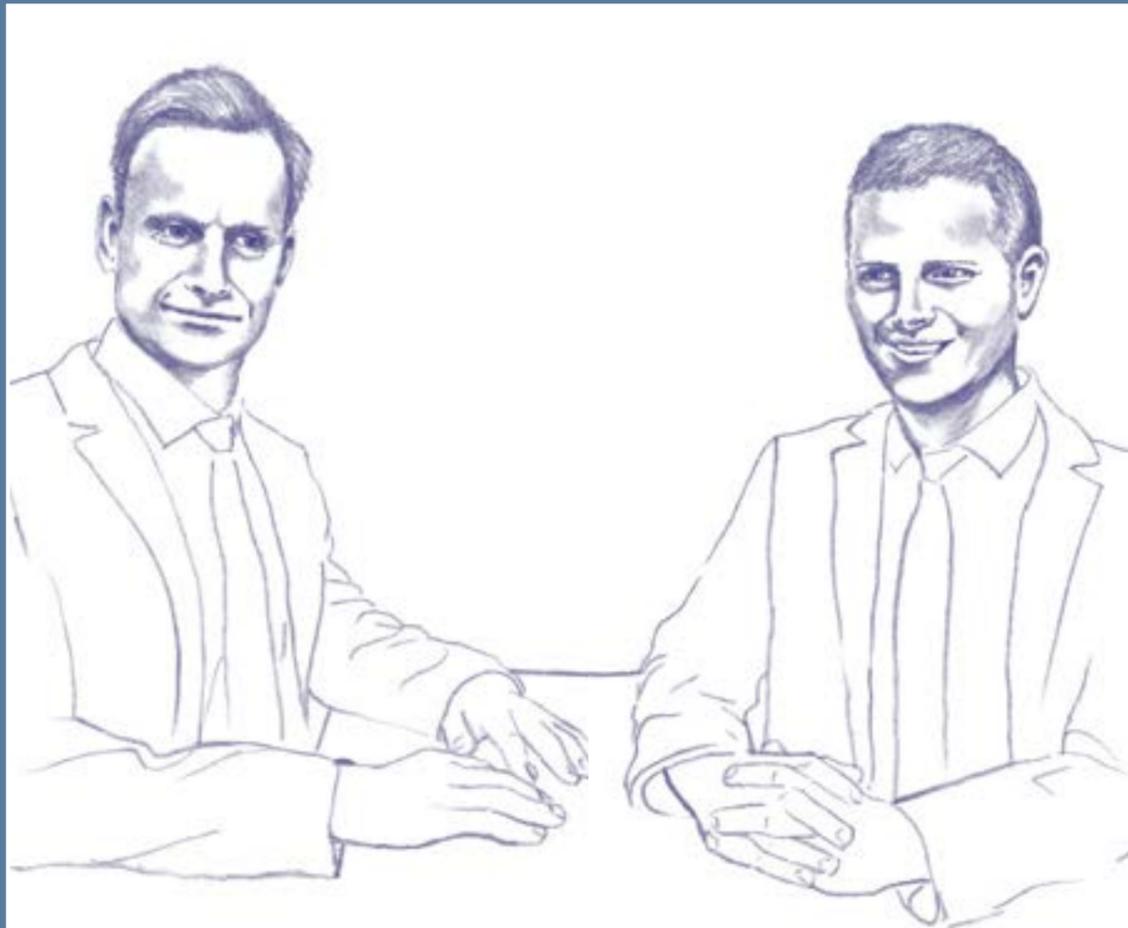
URBAN MOBILITY:
WHERE IT'S GOING AND HOW TO GET THERE

WHAT DOES THE FUTURE OF URBAN MOBILITY LOOK LIKE? ACADEMIC LITERATURE, MEDIA COVERAGE AND ROUNDTABLE DISCUSSIONS REVEAL A SPECTACULAR RANGE OF PROGNOSTIC TRANSPORTATION BUZZWORDS. WHAT'S THE REAL STORY?

RICHARD DE CANI DIRECTOR, HEAD OF UKMEA PLANNING AT ARUP, SPECIALISING IN INTEGRATED PLANNING.

HARRISON PECK TRANSPORT PLANNER AT ARUP'S NEW YORK OFFICE.

Mobility as a service? The sharing economy? You bet. Machine learning and autonomous drones? These are all things we read every day. But how will changes in technology, differing consumer preferences, environmental limitations, population growth and financial constraints actually impact the ways in which cities move people and goods? And how can cities adequately prepare themselves for an uncertain future? Current shifts in transport behaviours, a growing concern for cities' environmental and public health, and increasing contentions around the development of urban land suggest a number of important trends that will invariably shape the future of urban mobility. Even though technology creates multiple opportunities for communication and exchange without travelling at all, there is a natural desire for human beings to interact with each other, creating a demand for travel. Cities must start laying the groundwork now to prepare for the rapidly advancing realm of public transport.

Transport will continue to play a pivotal role in defining cities. No matter what form urban mobility takes in the future, we can expect transport systems to continue to shape cities' physical, economic and social landscapes. Transport is increasingly seen as the answer to multiple policy objectives, from health, economic development and social inclusion to environmental improve-

> *"There is a natural desire for human beings to interact with each other, creating a demand for travel."*

> *"City policy must adapt to new technologies."*

ment. In many cases, the traditional objective of moving people or goods from A to B is just one of many competing objectives for transport, creating a need for more diverse skills and broader-based approaches for the assessment and evaluation of new transport schemes.

Critical to achieving these objectives is the close alignment of transport and other planning decisions. For instance, growing cities and regions are increasingly relying on new and improved transport access to unlock the new homes and jobs required to absorb and accommodate the anticipated population growth, while enhancements to the public realm increase travellers' propensity to walk and cycle. Moreover, to deliver innovative, context-sensitive transport investments, cities must explore the devolution of certain powers to forward-thinking city leaders. For example, Mayor Sadiq Khan's Healthy Streets initiative demonstrates how a diversified, integrated transport policy can translate into healthy, environmentally sustainable public places that address the needs of that location.

City policy must adapt to new technologies. As cities grow and diversify, governments are viewing alternative transport providers and shared mobility as increasingly important alternatives to single-occupant vehicles. The creation of alternative models that help limit the extent of private car ownership can reduce the volume of car use, whilst preserving the ability for people to conveniently access private cars when needed. For in-

> *"Cities must collaborate with the private sector and embrace new technologies."*

stance, ridesharing platforms like Via, ride-hailing applications like Uber, and demand-responsive transport (DRT) like Chariot are only early signs of how user behaviours and preferences can be expected to continue evolving toward data- and technology-driven transport.

City policy needs to reflect this new normal. Rather than over-regulating and dissuading the spread of private transport companies, cities must collaborate with the private sector and embrace a research and development role for new technologies. However, in so doing, they must also strike a delicate balance between technological foresight and inclusion and equity, working to create legislative frameworks that deliver positive outcomes for residents. For example, the proliferation of bike-share schemes and the introduction of new dockless systems create multiple benefits for the city and its residents by making accessible a broader range of transport. However, benefits could easily be outweighed by negative impacts on users of pavements and streets due to the accumulation of bikes in locations which impact on pedestrians.

Similarly, considering the increasing appetite for autonomous passenger and freight technologies, cities must pave the way for a sustainable, autonomous future that avoids exacerbating congestion and network inefficiencies. In certain circumstances and locations, autonomous technology could help reduce congestion by making more efficient use of existing road space. However, an increase in vehicle usage, irrespective of whether they are operating autonomously or not, could have negative consequences for other road users. For example, while encouraging autonomous testing on their roads, cities should pursue policies promoting low- or zero-emission vehicles, while

developing infrastructure that can be retrofitted based on changing models of ownership and shifting travel behaviours.

Open data enables coordinated systems. Among the greatest promises of future mobility systems, the complete integration of transport services hinges on ready access to a cross-section of data assets from different providers. As transport systems evolve toward data-driven and autonomous services, open data platforms are becoming especially critical to the provision of high-quality transport.

> *"Open data platforms are becoming especially critical to the provision of high-quality transport."*

Open sharing across providers supports automated operations, improves on-time performance, allows for quick and seamless transfers, and enables customer-oriented amenities such as real- time arrival information and holistic journey planning applications. But unlocking these benefits requires adopting an agnostic view of transport providers and mode of travel. Taking a more holistic view of cities as singular, interdependent systems, governments should identify opportunities for complementary relationships across providers, enabling integrated journeys across platforms and prioritising user experience and seamless urban mobility.

Through operational and legal frameworks, cities must dismantle regulatory barriers to open data. They need to pursue data-sharing agreements, particularly between public and private bodies, to ensure greater permeability across the entire transport network, whilst exploring the acquisition of analytical tools to build their own ride-sharing and on-demand services.

New funding strategies are key. In spite of the si-

gnificance of transport innovation to the future of cities, governments and transport authorities struggle with severe budget cuts, while income from traditional sources of capital and maintenance financing, such as fuel taxes, is dwindling. Thus, the future of mobility must rely on alternative funding mechanisms that more closely align with broader objectives. For instance, pay-per-mile charging, a vehicle miles travelled (VMT) tax, or an increase in vehicle registration fees serve the dual functions of raising revenue for transport while discouraging excessive vehicle travel. Similarly, strategic pricing access to infrastructure can help manage the introduction and spread of autonomous vehicles while generating funding for building and maintaining autonomous systems. On the other hand, value capture arrangements – whereby a government entity leverages a portion of land value uplift to help fund transport infrastructure – can contribute to important public works projects while encouraging development and area regeneration.

In many ways, the transport innovations of the past century have become victims of their own successes. Heavy congestion, unreliable journeys, polluted air and water and outdated, poorly maintained networks have grown out of a combination of rising demand and, in some cases, decades of short-sighted planning decisions. As cities progress into the next wave of transport revolutions, it is essential to recognise that 20th-century transport planning cannot deliver 21st- century transport needs.

> *"As cities progress into the next wave of transport revolutions, it is essential to recognise that 20th-century transport planning cannot deliver 21st- century transport."*

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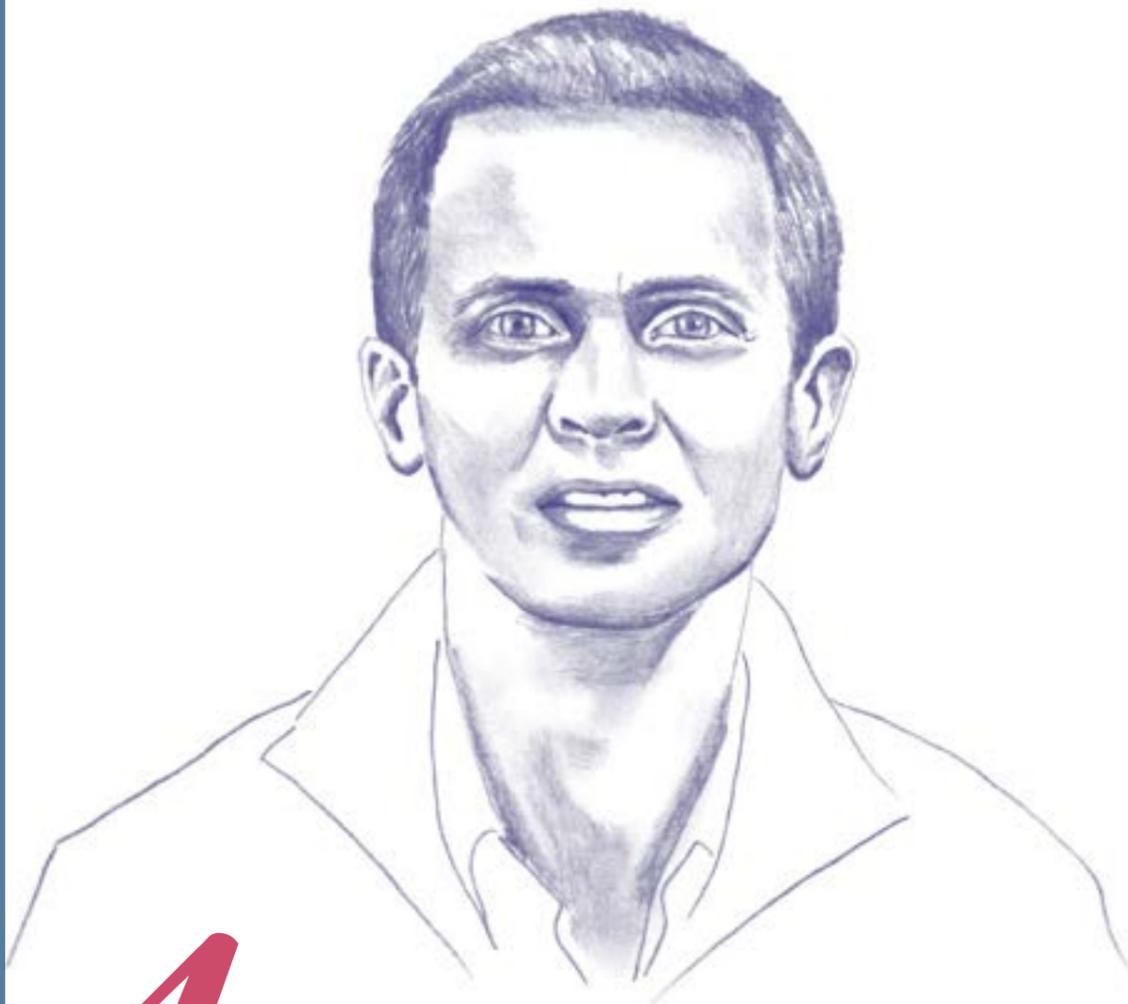
4. INNOVATION IN TRANSPORT

WHICH LEADING-EDGE TECH IDEAS WILL ACTUALLY WORK

JONATHAN HAMPSON GENERAL MANAGER, UK ZIPCAR

In most ways I feel tremendously privileged to live and work in London. I also feel very lucky to be a part of a mobility sector that is exploding with ideas and innovation. Londoners have never had more options of how to get around this great city – we have a world - leading public transport system complemented by an ever-growing list of private sector-led modes.

Whilst I am very clear that tech innovation itself is no silver bullet to positive change, it should be evident that maintaining the status quo is simply not an option. The invention of the car may have transformed modern - day society and the options available to its members but it should be increasingly clear to all city dwellers that we have outgrown the private car. Far from giving us freedom, it has started to restrict how we live our lives. I don't want my kids to grow up in a city that resembles a glorified car park or where the air that they breathe poisons them. I want them to be able to live and to play. And I want them to be able to enjoy the freedom of choice – to have the widest possible options of how to get around and in ways that don't negatively impact others.

So, without doubt, a transport revolution is in motion but how will it play out and how do we get the best from it? Let's start with the car given this is what currently dominates our cityscapes. If you were to look at the way autonomous vehicles dominate the conference invites that land in my inbox, you would think that they were the answer to all our challenges. I don't buy it. They aren't. I am no denier though, they will play an important part of a future solution, but I tend to think that they will take longer to make a real impact on major cities than many predict and that the impact will be less dramatic. As a result, I would like to see a broader focus from policy makers on how we see the future of the car in cities and how we get there. The facilitation and encouragement of shared, electric fleets has to be a core part of this.

Beyond the car, the rise of first and last mile micro mobility is only going to get larger. For me, what I believe will make or break this industry is whether cities can find ways to introduce these modes in ways that benefits all, and add to the cityscape at large, rather than just the individual user. We have all seen images of piles of bikes in China or dumped scooters in the US. Companies offering these services, if they want to win in the long term, must be colla-

borative with city authorities. I don't have a huge amount of time for organisations that impose their tech on a city without engagement. In turn though, if this is to be prevented, cities must be outward facing and set themselves up to be responsive to the opportunity that these solutions can provide and be agile in their policy making.

As our mobility options grow, there will be increasing value in bringing them together into one seamless experience. Mobility as a service is going to happen. Again though, the question is in what form? I see two routes – one is private sector led. The most powerful tech companies will create effective monopolies by bringing more and more modes onto their platforms. We can already see Uber doing this by moving beyond ride-hailing. The alternative route is that cities themselves play the central facilitator role. Oyster 2.0 provides one simple transport account and access to modes to meet all your transport needs, bringing together both public and private sector transport. If cities don't step up, they risk yielding significant power to the tech companies and being passengers in their own cities transport strategy.

Tech in transport provides an amazing opportunity to meet the chronic challenges our cities face. Who wouldn't want to be a part of that?

"If cities don't step up, they risk yielding significant power to the tech companies and being passengers in their own cities transport strategy."

5. THOSE LEFT BEHIND

TRANSPORT IS AS NECESSARY IN TACKLING POVERTY AND SOCIAL EXCLUSION AS ANY OTHER TOOL IN THE KIT.

DAME LOUISE CASEY SERVED AS SOCIAL WELFARE TSAR FOR THE BRITISH GOVERNMENT BETWEEN 1999 – 2017. SHE IS VISITING PROFESSOR AT KING'S COLLEGE POLICY INSTITUTE LONDON AND CHAIR OF THE INSTITUTE OF GLOBAL HOMELESSNESS.

In 1999 I started as the Government's Homelessness Tsar in that heady period of New Labour politics that was unafraid and unabashed to take on any issue and 'have a go' a changing it for the better. Like or dislike their politics and policies, they defined a decade in public policy in this country and during that period we had one Prime Minister in charge the whole time. In the succeeding decade, we've had three UK Prime Ministers and a whole load of change. And that's before we deal with Brexit.

I start with this background because in 1997 the Labour Government swept into power driven by their desire to tackle poverty and prepared to do work and take action that was not obvious or mainstream. They shocked the civil service by some of their techniques and delighted many charities and journalists.

One technique was the Social Exclusion Unit. This Unit wrote the homelessness report I became the champion of, and – more importantly for this publication – it undertook a major new study and report into Social Exclusion and Transport.

Nothing has been as impressive since. And its findings sadly have stood the test of time. In the foreword, the Prime Minister Tony Blair wrote

"Imagine being offered a job and having to turn it down simply because there's no way for you to get there. Imagine being too afraid to walk to the bus stop after dark. Imagine an expectant mother having to take three buses to get to her nearest ante-natal clinic."

That was 2003. Now it's 2018 and things have got if anything worse not better. Moreover, can anyone remember the last time these issues were talked about on the Today programme or in The Sun?

Although it was 25 years ago, I remember a certain trip up to Newcastle just as though it were yesterday. Getting to the meeting on time involved being picked up in the car of a kindly inclined community leader, as public transport would not have got us to our destination within an hour of arrival at the main station.

Then, as we headed towards the estate we came to the main roundabout. On it was a sign that showed the estate was off to the right and said the name of the estate. The arrow went right around the circle but did not come back. It was a one-way arrow. It was a one-way street. It was an estate where the planners did not think you'd ever need to leave it.

The connection between transport and social exclusion is clear. The facts are clear. 2011 data shows people on low incomes are more reliant on bus services, with half of the poorest fifth of the population not having access to a car. This rises to more than two thirds of job seekers not owning a car. There are countless more

"Can anyone remember the last time issues related to transport and exclusion were talked about on the Today programme?"

"In transport, many economic or moral trade-offs are enjoyed by the better off."

stats.

In post-war Britain, owning a car became synonymous with progress and change. Recent trends have pushed the environmentally negative aspects of cars. But these economic or moral trade-offs are largely enjoyed by those of us with money, not those without.

Transport is a deciding factor in tackling social exclusion. It traps people in social exclusion or, as we 'Westminster' folk like to say nowadays, they are 'left behind'. We probably don't even see the sad irony of this being more than a metaphor in poor areas, as the buses come rarely and cost more. Poorer people are literally left behind.

Transport is as necessary in tackling poverty and social exclusion as any other tool in the kit. We just have fallen behind of making it part of the plan. If you can't get to a job, a college, the doctors or hospital or the job centre plus then the first door to freedom from poverty is closed. And that's before I start on the elderly, those disabled or families with children. They fare worst of all.

The effects of road traffic also disproportionately impact on socially excluded areas and individuals through pedestrian accidents, air pollution, noise and the effect on local communities of busy roads cutting through residential areas.

Translated out of jargon this means that poor people in deprived areas are more likely to be injured or killed on the roads than their counterparts in less deprived areas. In 2002 the Labour Government showed that action could be taken to deal with this but not enough has been done since. Living cheek by jowl with limited playing areas for kids and no off-side parking has consequences.

Children in deprived areas are four times more likely to be killed or injured on roads than their better off counterparts.

That the connections between good transport and tackling social exclusion has been a little forgotten in public discourse is a cause for shame. It presents a lost opportunity to build a better Britain.

"Transport is a deciding factor in tackling social exclusion."

"The effects of road traffic disproportionately impact on socially excluded areas."

"Children in deprived areas are four times more likely to be killed or injured on roads than their better off counterparts."

A man guiding a London bus through thick fog with a flaming torch.
Source: www.huffingtonpost.co.uk

6.

THE ANSWER TO OUR CITIES' AIR PROBLEMS:

TECH, NUDGE, OR BIG STICK?

AIR POLLUTION HAS IMPROVED SINCE THE GREAT SMOG, BUT IT STILL CAUSES MORE DEATHS THAN CAR ACCIDENTS IN LONDON, AND GLOBALLY THE PROBLEM IS GETTING WORSE. WHAT COMBINATION OF POLICY AND PRACTICE WILL KEEP PEOPLE MOVING – AND BREATHING?
THE ARTICLE BELOW IS BASED ON A ROUNDTABLE DISCUSSION, CONVENED BY GO-AHEAD GROUP CEO DAVID BROWN AND JERICHO CHAMBERS ON 5 OCTOBER 2017.

It's now 65 years since the Great Smog of London descended on the city's inhabitants on Friday December 5, 1952. The pea-soupy yellow and black murk – caused by the combination of cold weather, windless conditions and an anti-cyclone – lasted four days.

From domestic coal fires in homes, plus huge coal-fired power stations at Fulham, Battersea, Bankside, Greenwich and Kingston-Upon-Thames, every day the Smog lingered, with 1,000 tonnes of smoke particles, 140 tonnes of hydrochloric acid, 14 tonnes of fluorine compounds, and 370 tonnes of sulphur dioxide were pumped into the air. Visibility was so low that London Transport inspectors had to lead buses out of terminuses with flares. Four thousand people lost their lives from the Great Smog's effects.

The quality of the air in London – and all other cities in the UK – is now far superior to those days. The Clean Air Act of 1956 saw to that. But air quality is back on the agenda. Fast forward and here's a Guardian headline from October 2017: 'Revealed: every Londoner breathing dangerous levels of toxic air particles.' Meanwhile 2018's heatwave made air quality the tabloids' headline of choice, Choking Pollution Sparks fears of Summer Death, and recently a widely publicised study linked air pollution with changes in the structure of the heart in the early stages of heart failure.

In all of this, it is important to remember this is not just a London problem, although the capital typically hogs much of the Unclean Air limelight. And the problem is not simply down to the size of each metropolis. The city of Manchester has better air quality than Nottingham, Leicester and Luton – all of which are much smaller cities.

Is the problem in the air, or on the ground?

Congestion undoubtedly has a role to play, and many British cities are running out of road. In the capital, for example, Transport For London thinks that in around four years it will have exhausted all existing technological means and tricks of keeping traffic moving through congested streets. London remains the most congested UK city followed by Manchester, Aberdeen and Birmingham. And congestion fouls the air.

It is now 16 years since the introduction of a Congestion Charge in central London. In 2003 – the first year of charging – the average speed for all vehicles was 10.9 mph, up from 8.8 mph. City planners took heart. But in 2015 that figure had fallen to 8.3 mph.

Huge construction projects both above and below the ground have slowed traffic by removing road space for vehicles. Many road junctions have been deliberately redesigned to make them more friendly to those on bikes or on foot while making them markedly less efficient at processing large numbers of vehicles. The large-scale removal of traffic gyratory systems slows speeds around hubs where trunk roads come together.

David Brown, the CEO of Go-Ahead Group accepts that the status quo won't do. As the operator of buses from Plymouth to Gateshead he needs to keep his buses moving. "Cities cannot just grind to a halt amid toxic air," he says. "Road space is scarce and finite. Cities will have to work out how to prioritise. There will be times when the public good outweighs some people's desire for unlimited journeys, and one-hour deliveries to the door. How do we have this honest conversation, and how do we trade off public transport, freight, walking, cycling, cars and public space? Is this the time for road pricing? We need leadership and private and public sectors working in partner-

ship."

That leadership is likely to come from political sources. The advent of the City mayors across the UK has devolved power from the centre giving increased powers to make critical transport decisions on their own. Some have made more of this power than others.

"In the infrastructure industry, people often like to vilify politics as a cause of delay and uncertainty. However, in my experience politics are more often than not the reason for improvement and change in policy (for example action on air quality and cycling in London) and in catalysing infrastructure projects (for example the Overground extension to Barking Riverside, the extension of the Bakerloo Line). So we should embrace rather than reject politics," says Isabel Dedring, once a London deputy mayor responsible for transport, now at global engineering consultants Arup.

Dedring also highlights the need for more comprehensive, fact-based analysis in policy making. "It always amazes me the extent to which policy is made by anecdote. There is too much mythology – often combined with an innate conservatism. Cities need to be scientific about their decision-making, and be bold with it."

While the public/private boundaries in city transport are blurring, politicians are in a unique position to consider the Big Picture and manoeuvre public good to gain precedence over individual's desires. There are three ways to bring about change in city transport systems and thus improve air quality. The increased use of technology to make things more efficient, persuasion or nudging of individuals to make them behave differently or the big stick of legislation/rule changing which includes charging for road access.

The advances in digital technology plus GPS mean that road-pricing – always a highly sensitive subject – is now far more practicable than a decade ago.

There is some consensus in current transport thinking that [road-pricing] to replace existing transport taxes for fuel and vehicles is now inevi-

table in due course. You will drive your miles and you pay your price accordingly.

The cost of driving in cities would be higher – in some cases much higher – than driving on motorways or other rural roads. But this, it was acknowledged, is a hard political sell.

There is also the influence of unexpected events. It is only two years since the first revelations of the VW scandal. But diesel's fall from grace has been precipitate. From wearing an early Noughties eco halo due to its lower CO2 emissions than petrol, diesel has become the bad boy of fuel. If people did not know about the ill effects created by nitrogen dioxide and microscopic soot particles before VW started trying to mask them they certainly do now.

Ten years ago environmental activism centred around global issues such as CO2 but this has now been supplemented by a far greater focus

> *"Road space is scarce and finite. Cities will have to work out how to prioritise."*
>
> DAVID BROWN, GO-AHEAD GROUP

on local issues such as smog and particulates. A higher T-charge will be applied to older, more polluting diesel vehicles entering central London. It is no coincidence that London's mayor Sadiq Khan was diagnosed with asthma a few years back.

There was some unease from some panel members that modern Euro 6 diesels have reached emissions standards that fail to get the clean credit they deserve. Nevertheless, with cities like Paris taking the lead in banning diesel engines from 2020, and with Oxford banning all but electric, non-emitting vehicles from the city centre starting in the same year, it was generally agreed that diesel's days are now numbered. Battery technology, which has promised so such for so long, was final-

ly making serious strides forward even for large vehicles such as buses.

One thing is for certain, while 71% of Londoners now never drive in the central parts of the capital, cities are now filled with delivery vehicles, the result of the profound digital shift away from shopping in person in bricks-and-mortar shops to shopping online. These parcels containing books, clothing, and shower rails all have to be delivered – often to people's place of work. And it's not just non-perishables from Amazon – food is now on the move all over cities 24 hours a day in cars, on bikes and on mopeds, and over past years London authorities have issued 40,000 new private-hire licences, with most of this extra traffic circling around Zone 1.

Some argue that charging extra fees within cities for freight carriage and/ or placing restrictions on private licenses was now a 'no brainer' because the current barriers to entry were far too low. The argument is that higher costs would bring consolidation and therefore greater efficiency. As far as freight is concerned, it simply isn't sustainable for thousands of 90% empty white delivery vans to be clogging city roads and parking on double yellow lines as they offload their parcels. Whether Amazon customers would continue to be able to receive delivery of purchased goods within hours was questioned by several. With private hire, some research suggests up to 30% of traffic in cities is wandering around in search of a parking space – a problem the 'Uber-effect' only exacerbates.

What may seem to many a mundane subject – parking – is critical. Companies such as Zipcar, the car-sharing business, decry the fact that private vehicles spend so much of their lives stationary but taking up road space while they are parked. Hence the enthusiasm for car-sharing and maximising their use. Several manufacturers, including BMW's 'DriveNow' and Mercedes' 'car2go' are moving into the sharing market and fewer and fewer city-based a Milennials own cars. A number of people at the roundtable were quite blunt about a reduction in car ownership being a positive step forward.

Nick Lester-Davis, Vice Chair of the European Road Transport Research Advisory Council in Brussels, looks at congestion and pollution holistically, through the prism of public wellbeing. He is of the opinion that streets can be places for stillness, as well as of movement – places for living, shopping, playing. Lester-Davies suggests raising parking charges to nudge traffic out of central zones, giving people back their streets.

But parking has its supporters. It's not just a cash-generator for hard-up local authorities but critical for bringing customers to hard-pressed bricks-and-mortar retail outlets in towns and cities. Towns compete hard against each other for citizen's business and if car parks and roadside spots aren't priced keenly then customers go elsewhere.

At the same time Professor Frank Kelly, Professor of Environmental Health at King's College London, warned that it's not just vehicle tailpipes which create emissions. Brakes and tyres, previously ignored when it came to emission-measurement, are now becoming the focus of new research. Given every vehicle requires brakes and tyres, again reducing the number of vehicles on the roads appears to be a key part of the solution.

There's a strong sense that what cities require now is a Big Fix. Do we, for example, require a new Clean Air Act for the 21st century? Far more work needs to be done to make intelligence about the fastest ways to move about cities via public transport instantly accessible. Citymapper is leading the way here in providing real-time data on where the pinch points lie. A major concern remains that elected politicians are not moving sufficiently quickly because big, bold ideas are fraught with political risk. One way or the other, however, the writing appears to be on the wall for private cars with single occupants in city centres in the next two decades. "It's all very well hearing from the cycling and walking camps who are highly proficient lobbyists. A few more policymakers should spend a bit more time travelling by bus," remarked one expert.

One thing is for sure – the path to virtue and cleaner air is not a simple one-way street.

Some predict self-driving cars will represent 9% of the vehicle fleet worldwide by 2035. Source: www.autoevolution.com

7. WHAT DRIVES SMART CITIES?

SMART CITY IDEALISTS ENVISAGE A HYPER-EFFICIENT FUTURE IN WHICH AVS AND IOT TECHNOLOGIES MAKE TRAFFIC JAMS AND OTHER IRRITATIONS LITTLE MORE THAN HISTORICAL CURIOSITIES. IS THIS REALITY OR FANTASY? DOES THE ANSWER TO CONGESTED CITIES LIE IN HYPER-LOOPS OR BUSES, ULTRA-MODERN TECHNOLOGY OR GOOD, OLD-FASHIONED LOGISTICS? THE ESSAY BELOW IS BASED ON A ROUNDTABLE DISCUSSION, CONVENED BY GO-AHEAD GROUP CEO DAVID BROWN AND JERICHO CHAMBERS ON 24 NOVEMBER 2017.

Would you have said any city with which you're acquainted is a genius? Does Belfast have a higher IQ than Bradford or Bath?

Cities are getting smarter quickly, even if many are yet to get noticeably brainier from a user perspective. Cyberville is on its way to a metropolis near you. Many of the digital advances are going on behind-the-scenes rather than in areas inhabitants can see, touch and use. Who outside the rarefied world of urban planning, for example, knows what a 'split cycle offset optimisation technique' (SCOOT) is? (It's the automatic adjustment of traffic signal delays to adapt to traffic conditions as enabled through under-road sensors. Smart traffic lights.)

Cities have been using data in various forms for many years – the old style bus inspector with his clipboard was a data processor. But the thoroughly modern business of civic analytics is quite recent, brought in by a host of technological changes. Among these are: the phenomenal rise of cloud computing, which has rapidly lowered the cost of storing information; new ideas in machine learning, which have enabled analysis of all those terabytes of data; the rise of The Internet of Things, which, through the use of less expensive sensors, can now measure everything from air-pollution levels, traffic or even the movement of people through transport systems. Finally, there is the explosion of smartphone apps such as Citymapper which enables citizens of cities to leverage this data to help them move around more easily.

The paradox is that the more successful the city, the more it attracts new members and the more likely it is to suffer problems as its growth outpaces its ability to cope, especially in the area of infrastructure. Cities that are shrinking are often defined as failures. But those who plan, govern and organise transport in cities are often caught playing catch-up because very few cities anywhere in the world are designed from scratch with the goal of maximal efficiency, and there is always a lag between investment and new member choices.

In the early days of the internet it was mooted that the lure of cities would lessen as workers were able to remain in rural areas and conduct their jobs either from their homes or from non-city areas. This hasn't really occurred, as any long-distance daily commuter will tell you.

Charles Leadbeater has given the design of cities – past, present and future – a lot of thought. "I don't know how modern cities can be built around singularity," he says. "Mobility in cities has to be collaborative. People have diverse needs and require different methods of getting around. You must have mixed solutions for transport including walking, cycling, buses, trams, big trains. Each mode competes for space but there has to be complementarity." But what about efficiency? "Certainly they need to be systematic, but they need to be empathetic. We cannot allow cities to be driven by data and technology. That is the route into the arms of Google and monotony. Character in a city is far more important than intelligence. Who wants the 8-lane-highway craziness of Dubai?"

Most cities came about through centuries of 'messy' organic development. They developed their own idiosyncratic forms created by groups of humans who came together to live in them and proceeded to co-exist – not always in complete harmony. Older cities are rarely designed. There are many Smart City gainsayers, such as Professor Richard Sennett who complains that the con-

cept of smart cities "can deaden and stupefy the people who live in its all-efficient embrace."

The most contentious of Leadbeater's 'singularities' is the driver of the private car. There was agreement among many panel members that both the private car driver and the internal combustion engine were likely to be on the receiving end of plenty of heat in coming years.

One thing that new technology makes a serious possibility is road-pricing. You rent out your patch of the road by the number of square metres you fill and the amount of time you spend on it. In many cities drivers have already been 'softened up' by congestion and emission charges and dynamic road pricing is seen by many as a natural step forward from this. It would, however, be a very tough political sell at mayoral or national governmental level, even if the efficiency gains are very clear.

In recent years autonomous or self-driving vehicles (AVs) have been pitched by the automobile industry as the smart way forward. Although billions are being invested in them both by established car manufacturers and start-ups such as Google or maybe even Apple, AVs make many people nervous. The fatal accident suffered by Tesla in California while testing the beta version of their autopilot system did not help matters. It ran into the side of a lorry. Tesla has stated that this was the first fatality in 130 million miles of its cars driving themselves, whereas in the US the average for road deaths is one every 94 million miles. (And in the developing world the stats are far worse

than that.)

But how will AVs cope with busy cities filled with lots of people crossing roads and not obeying the rules of the road. Would a self-driving car make it more than a metre down Shaftesbury Avenue in the middle of the day?

Certainly David Brown, the CEO of Go-Ahead Group has concerns about the AV world: "Are they really a good idea for cities? Should we be prioritising individual personal journeys? I believe it is of vital importance to keeping cities on the move, and that requires fewer, not more vehicles."

In the meantime, while Brown accepts that cities are changing through tech, he maintains the importance of remembering inhabitants' needs. "The most encouraging message is that it's all about people," he says. "We have to adapt to all technologies that exist. Collaboration between private and public sectors is vital. There is also the question about the role of freight. So many vans are now delivering internet-purchased and corner-shop goods to individuals... It's a big negative and a hugely inefficient use of scarce road space. There are better solutions for the greater good. The consolidation of goods delivery would minimise their disruptive effect." Julie Alexander of the Siemens Global Centre of Competence for Cities believes there is strong case for smart cities. "The tech sector is doing its bit, but for cities to transform you need resource and capability building." There are prizes to be won, but in a world of frequently constrained budgets everyone is doing more with less.

Looking further into a less cash-constrained future it's possible that ultimately the whole road system for cars and buses will become automated and human drivers will be phased out. You will never be able to make the right decisions as well as the software in the cloud. Track days at racing circuits will boom as the freedom to put the pedal to the metal yourself and grip a steering wheel becomes a prized novelty.

However, the only way a complete city road system would become completely efficient would be if all the routing and spacing decisions were

sod) will be turned soon.

assigned to the great mainframe Hal in the cloud. So roads would become like an automated tube line where all the driver does is open and close the doors. This is likely to bore and frustrate some people but, in theory anyway, ten-mile tailbacks on the M6 heading North would become much more of a rarity than they are now. Total gridlock in city centres, however, will still be a risk – too much traffic is too much traffic, self-driving or otherwise.

In the perfect world of the Smart City idealist you might see cars and buses integrated with other transportation methods in a perfectly efficient and harmonious utility. No more infuriating traffic lights. There will be no more accidents – car-on-car, car-on-bike, car-on-pedestrian. Car parks can all be abolished or converted Of course, it might not play out this way. Someone is going to have to pay for all this technology. One could make the argument that we'll see dual-class systems, with the wealthy whizzing along rapid commuter lanes, and the commuter belt itself moved farther and farther away from the centre of cities.

And, finally, what about already cash-strapped local authorities so reliant on the revenue from speeding and parking fines plus parking permits? If autonomous cars keep moving and never commit any driving misdemeanours that will all be gone.

And the smart talk is moving into action. An investment group, backed by Microsoft founder Bill Gates, has just pledged $80 million to kick-start Belmont, an 80,000 home Smart City near Phoenix, Arizona, which will reportedly come fresh with driverless vehicles, high-speed internet, jobs in advanced manufacturing and autonomous delivery services. The first piece of desert sand (or

A Thames Lighterman, Source: National Maritime Museum.

8. RADICALISING REGULATORY THINKING:

WAYS FORWARD FOR TRANSPORT

IT IS HARD TO RECALL A TIME WHEN REGULATION – PARTICULARLY IN THE TRANSPORT SECTOR – HAS BEEN MORE IN THE SPOTLIGHT. AN AREA THAT USED TO BE REGARDED AS A CEREBRAL, EVEN ARID, AREA OF CONCERN, THE PRESERVE OF POLICY WONKS AND ANORAKS FASCINATED BY HUNDREDS OF PAGES OF CLOSELY-DRAWN RULES, IS NOW PART OF GENERAL CONVERSATION. RECENT FAILURES, NOTABLY THE DEMISE OF CARILLION AND THE TURNOVER AT THE EAST COAST MAINLINE HAVE LED MANY TO DEMAND: "WHERE WERE THE REGULATORS? WHO WAS ASLEEP ON THE JOB?"
THE BELOW ARTICLE IS BASED ON A ROUNDTABLE DISCUSSION CONVENED BY JERICHO CHAMBERS ON BEHALF OF GO-AHEAD GROUP IN FEBRUARY 2018.

Five observations

- **"It's not so much the systems that need to change but the ways politicians operate them."**
  Tony Travers, the London School of Economics

- **"Excessive regulation is killing the railway."**
  Steve Norris, ITS UK, former transport minister

- **"We don't want to replicate the sins of our fathers by putting in regulation that doesn't keep up-to-date."**
  David Brown, Go-Ahead Group

- **"Transport regulators need to fundamentally engage with innovators to find ways that work for them, and also the cities they operate in."**
  Michael Hurwitz, Transport for London

- **"If you look at polling, behind support for nationalisation is a sense of fragmentation within transport systems. The challenge is to come back and solve the problem people are identifying, in a way that doesn't involve nationalisation."**
  Stephen Joseph, Campaign for Better Transport

Anarchy or new order?

Regulation has been there for millennia. Humans can't be trusted to get by or get on without rules. Regulation becomes more necessary in cities. When large numbers of people come together

the implicit agreement is that they will co-exist within set principles or rules that control, direct or manage their activities, both commercial and otherwise. Without it you would get a potentially anarchic free-for-all that wasn't in the general public interest.

This is especially true of transport. Even the most ardent free-marketeers concede that in the area of railways, for example, an unregulated melee is hardly beneficial to the public good. When early British railway companies built their tracks with different gauges, they could never be joined up to enable longer journeys. So in 1845 a Royal Commission on Railway Gauges reported in favour of a standard gauge. Henceforth our Iron Horses have steamed and shunted, stopped and started on a standard gauge of 1,435 mm (4 ft 8 1⁄2 in).

But, as society advances, regulation requires change. For centuries watermen had a monopoly on Thames river crossings. This was until the mid-18th Century, when new technology allowed for bridges to be built. Despite their protests, the men who ferried passengers on the Thames mostly lost their jobs and livelihood. In the same way today, technology threatens the modern day black cab business in the form of smartphone-powered Uber and the dawn of the driverless car. Regulation often finds it hard to keep up. London's private hire trade for taxis is still partially based on the Hackney Carriages Act from 1835.

Survival of the fittest

There is, of course, an argument that both Carillion and East Coast were an example of controlled and regulated markets actually doing what they're meant to do and allowing failure to hap-

pen. Regulators cannot (and should not) stand in the way of the harsh, somewhat Darwinian, process of stronger companies and organisations taking over where weaker, less well-managed outfits have failed.

In many respects the whole bitter, rancorous row over Brexit can be seen as a continuation of the regulation argument. It has always been the case that one person's sensible Brussels regulation is another's daft, red-tape-gone-mad straight banana or chlorinated chicken. Some feel the absolute, national need to take back control over our 'rules and regs' and refuse to cede sovereignty to collected groups of other nations to make such decisions.

It's easy to knock regulation. Harder to defend it. Everyone has an example of it being done poorly – how many sledge-hammers have cracked nuts? – but few have positive examples easily to hand. As David Brown, CEO of Go-Ahead Group said: "It's quite like the 'What Have the Romans ever done for us...?' scene in the film Life of Brian. When you sit down and think about the benefits of good regulation there are actually quite a few."

If one thinks about the more impressive regulation – for consumers and for businesses – most is non sector-specific and filled with common sense born of bitter experience. Maybe the broad brush of principle, which shapes our whole society, is superior to attempts to micro-manage small parts of society.

How about the 20th-century CAA's Air Navigation Order which has every line written in the 'blood of an incident' and has given us the safest skies since mainstream air travel took off.

Regulation: Moving Fast and Slow

Where regulation has fallen short recently is its ability to move with the times. What is the nature of the relationship between innovation and regulation – how do sets of regulatory rules deal with disruptive forces, which, like Facebook, "move fast and break things"? What happens when commer-

cial activities cross sectors and therefore regulators, finding themselves in a regulatory no man's land?

The role of the as yet largely unregulated Big Tech sector came up often in the discussion. Not just the issue of companies such as Google and Facebook taking a far different, laissez-faire attitude towards harmful or objectionable content they carry on their platforms, but also the fact that Google now wants to run cities of the future, as it has shown with its controversial plans for Quayside in Toronto.

In the area of data, its ownership and use, advances in technology far outstrip regulators' ability to keep up. In the areas of insurance, for example, AI and complex algorithms can make organisations behave in ways that break anti-discrimination rules.

Many were interested in the fact that the free market United States has led the way with the concept of 'sunset regulation' – rules and regs with a finite time span.

Another question is the degree to which thinking and decision-making has been passed down by government and politicians to professional regulators. Several panel members thought this inevitable – the degree of specialisation required to comprehend the complexities of, say, internet and telecoms is beyond the averagely-interested minister with a lot on their plate. Thus regulators – who are never answerable to the voting public – hold much power. However there are now some politicians who think there is sufficient public disquiet in the UK about how privatised utilities are run to make their re-nationalisation a manifesto promise.

"In the area of data, its ownership and use, advances in technology far outstrip regulators' ability to keep up."

Allied to this thinking is the re-nationalisation of the railways system. "Not the answer," said one panel member. "Hard cases make bad law. The response to things going wrong should not be to regulate further. It's always the easiest political response – order more control." "The only thing worse than a private monopoly in transport is a public one", sighed another...

"Where regulation has fallen short recently is its ability to move with the times."

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