

Spotlight

TRANSPORT: CLEAN AND CLEVER

Sadiq Khan / Sharon Hodgson MP / Nico Rosberg





Leading the charge

To help improve London's air quality Chestertons is the first major estate agent to replace its entire fleet with electric vehicles that produce no emissions.

CHESTERTONS
London's Estate Agent

The race for spaces



According to *Spaced Out*, the RAC Foundation's 2012 report into parking policy, the UK is home to an estimated 17 million private residential parking spaces – driveways, side returns and garages outside people's homes. In the car parks of businesses, public buildings and on streets across the country, there are somewhere between eight and 11.3 million more parking spaces. Taking the upper estimate of 11.3 million public parking spaces, and assume the average size of a parking bay to be the standard 2.4 by 4.8 metres, there are around 222 square kilometres of dedicated parking space in the UK. Placed side by side, they would occupy an area twice the size of Manchester.

The average car is stationary for 95 per cent of its life. And yet, as vast quantities of scarce land are taken up by vehicles that no-one is currently using, governments and local authorities are often beholden to a lobby that demands an exponential increase in parking space for every new development, meaning more and more land remains unproductive. Worse still, research shows that bad planning, including the oversupply of parking spaces, actually creates more congestion and more of the fruitless driving around, peering over the wheel for a space, that is a depressingly familiar staple of modern driving. But new technologies are showing another way. Car-sharing schemes, vehicle pools, and technical solutions are improving the efficiency of the whole system. Local councils can now collect and release parking data that could be gathered by apps to allow drivers to locate, reserve and pay for a parking space before they have even left the house. Vehicles in hire schemes will be put to use by multiple drivers, rather than spending the vast majority of their time lying idle in driveways and on kerbsides. Autonomous vehicles could spell the end of the whole model of traditional private vehicle ownership, as an efficient fleet of fully autonomous vehicles take passengers to their destinations without stopping and parking between trips.

Whatever the future holds for transport and parking infrastructure, in an age of skyrocketing rents and land values, when the cost of urban living is pricing millions out of larger cities, a more efficient way of using and managing this precious commodity is becoming a pressing need.

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WINNER

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News



BOLT MOBILITY

M4 relief road cancelled

Rohan Banerjee

Plans for an M4 relief road – a six-lane motorway south of Newport to combat congestion – have been scrapped. First Minister Mark Drakeford confirmed in a statement that the Labour-led Welsh government decided to cancel the project, which would have cost an estimated £1.6bn to complete, due to “financial uncertainty”, in part caused by Brexit, and the road’s potentially “adverse” impact on the environment.

Welsh Labour listed building the road as an election pledge in its 2016 manifesto under former leader Carwyn Jones, but Drakeford, who did not mention it in his own leadership bid, noted the harm the road could do to the surrounding “SSSIs [sites of special scientific interest] and their reed [drainage ditch] network and wildlife”.

While Friends of the Earth Cymru welcomed the project’s cancellation, shadow minister for business, economy and infrastructure in the assembly, Russell George, labelled it a “kick in the teeth”. Drakeford has now pledged to set up an “expert commission” to explore alternative strategies to solve congestion on the M4.

Apple to buy self-driving car firm

Oscar Williams

Apple is preparing to buy a Californian self-driving shuttle company called Drive.ai, *The Information* has reported. The tech news site said the acquisition could see dozens of the company’s engineers transferred to work on Apple’s self-driving vehicle system.

The iPhone maker has been developing

Usain Bolt to launch London scooters

Rohan Banerjee

Bolt Mobility, the e-scooter company co-founded by eight-time Olympic gold medallist Usain Bolt and business executive Dr. Sarah Haynes, is to launch in the United Kingdom. The former sprinter set up Bolt Mobility with the aim of providing rentable zero-emissions transport in city centres while also combatting congestion.

Bolt Mobility allows users to pick up and hire different models of electric-powered scooters, as well as micro electric cars, using an app on their smartphones, in an arrangement similar to London’s Boris/Santander

bikes scheme.

The company launched in Paris last month, as Bolt aims to roll out his business, which has been active in the United States since March, to 20 European cities by 2020. However, Bolt’s attempts to conquer the British market might be hampered by the fact that e-scooters cannot be legally used on public roads in the UK.

Uber, the mobile ride-hailing company which operates in more than 850 cities around the world, launched its own range of electric “jump” bikes in London last month.

self-driving technology for several years now but appears to have faced major setbacks along the way.

In 2016, the *New York Times* reported to have laid off a number of staff who were working on the project. According to CNBC, in January this year, the company moved a further 200 employees out of the division. However, The Information has reported that the company has made “rapid” progress in recent months.

An Apple spokesperson told *The Information* that the company does not comment on speculation, while Drive.ai declined to comment.



Funding announced for Scottish EV clubs

Jonny Ball

Transport for Scotland has announced plans for a second round of the Plugged-In Households Grant Fund, a scheme to encourage more housing associations, housing cooperatives, charity and community organisations in Scotland to provide their tenants and the local community with access to electric vehicles through EV car clubs. Some 280,000 homes in Scotland are part of housing associations or coops, often with no access to off-street parking,

meaning zero-emission vehicles are difficult to charge without on-street public charging infrastructure.

The £500,000 fund is designed to help give households in Scotland affordable opportunities to use zero-emission vehicles. It will be delivered and administered by the Energy Saving Trust, an independent not-for-profit social enterprise funded by the government and the private sector, which aims to promote energy efficiency, conservation and environmental sustainability.

The growth of car clubs in recent years offers alternatives to private vehicle ownership for those who don't need to take daily journeys. Despite government grants, EVs still remain more expensive than petrol or diesel vehicles, although they are cheaper to run in the long term.

Cycle lanes make roads safer for all

Rohan Banerjee

Better cycling infrastructure leads to safer roads, according to a joint study from the University of Colorado Denver and the University of New Mexico. An analysis of the rates of car-related accidents in several American cities found that drivers are more likely to slow down in areas with wider and/or barrier-protected cycling lanes.

Between 1990 and 2010, the study found that the number of car-related fatalities fell by 75 per cent in Portland, Oregon, by 61 per cent in Seattle, and by 49 per cent in San Francisco – cities which had spent significant sums on cycling lanes and signage.

According to the Department for Transport, 26,610 people were killed or injured on the roads in the UK last year, with around one in 20 of those people being cyclists. And 2018 marked the highest levels of cycling in central London since records began. In January, the Mayor of London, Sadiq Khan, pledged to triple the number of segregated cycling lanes in the city.



Green bus scheme winners announced

Jonny Ball

The Office for Low-Emission Vehicles (OLEV), part of the Department for Transport and the Department for Business, Energy and Industrial Strategy, has announced the 19 winners of its Ultra-Low Emission Bus Scheme. The funding will support the purchase of 263 ultra-low emission buses and invest £14.2m in EV charging infrastructure.

Much of the funding awarded will go to municipally owned, non-for-profit, community interest and social enterprise bus operators such as Nottingham City Transport, Manchester City Transport and The Big Lemon in Brighton. The North West and South Wales will be the biggest beneficiaries, with £14.76m and £9.39m awarded to companies in those regions respectively. Transport for London and Stagecoach Manchester were each awarded £6.9m, the joint biggest grants.

OLEV is a public body supporting the early electric and ultra-low emission vehicle (ULEV) market in the UK, and providing over £900m in funding to help bolster the UK's global position in the development, manufacture and use of ULEVs.

Sadiq Khan, the Mayor of London, says transport policy will play a central role in confronting the climate emergency and improving air quality

London's plan for clean transport



We are living in a time of unprecedented environmental danger. The climate emergency has brought our planet to the precipice of irreversible, devastating change, while our toxic air is an invisible killer responsible for the premature deaths of thousands of people across Britain every year. Since becoming the Mayor of London, I've made these twin crises a major priority – implementing a range of bold policies because I recognise that the status quo is simply not enough to stop the worst effects of air pollution and climate change on our planet, on our communities and on future generations to come.

In the last few months, we have seen a growing momentum behind this cause – from increased support for clean air campaigns, to the youth climate strikes and the Extinction Rebellion protests across London. I share the passion for urgent change of these campaigners and

protesters as I absolutely agree that we need to do much more as a country, and fast.

In London, where our children are growing up with stunted lungs and having their health and life chances irreparably damaged by toxic air, I understand exactly what's at stake. That's why I declared a climate emergency in London last year and have ensured that we're already taking practical and far-reaching steps to tackle these issues head-on.

I'm proud that, in many areas, London is now leading the world. This includes rolling out the boldest plans to tackle air pollution of any global city, with the Ultra-Low Emission Zone (ULEZ) launched in April this year. This is the toughest vehicle emission standard ever implemented and the first 24/7 charge for the most polluting vehicles on our roads.

It has already started to make a big



Infrastructure is key to the uptake of EVs

SHUTTERSTOCK/ESB PROFESSIONAL

difference. In just one month, thousands of motorists across the capital have changed their behaviour, with 74 per cent of vehicles driving into the zone now complying with the new standards – up from just 39 per cent in February 2017. And this is translating into real-world improvements in air quality, including a reduction of approximately 20 per cent in hazardous Nitrogen Dioxide (NO₂) concentrations measured at roadside monitoring sites compared to February 2017.

We can also make progress by working to end institutional investment in companies which extract fossil fuels and contribute directly to climate change. I have been working to speed up divestment here in London as well as internationally, collaborating with New York to lead a global city network.

Our Breathe London project has also created the world's most advanced and comprehensive network of air quality monitors and London is now one of 25 cities that, together, account for around half of all electric vehicles in the world. It's early days, but it's great to see Londoners and businesses doing their bit to make a difference by changing the way they live and work to help improve our environment and our children's future.

I'm determined that we build on the success of the ULEZ and go even further. Our next step is to introduce even tighter pollution standards for heavy vehicles, including lorries, buses and coaches across the entire city in 2020, before expanding the ULEZ to an area 18 times its current size in 2021. This will allow millions of Londoners to benefit from the reductions in air pollution we are already starting to see in central London.

I'm also proud that London is one of the first major cities in the world to publish a detailed and independently assessed climate action plan that outlines how we will comply with the Paris Agreement. This involves investing record sums in public transport, making walking and cycling easier and aiming for all new cars and vans to be zero-emission from 2030.

This will require radical change in the way Londoners travel by incentivising them to embrace clean, alternative forms of transport. Car ownership continues to decline in London, but we'll never be able to eliminate the need for vehicles, so we must do more to help people choose the cleanest and most efficient options possible.

That's why we are partnering with industry to enable an electric vehicle revolution. Through my Electric Vehicle Infrastructure Taskforce, the public and private sectors are working together to expand London's growing network of public charge points and making sure they are well used, in the right locations and future-proofed for tomorrow's technology.

The past year has seen more than 1,000 new charge points introduced across the city at petrol stations, town centres and retrofitted into street lighting columns. Our world-famous cabbies drive more than 1,600 electric taxis and Transport for London now runs Europe's largest electric bus fleet. And, at City Hall, we have created a new multi-million fund to support small businesses, charities and low-income Londoners switch from older, more polluting vehicles to newer, cleaner alternatives.

I've been Mayor for three years now and I'm just as passionate today as when I was first elected to deliver on my ultimate ambition: to make London a fairer city where all Londoners get the opportunities that our city gave to me and my family. A key part of this will always be doing everything possible to deliver a cleaner, greener, healthier city for Londoners and ensuring that, in the longer term, we do right by our children, our planet and future generations.

London proves that if the political will is there, it is possible to act to tackle our climate emergency. But the reality is we need the government to step up too. So I urge everyone to keep up the pressure and to continue to call on ministers to rise to the moment and to treat climate change and air pollution with the seriousness it deserves.

Since his retirement from Formula One, Nico Rosberg has been on a mission to bring electric transport to the masses. He spoke to Rohan Banerjee

The F1 champion who drives a Twizy

Nico Rosberg's retirement from Formula One in 2016 came as a surprise – “even to me,” he says with a grin. Just five days after winning the sport's world title aged 31 and only ten years into his career, Rosberg abruptly retired from the sport. Having finished first in nine of the season's 21 grands prix and achieved 16 podium finishes, Rosberg took the overall title from his teammate, Lewis Hamilton, in the final race.

After being crowned the “best in the world at what I did”, Rosberg “didn't feel the need” to carry on. “I was listening to my feelings,” he says, “and I just wanted to say thank you very much [to my fans], you've been sensational, but now I'm going to bow out, on the highest moment possible.”

Since leaving the track Rosberg has found a range of new interests, including “protecting the planet”, which he says “should be one for everyone”. An “inspirational, soul-searching trip” to San Francisco's Silicon Valley tech district shortly after his final race informed an environmental awareness “that I guess wasn't really there before”, he explains.

“When I was racing, I didn't give it [climate change] as much thought. I was just focused on winning and that was that. But after retiring, it was a case of broadening my horizons... I visited Tesla on my trip, and I saw the massive potential that e-mobility has to do good for our planet. It's not the ultimate step, but it is a big part of how we can reduce the impact of

energy-intensive industries.”

As someone who has spent his life “on the move”, Rosberg says it stands to reason that his new interests lie in “the world of mobility”. The son of the Finnish F1 driver Keke Rosberg, who won the world championship in 1982, Rosberg says he has been “fascinated” by cars and how people get around since childhood. In his post-race career he has turned his attention away from the track and towards the transport sector at large, taking over a company his father started in 1994, Team Rosberg Engineering (TRE). In partnership with German automotive manufacturer Schaeffler, TRE is working on the development of the Schaeffler Mover, a self-driving “green urban shuttle vehicle” that can drive sideways and spin on its axis.



A merger between FE and F1 is “possible”

The Mover, which looks a bit like a four-seater golf buggy, is an electric vehicle that Rosberg says, represents “one of the most futuristic shuttles” and is powered by motors that are also used in the ABT Schaeffler FE01 Formula E racing car, with a “total power output of about 880 kW”. A road-worthy model of the Schaeffler Mover should “hopefully be ready in the next couple of years”, and one day he hopes it might “supplement or even replace public transit” in crowded cities.

Rosberg sees technologies such as the Mover as vital to the cities of the future, which will demand “fewer emissions and better mobility”. “The world”, he says, “needs to get smarter about how it travels”.

Rosberg may have retired from F1 but he has since become an investor in Formula E, which uses electric cars. Contested by 11 teams with two drivers each, Formula E had its inaugural season in 2014-15. Racing mostly takes place on city streets, on temporary circuits between 1.9 and 3.4km long, rather than on purpose-built tracks.

Rosberg is optimistic that Formula E can continue to grow in popularity – “it’s really taking off” – and hopes that F1 can learn from its example. “If the whole world is moving towards electric cars, it doesn’t make any sense for F1 to carry on [using combustion engines]. All of us have a responsibility to look after our planet, including in sport. Formula E is well positioned to lead in this space.”

In fact, Rosberg predicts, a merger between F1 and FE in the future “could be possible”. Both are partly owned, through different companies, by the empire of the American broadcasting magnate John Malone. Both series are governed by Fédération Internationale de l’Automobile (FIA), the international trade association for motorsport, although FE currently holds an exclusive license for all electric racing until at least 2039. “I’m not saying it’s going to happen right away... I would guess it [a merger] will happen within seven or eight years.”

Rosberg concedes that “for the time



being”, FE will “struggle to match the performance” of F1’s cars, in terms of speed, and by extension, spectacle. “At the moment,” he says, “it wouldn’t be realistic for FE to do the same... you have to wait for battery technologies to evolve further and then the performance of electric cars will improve at higher speeds. The challenge we have now is being able to have swappable batteries that can be changed [during pit stops].”

That’s not to say that electric cars can’t be super-fast. Rosberg says that Automobili Pininfarina’s Battista model, due to be launched next year, is a potential watershed moment. The Battista’s four electric motors create a total output equivalent to 1,900 horsepower, and it will be able to accelerate to 100km/h (62mph) in 1.9 seconds, making it more powerful and



Nico Rosberg competed in Formula One between 2006 and 2016

“The world needs to get smarter about how it travels”

able to accelerate faster than an F1 car. With a top speed in excess of 349km/h (217mph), Rosberg says the Battista’s “speed and acceleration would be ridiculous. It would be an incredible sensation... even I would be shocked. It’s a whole new dimension. Companies are investing in the science [of electric cars] ...I think if FE and F1 teams embrace it, then we can expect a lot of progress.”

Rosberg himself drives a two-seater electric Renault Twizy, which he describes as “cool and fun”. Would a car such as the Battista tempt him back to the track? “No. I’m done with the grid now; I’ve achieved what I wanted to achieve. I miss winning races, sure, but that chapter of my life is done. I am happy in my retirement. I’m exploring what I can do in the electrification space. And I want to spend time with

my children.”

Achieving widespread electrification, Rosberg says, “will require a global effort”. Governments, industry and academia, he says, must all work together to “drive prices down” as quickly as possible and make sure “the infrastructure is there to support” electric cars. “We can’t expect people to want to drive electric vehicles if they are priced out of buying them and there isn’t the opportunity to charge them easily. People are worried about breaking down on a motorway; you have to address that. Am I going to run out of battery, and be stranded? What if I got on the motorway and there isn’t a charging station? You have to showcase EVs and what they can do, so people don’t think they are buying a downgrade. There are even more simple things; people will want to know how electric cars handle. Are they fun? You have to make the environmental case, for sure, but if you want people to drive electric cars then you have to show that they won’t need to compromise on their expectations of performance.”

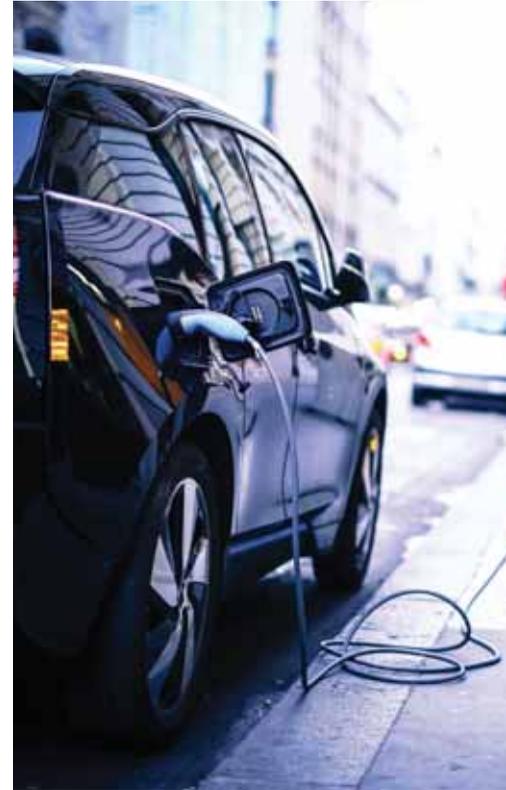
“We have to acknowledge that this issue [climate change] represents a big challenge in developing countries. We can’t just worry about cars in London, for example... we need infrastructure worldwide and in countries where there is the most air pollution. Every petrol company should be working hard to modernise, to be viewed more as an ‘energy’ company... they need to make the switch.”

Attending the World Economic Forum in Davos earlier this year, Rosberg says, was part of his attempt to bring “fast-lane thinking into the slow lane. People love to talk... I’m about turning that chit-chat into action. If we can have meetings and then save lives as a result, that’s what we want.”

Does Rosberg think that his own celebrity, as a successful and popular former racing driver with 2.1 million Twitter followers, will help to increase the appeal of driving EVs among the wider public? The grin returns. “Maybe. If it does, then I am happy.”

On the brink of a battery-powered revolution

Andy Walker, technical marketing director at Johnson Matthey, considers the electric vehicle market and how advances in technology will enable it to lead the fight against climate change



Last year, the United Nations Intergovernmental Panel on Climate Change warned of the consequences of global temperature growth exceeding 2°C compared with the pre-industrial era: sea levels would rise, extreme weather would become the norm, biodiversity would suffer and the availability of fresh water would decline. Climate scientists said that we were reaching a precipice, in which we had only 12 years to act decisively against global warming and keep within the target of 1.5°C if the world was to avoid a climate catastrophe. If the UK and other signatories are to keep the promises made in the Paris Agreement, urgent action is required.

Transport and electricity generation each make up around a quarter of the UK's annual carbon emissions; in addition to the damaging greenhouse gases released into the atmosphere, cars, buses and trucks contribute to

dangerous levels of toxic air pollution in the UK's towns and cities. Pollutants from traffic, industrial and domestic sources have been linked to 40,000 premature deaths in the UK and have been declared a public health emergency by the World Health Organization. But in the face of serious climate concerns, the continuing dominance of fossil fuel-driven internal combustion engines in the UK is being challenged by a new generation of battery-powered vehicles.

In its report, *The Road to Zero*, the government states its wish to maintain the UK's position as a world leader in the design and manufacture of zero emissions vehicles and battery-electric vehicle (BEV) technology, a sector set to bring sweeping changes to a global automotive market worth over £1.5trn a year and create huge opportunities for UK plc. BEVs can be a lower CO₂ solution than internal combustion

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engines, but their CO₂ footprint depends on how the electricity they use is generated. The UK is doing well in this area – the carbon intensity of the grid dropped by almost 50 per cent in just four years up to 2017, as we reduced the use of coal and increased the proportion of renewables. The National Grid expects to reduce these emissions by a further 90 per cent between now and 2050, which, coupled with the government’s zero emissions target for all new cars and vans by 2040, will strongly support the almost complete decarbonisation of the UK’s car fleet via the battery-powered revolution.

Consumers, too, are increasingly waking up to the challenge of climate change and want to know about the sustainable performance of their vehicle before purchasing. While adoption of BEVs is growing, it hasn’t yet reached its so-called “tipping point”, in which the barriers of cost, mileage, power and

recharge points are overcome, and the uptake of BEVs outweighs that of standard vehicles. Overall operating costs, in addition to the initial price of the cars on the forecourt, need to be considered. But BEVs have fewer parts, making maintenance and repair simpler, and as electricity is usually cheaper than fuel, the average BEV is cheaper to run than a standard vehicle.

Investing around £200m in research each year, Johnson Matthey has been striving to facilitate step changes in the performance of next generation cathode materials via the development of its eLNO[®] family of cathode materials, which will bring the improvements needed in both battery performance and cost to make the BEV more attractive for consumers. All materials in a battery possess a theoretical specific energy, and the key to high capacity and superior power delivery lies primarily in the cathode. For people in the UK, Germany and China, consumer studies have shown that the primary concern when it comes to BEVs is range. In 2018 the average new BEV could travel around 140 miles between charges. But Johnson Matthey is in the process of creating battery materials that can give BEVs a range of between 300-400 miles, enough to allow users to drive the journey between London and Paris via the Channel Tunnel. As the technology moves forward, charge times are also falling substantially, and ultra-fast charging stations of up to 350 kilowatts are allowing 80 per cent charge in just 15 minutes.

However, one of the key barriers to the roll-out of BEVs is lack of charging points. For BEVs to be commonplace, a rollout of charging points across the UK and around the globe is needed. There are currently only 23,000 public charge connectors serving around 160,000 electric vehicles, which includes both BEVs and plug-in hybrid electric vehicles. This ratio of around one charge connector for every seven EVs is almost identical to the ratio across Europe, and is higher

than the one to ten ratio target set by the European Union’s Alternative Fuels Infrastructure directive. But as BEVs continue to grow in popularity, the charging infrastructure deployment needs to accelerate. *The Road to Zero* target of at least 50 per cent of cars and vans to be effectively zero emission by 2030 implies that the number of public connectors in the UK needs to grow from 23,000 to over 200,000 over the next decade. Charging points are also distributed unevenly and concentrated in larger cities. More than 25 per cent are in Greater London, whereas less than 20 per cent of the total are located in Yorkshire, Wales, the West Midlands and the North East combined. Sustained investment in the BEV infrastructure is required to meet the consumers’ needs and drive the battery-powered revolution forward.

BEVs will not suit all road users. Commercial vehicles such as long haul lorries need a far longer range than personal road vehicles, and would therefore require much larger, heavier, more expensive batteries. In these cases, hydrogen fuel cell technology – which allows 500-1,000 miles of travel between charges and refuelling times of just five minutes – will be more appropriate and will be an essential part of the future green energy mix.

As public awareness of climate change grows, the emergence of BEVs as the dominant mode of road transportation is right around the corner. Car manufacturers are preparing for the market’s tipping point, predicted by Bloomberg to be 2025, when the purchase price of a BEV is around the same as that of an equivalent petrol or diesel car. Once this happens, and we see the rollout of technologies to increase the distance between recharging and to reduce the time taken to recharge, along with the further growth of the charging infrastructure, BEVs will become the preferred option for drivers – an essential step change for people and planet.

TRANSPORT

The latest public sector opportunities

THESE CONTRACTS ARE NOW OPEN FOR TENDERS

1. Efficiency East Midlands Limited (EEM)

Vehicle Charging Infrastructure

Bid deadline: 25th June

Tender value: Up to £100,000,000

Lasting four years beginning in August, these multiple contracts for the supply and installation of charging points for ultra-low emission vehicles involve diverse aspects of the projects, including: consultation, manufacture, maintenance and back office work. The company, Efficiency East Midlands Limited, represents members providing services to the whole public sector, including social housing providers, local councils, and education and health organisations. EEM is conducting the tender on behalf these organisations to support the growth of an effective public charging network, a vital requirement in reducing emissions by encouraging uptake of EVs.

Contact: alex@eem.org.uk

2. Cotswold District Council

Framework Agreement for the Purchase of Electric Vehicle Charging Points Accommodation Service

Bid deadline: 28th June

Tender value: £2,400,000

West Oxfordshire District Council, Cotswold District Council and Forest of Dean District Council are seeking a four-year tender for the supply, installation, maintenance and repair of fast-charge points across their local authority districts, to be funded jointly

Tender and framework data supplied by

tussell

by the councils and a government grant. Price will not be the only award criterion, and Cotswold council will act as the review body, with up to 21 participants envisaged in the framework agreement.

Contact: procurement@publicagroup.uk

3. Aberdeenshire Council

Provision of Passenger Transport Management System

Bid deadline: 24th June

Tender value: £190,000

Aberdeenshire Council's Passenger Transport Unit is looking for an ICT Company to replace its client transport management system. The system will be used for allocating the Scottish local authority's school transport and social care clients to the optimum transport routes, scheduling and improving routes, and monitoring transport contract finance and invoices.

Contact: marion.mackay@aberdeenshire.gov.uk

4. Bath and North East Somerset Council

Electric Cycle Hire

Bid deadline: 5th July

Tender value: £125,000

With the success of cycle hire and bike share schemes in cities and large towns across the UK, and following the end of the nextbike scheme in the city, Bath and North East Somerset Council are offering an opportunity to operate an electric cycle hire scheme following a successful bid for funding from the Department for Transport. nextbike bicycles were hired over 34,000 times since their launch in June 2014, and had 4,000 customers registered in Bath. The scheme ran for three years without subsidy after initially receiving Local Sustainable Transport Fund grants from central government. It is expected that some of the existing stations will be

reopened and redeveloped under the new electric bicycle programme.

Joanna_sammons@bathnes.gov.uk

5. South Gloucestershire Council

Microprocessor Optimised Vehicle

Actuation (MOVA): Design, Configuration and Validation

Bid deadline: 19th July

Tender value: £120,000

South Gloucestershire Council is looking to award a road equipment and land transport support services company a contract for the deployment of traffic signal control in the county using Microprocessor Optimised Vehicle Actuation (MOVA). MOVA technology is increasingly used at junctions across the UK and between 200 and 300 of the systems are being added to the UK's road network every year. MOVA products are designed to minimise congestion by detecting traffic flows in real time on the approach to junctions, and dispersing queues by adjusting the length of red and green signals according to the collected up-to-date traffic data.

Contact: procurementhubecs@southglos.gov.uk

Total value: £102.835m

THE LARGEST PUBLIC SECTOR CONTRACTS OPEN FOR BIDS SOON

“Pre-Information Notices” give advance warning of contracts that will soon be open for tenders.

1. Highways England

Free-Flow Charging Package A: Road User Charging Services

Tender value: £90,000,000

Highways England is looking for a contractor to operate a free-flow road toll system between 2021 and 2024,

covering the Dartford-Thurrock River Crossing, an area with an existing road user charging scheme, and any potential future road user charging scheme. Several procurement packages will be available, including a road user charging service to detect vehicles, create vehicle passage records, match records with payments and exempt vehicle lists, processing of payments, and account management, as well as packages for the enforcement of vehicle charging and the processing of penalty notices for non-paying vehicles both within and outside the UK.

2. Transport Scotland

Traffic Scotland Operations and Infrastructure Services

Tender value: £35,000,000

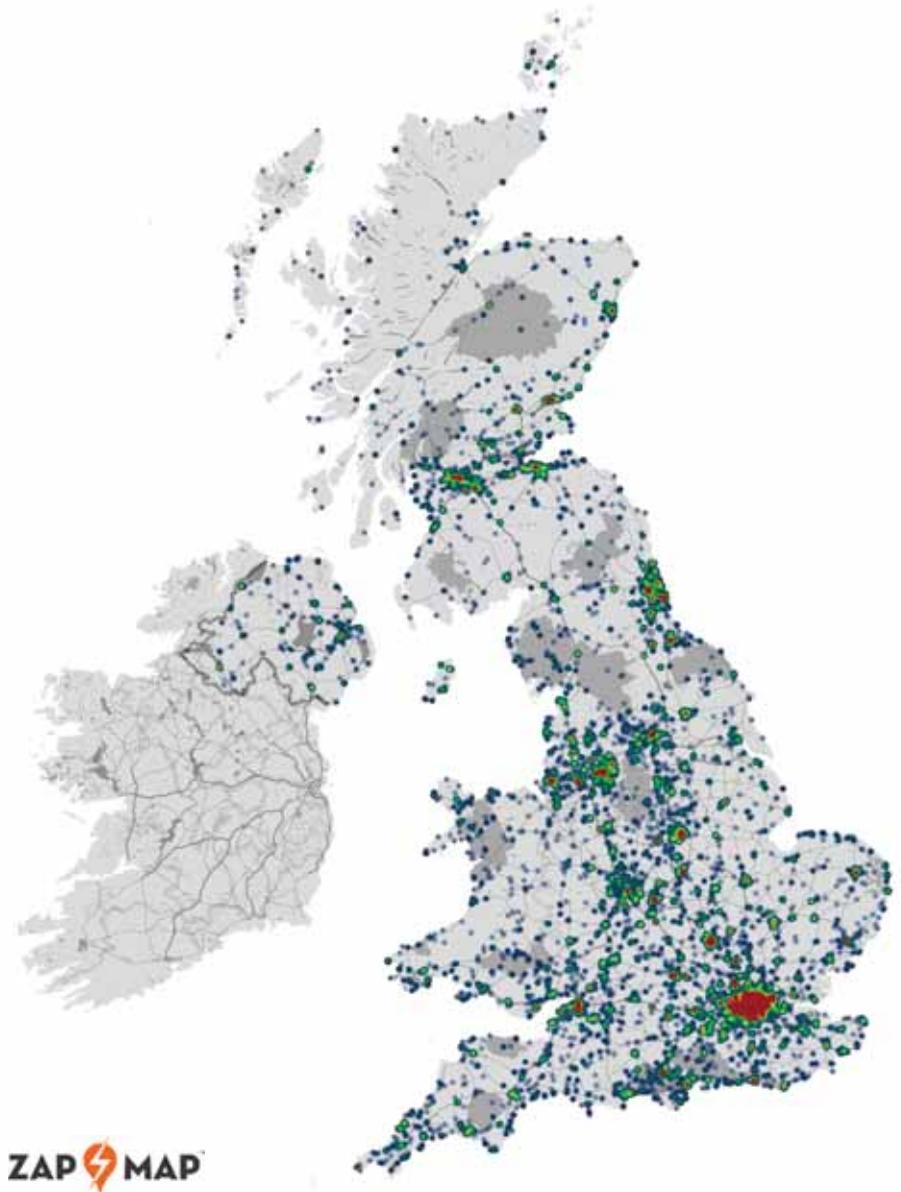
Scotland's devolved national transport agency is seeking an operator to carry out the maintenance of existing Traffic Scotland equipment and the construction of new or replacement equipment, including intelligent transport systems, transmission buildings, and communications. Management and operation of the Traffic Scotland National Control Centre and delivery of the Traffic Scotland Radio Service will also be part of the contract.

3. Translink Northern Ireland Ltd

Translink (NIR) Train Driving Simulator

Tender value: £750,000

With the expiration of the current train simulator provider's programme in May 2021, Translink, a transport-providing public corporation in Northern Ireland, will soon be putting a contract out to tender for a replacement organisation to deliver software and hardware, and provide maintenance of its train simulator. The simulator will be used for the training of new Translink drivers and the continuing competency assessment



The heat map shows the relative density and distribution of EV charging points across the UK.

of existing Translink drivers.
Contact: neil.bowers@translink.co.uk

4. Transport for London

Deep Tube Upgrade Programme (DTUP) – Signalling and Train Control (S&TC)

As part of the Piccadilly Line upgrade on the London Underground network, Transport for London will put be looking for a contractor to carry out the development, design, manufacture, supply, installation, testing and commissioning of a new signalling system and the associated service control

facilities. TfL intend for the new system to replace ageing current assets, and for the new project to provide for automatic train control, automatic train protection and automatic train operation.

5. Network Rail Infrastructure Limited

TRU ETCS GRIP 4-8 Delivery

This project will deliver the European Train Control System (ETCS) Level 2 as part of the Transpennine Route Upgrade Programme from Manchester Victoria to Leeds, as well as technical integration and whole life care and maintenance.

Edmund King, president of the Automobile Association, gives his view on the policies and infrastructure needed to support the uptake of electric cars

What would it take for drivers to go electric?



Eighteen years ago, I picked up the keys to my first electric vehicle from former Mayor of London Ken Livingstone in Trafalgar Square. I was part of pilot scheme to trail this pioneering car for six months. But the first electric vehicles were around more than one hundred years ago, and an electric vehicle held the land-speed record until about 1900. Then the internal combustion engine kicked in and petrol and diesel have been the dominant source of road vehicle power every year since.

Now it is widely predicted that the tide is turning as the UK government has indicated that practically all new cars should be zero emissions by 2040. The car I picked up almost 20 years ago was quite different from the electric cars of today. It was a Ford Th!nk City, with a body made of polyurethane with a top

speed of 56mph and a range of about 37 miles. Back then charging was a bit of a problem as there were next to no public charging points. Somehow, I managed to persuade a private car park off Pall Mall to put in a charge point which was actually a 13-Amp plug socket, but it worked nonetheless.

I did have a problem at home though, as I lived in a first-floor flat in Islington. Running an extension cable out of the flat, down the wall and across the pavement wasn't ideal. The range of 37 miles was also testing as one night I discovered that didn't take account of the windscreen wipers, so I ran out of power in Radlett on my way to St Albans in the rain. I had to call the AA.

So almost two decades on, how have things changed? Well, despite rhetoric and challenging climate change targets, practical measures are needed before



mainstream motorists will be convinced to buy electric vehicles.

At the AA we run a motoring panel with pollsters Populus and get responses from approximately 20,000 drivers every month. We use this data to inform our thinking on trends such as the uptake of EVs. According to our latest polls the biggest barriers to choosing an EV are price, range and the availability of charging points.

EVs cost £10k more than petrol cars

When asked what it would take for them to choose to drive a battery-electric vehicle, our members cited a range of factors, including for EVs to cost the same (or less) than petrol and diesel cars (35 per cent) and for the real-world range of these vehicles to be greater than 250 miles on a single charge (33 per cent). Nearly a third (27 per cent) highlighted the importance of more charging points in town and city centres, while a quarter (25 per cent) wanted to see more “rapid chargers” on motorways. A greater choice of EV models was prioritised by 16 per cent of respondents, while 15 per cent suggested that they would switch to an EV if the penalties for driving petrol or diesel cars became too high.

Men are significantly more likely to be concerned about range while women are more likely to be concerned about charging points where they park. We have also recently tested support for possible regulatory ideas that could be implemented to try to encourage the uptake of plug-in vehicles – both battery-electric and plug-in hybrid. The popular possible measures were:

- Installing charging points as standard in all new homes with their own off-street parking (68 per cent).
- Installing charging points as standard for all new homes with allocated parking nearby (65 per cent).
- Defaulting home chargers to off-peak charging (59 per cent), but 75 per cent say drivers must be able to override to charge immediately.

The real problem is that half of drivers find the whole subject of charging rather confusing due to the number of different types, speeds, payment methods and connectors. It’s no surprise that more than three quarters (77 per cent) of the people surveyed support the idea that there should be a uniform method of accessing public charging points.

The majority of EVs in the future will do their main charging overnight at home. Three quarters of AA members park their cars overnight off the road and on their own land (58 per cent on the driveway, 16 per cent in the garage)

where, potentially, they could be charged. But that means one quarter of mainly city dwellers would not have access to their own charging point and hence we need more on street and off-street solutions perhaps using office or supermarket car parks not used at night.

The government recently floated the idea of EVs having green number plates so that the public becomes more aware of the increase in EVs. Views are divided on this with around a third (37 per cent) supporting the idea of green number plates, a third having no view, and a fifth (22 per cent) being opposed to it. The cynic may argue that it would make it easier for local authorities to target non-green number plates with hiked parking or congestion charges. If it does then we can soon expect to see a black market in green plates.

It is easy to say that all new cars should be electric by 2030 or 2035 or any arbitrary date but the reality is that the legitimate concerns of drivers regarding cost and supply of vehicles, range and ease of charging need to be addressed.

The big game-changer for a large majority (84 per cent) of drivers will be when the car manufacturers can offer the right car at the right price. On average EV models are at least £10k more expensive than equivalent petrol or diesel models, even with the current government EV grant of £3,500.

Throughout history we have seen certain iconic cars break the mould from the Model T Ford through to the Morris Minor, Mini or Beetle. Once we can buy an EV that is stylish, fun, economical to insure and run, and with a decent range, then it will be that game-changer. The electric revolution over the next 18 years will have to be on a massive scale relative to the comparatively slow progress over the last 18 if the government’s zero emissions target is to be met. Trying to achieve this by taxing or charging conventionally fuelled vehicles off the road wouldn’t be acceptable without affordable alternatives. If car buyers are going to embrace EVs, then we’re going to need that game-changer soon.

The future of mobility

The opportunity to power the next generation of transport is huge, and it will belong to those best able to innovate. Shell UK gathered a panel of experts to discuss where the smart money is being spent



In 2017, the Saudi Aramco executive Yasser Mufti told the *Financial Times* that “the entire mobility chain” was “up for grabs”. Opportunities for disruption, he said, were unlimited.

Two years on, the disruption Mufti imagined has accelerated. Energy use is changing, and so are the types of transport people want to use. Electric cars are growing in popularity, but many millennials are less interested in driving than their forebears. Urban mobility is a complex mixture of needs that are changing fast. At the centre of all this disruption is the question of power – who is investing enough, and in the right places, to manage the switch?

A cleaner \$2bn

Sinead Lynch, chair of Shell UK, observed at a Manchester conference to debate the UK’s future mobility challenges, that Shell invests up to \$2bn a year globally into clean energy “making us,” said Lynch, “one of the biggest investors in clean technology.”

That \$2bn goes to clean energy

projects with real commercial scalability. In the long term, business models for many energy players could be described as nuanced, or even provisional. Everyone in this area, it seems, is learning on the job.

Kevin Toye, advanced solutions manager at Transport for Greater Manchester, agreed that laying the groundwork for a transport revolution involved a lot of prediction. “We’re in a position of trying to plot and deploy an infrastructure,” he observed, “and to be flexible enough to meet demand.” This infrastructure, he explained, cannot be generic – it must be customised “to suit different charging requirements and different locations.”

While the resources for this kind of deployment remain limited, investment in the Manchester EV environment stretches back to 2011. “We’ve gone,” Toye adds, “to the extent of creating our own GIS [geographic information system] mapping tool, to help us be more defined about the locations and type of infrastructure we could deploy

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across the region.”

This involves pulling together a number of datasets, including existing power supplies and energy traffic flows, to ensure the local infrastructure can handle demand from any location.

The hydrogen alternative

While there are only around 100 hydrogen fuel-cell vehicles on the UK's roads, hydrogen as a technology holds many advantages. Shell's Sinead Lynch predicted that hydrogen could turn out to be an important power source for vehicles of the future.

“It's safe”, she explained. “You can fill up a car, it takes a couple of minutes. The only thing coming out of the exhaust is water vapour, and you can drive 300 miles on that full tank.” The power giant is putting hydrogen points into some retail sites. Toye confirmed that his department, too, is looking closely at hydrogen.

Rebecca Todd, a lecturer at Manchester University's Power Conversion Research Group, told the

conference that battery prices are coming under pressure, which is likely to make electric cars more affordable. As part of Todd's research, she checked 2014 prices against 2018 prices. “The battery price halved over that period.” In future, Todd predicted, “battery prices will continue to fall, though perhaps not at that dramatic rate.”

Power for the masses

Part of the price pressure on batteries is down to the fact that more EVs are on the road, supplying economies of scale and justifying the implementation of more grid-connected storage systems. “Almost every weekend,” Todd explained, “there's a new multi megawatt system being installed somewhere in the UK. The sheer volume of batteries being bought”, she said, means “these costs will come down.”

Even among non-motorists there is pressure for cleaner transport. In Greater Manchester alone, 1,200 deaths a year are linked to air pollution, while congestion is thought to cost Manchester's economy £1.3bn a year.

Alternative power sources are part of the answer to these social and commercial challenges, but communication also has a part to play. Charlotte Green, director of EV Charge UK, which develops and supplies electric vehicle charging stations, said the appetite for EV charging points in the last four years has soared. “People are more aware, but there's a lot more to be done to promote the benefits of EVs. I come from a village – and some people still don't know what a Tesla is.” Members of the public remain susceptible to “range anxiety” where EVs are concerned, despite newer, more affordable models offering close to 300 miles from a single charge.

Those same people may already, though they might not realise it, be using hybrid or electric vehicles when they use public transport. The patterns of use and demand may themselves be difficult to predict, but the one certainty is that the entire mobility chain is changing, and fast.

The Shell Springboard Awards

The Shell Springboard low-carbon enterprise awards, an initiative to fund UK SMEs with innovative, low-carbon business ideas, fielded eight entries at the recent semi-final.

Judge Professor David Newbery, CBE, of the University of Cambridge, said the quality and range of the proposals were deeply impressive.

“Some of the potential carbon savings are enormous,” Newbery said. “We have to take carbon out of the atmosphere – and we had two projects that proposed that, potentially on massive scales.”

The three finalists are:

BioCarbon Engineering

A drone platform for large-scale planting “which enables land restoration at 60 times the speed, at a cost five times less than current planting methods” according to the company. Revenues can also be generated through mapping and data sales to restoration and forestry management groups.

Anakata Wind Power Resources

Aerodynamic add-ons for wind turbines anywhere in the world. “Cost is based on the energy return of the hardware over a one to two-year payback period,” says the company, drawing on innovation from motorsport and aerospace.

Cambridge Photon Technology

An Organic Photovoltaics specialist that has developed a Photo Multiplier Film (PMF), increasing the capacity of PV installations. “There are several possible routes to market, selling either to PV module manufacturers or to their major suppliers of glass or encapsulant film,” says the company.



China bought 15 times as many LSEVs as regular electric cars in 2014



The big, fast market for small, slow cars

Will Dunn

Just over half a century ago, in 1967, Ford developed the “Comuta” – an electric car that was very small and had a top speed of less than 40mph. It was said that three Comutas could fit into a single parking space, although this was never tested, because only two were ever built. In the aspirational car-buying market of the 1960s and 70s, a tiny EV was unlikely to take off. But in an increasingly urbanised world, in which big, polluting cars are ever more unwelcome, the low-speed electric car is having its moment.

So far the boom has chiefly taken place in China, where sales of low-speed electric vehicles (LSEVs) have grown from a standing start at the beginning of the decade to immense volumes today. China made and sold around 1.4 million LSEVs in 2018 – more than 90 times the total sales of all electric vehicles in the UK for the same year. The surge in sales was created in part by the fact that in most cities, drivers do not need a license, insurance or even a number plate to take to the road in an LSEV, and in part by the vehicles’ extremely low prices. A new microcar that will seat up to four people and reach 30-40mph can be bought for less than £2,500; some of the cheaper brands sell for less than £800. And, being electric, fuel cost is not an issue. In the first, explosive growth of this and unregulated market, crashes were frequent, copyright was something that happened to other people (many LSEVs

are deliberately styled to look like miniature Mercedes, BMWs and even Bugattis) and safety was a secondary concern. Then the Chinese government stepped in – partly to address the issues of safety, and partly because LSEV sales don’t count towards growth in its electric car market, which it is aggressively trying to promote – and growth slowed. All the same, LSEVs remain by far the most popular product in a country that sells more electric cars than the rest of the world combined.

For some manufacturers in China, it is in the rest of the world that opportunity now lies. Kaiyun Motors in Xingtai has been in business for five years and makes a small electric pickup truck, called the Pickman, which it plans to sell in Europe for around £7,000. Tesla’s planned electric pickup is likely to cost around £40,000. And while the much heavier regulation of cars in Europe and the US may make it more difficult for LSEVs to enter the market, the road has already been paved by vehicles such as the two-seater Renault Twizy and the diminutive G-Wiz, which was – despite its own safety issues – the UK’s top-selling EV for several years.

Small, affordable EVs are most likely to become popular in urban centres in the UK, where the pollution caused by internal combustion engines is most dangerous and the roads are most crowded. The next Comuta will not have a 52-year wait before taking to the road.

A holistic approach to future transport

Charlene Rohr, transport policy expert at RAND Europe, discusses autonomous and electric vehicles, and the effect they'll have on the transport sector and wider society

What is the future of transport?

Over the past 50 years it has been clear to us how people use cars, buses, trains or bicycles. But we're at a point where emerging technologies may have a really transformative effect on how people travel and actually have a broader and unpredictable effect on society. Fully autonomous vehicles (FAVs) – cars that are able to fully undertake the driving task – and electric vehicles (EVs) could have a huge impact, and not necessarily in ways that are immediately apparent.

FAVs could spell the end of traditional car ownership. Shared cars could become far more common as it becomes easier to order a vehicle that suits your immediate needs – smaller electric cars for short journeys, larger and more luxurious vehicles for longer journeys with more passengers. Individually owned cars that spend most of their time parked in driveways or car parks may become a thing of the past, freeing up valuable space in cities. We're already seeing



the growth of car share services and technology-enabled, pay-by-the-hour vehicle hire. This can only accelerate with the advent of convenient FAVs.

The Secretary of State for Transport, Chris Grayling, has set out his intentions to have “fully self-driving cars, without a human operator, on UK roads by 2021”, but there is no consensus on whether this is achievable. Some say it'll be difficult to introduce these vehicles into cities with cats, dogs, crowds of pedestrians, unpredictable movements, and changeable and sometimes dangerous weather. There will need to be an understanding of legal and liability issues when accidents occur. Nevertheless, huge multinational companies are investing billions to try and make FAVs a reality. At the same time, governments and public bodies need to take into account some of the secondary effects that these vehicles will have. It's important that in the middle of all this we don't lose sight of what people

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actually want from transport and from their urban environments and city living.

What is it that people actually want from transport?

As with many new technologies, FAVs will have positive and negative effects. Autonomous vehicles are likely to be better drivers than humans, meaning there will be fewer accidents and road fatalities. They could provide accessibility to disabled people and the elderly. They are also likely to be electric, meaning fewer emissions. So FAVs will probably have a positive impact on safety, accessibility and the environment. But there are other factors to consider. A shared, autonomous fleet might bring the cost of transport down for individuals, discouraging the use of mass public transport services or walking and cycling. This, and their convenience, could actually increase congestion, just as the proliferation of smartphone ride-hailing apps has increased traffic in many

large cities.

Also, increased car use runs counter to the visions of many European cities that are setting ambitious targets for reducing vehicle use. Sadiq Khan's vision for London is one where 80 per cent of London journeys are made on foot, bicycle or public transport by 2041, while Copenhagen aims for 75 per cent of trips to be completed in those ways by 2025. Similarly, authorities in Paris want to halve the number of cars, and Helsinki plans to do the same by rolling out cheap, on-demand public transport. An FAV revolution could derail these plans and increase dependence on private vehicles.

Then there are factors such as air quality, quality of our public spaces, and physical and mental health to consider. EVs are not without their social costs – the elements used in their batteries are mined in conflict zones, and particulates from tyres and brakes still cause air pollution. Heavy traffic – whether caused by FAVs, EVs or standard petrol cars – discourages bicycle use and hinders pedestrians, impacting health. Noisy and crowded public highways can be detrimental to any urban environment. In the short term there may be job losses and economic disruption that the spread of FAV use will cause to taxi, lorry and bus drivers, as well as the losses that will likely be incurred by insurers.

The way we approach transport has to be well-rounded and holistic. We can't adopt a one-size-fits-all model that focuses entirely on pushing FAVs and EVs. A sound approach would be to plan ways in which they can work in tandem with bicycles, pedestrians and public transport rather than replacing them, so each mode of transport complements the other, and to continue to limit demand for cars and private vehicles, whether they be driver-operated or autonomous.

What do policymakers need to do to support that kind of vision?

To encourage people not to use cars you need to provide good alternatives. That requires investment in quality, affordable public transport networks as well as cycling and pedestrian infrastructure.

But often these are not enough; experience in London and Stockholm has shown that congestion charges are a remarkably effective way to manage road travel. As a tool that governments have in their arsenal they are incredibly, and measurably, efficient. In London, the congestion charge immediately reduced traffic by around 20 per cent. In Stockholm, congestion charging was introduced, stopped for a referendum that voted narrowly in its favour, then reintroduced. During that period, congestion was reduced by 20 per cent, before rebounding back to previous levels upon its temporary abolition, only to fall by 20 per cent for a second time after the toll's reintroduction. The popularity of these charges remains high, presumably because of the benefits that they bring in terms of reduced congestion, improved air quality and better transport services funded by toll revenues. With new technologies, new charging structures will be required too. For example, with the advent of FAVs, it may be desirable to charge empty vehicles more than those with more occupants. Or to charge those with higher emissions more than those with low emissions.

Legislators, local and national governments have to keep a number of things in consideration: economic prosperity will always be high on the agenda, but they also need to consider quality of life, air quality, the quality of our public spaces, people's health, and access to jobs and activities. Policymakers with tunnel-vision may make policy choices with undesired consequences. For example, the focus on reducing CO₂ emissions in the UK and Europe led to a substantial rise in sales of diesel vehicles that have had a bad impact on air quality.

Vision, robust and adaptive plans, consistent monitoring, and a comprehensive and holistic framework are needed to bring about a truly 21st-century, integrated transport system, and to do that we need to keep transport policy people-focused, and make sure people's wants and needs for their urban environments remain at the forefront of the conversation.

A better future for rail

Mark Brown, development director for the Consulting & Rail Business Unit at Amey, talks to *Spotlight* about the challenges and opportunities of technology, integration and devolution in the rail industry



What links improved public transport and wider social and economic aims?

Improving public transport isn't an end in itself. Having high quality transport services is about transforming and driving economies. It's about encouraging investment, regeneration and opening up opportunities for people and for communities.

The current round of rail improvement in Wales is about kick-starting growth in the Welsh Valleys and spurring on the economy, connecting towns and cities and unleashing the benefits of improved connectivity and conglomeration. In Scotland the decision to reopen the Waverley line is about opening up the border, bringing in jobs, making those jobs accessible, and regenerating the towns and villages in that area.

So there's a whole range of economic and social multipliers that we see from transport spending, but to maximise benefits and improve efficiency we need to see a properly integrated transport system where service providers work

together rather than against each other.

How important is integration between train companies, regional authorities and the rail network?

Efficient public transport services have to be based on partnership and collaboration between all stakeholders and all interested parties. Rather than having multiple organisations competing to deliver or maintain different aspects of what customers experience as one overall service, it's essential that there is proper integration between operators, train companies, the rail network and regional authorities or devolved bodies.

Transport for Wales, set up by the Welsh government, has some excellent case studies in good practice. On the Cardiff Valleys network of the Wales and Borders franchise they have prioritised real integration as an immediate aim, and have decided that the same company that runs the trains should run the infrastructure. (In the rest of the network, it's Network Rail

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running the infrastructure and a whole field of operators running the trains.) KeolisAmey, the operators working on behalf of Transport for Wales, have designed an upgrade that involves both track and trains, with the two essential parts of the system considered together rather than separately, and delivering a joined-up transport service.

How is technology driving integration?

We're slowly making our way to automatic signalling controls, digital signalling and "in-cab" signalling. It's a matter of when, not if, this technology is adopted on every modern railway, and it's just a case of whether we want

Many lines are already at full capacity

to be ahead of the curve or playing catch-up. The basic infrastructure and technology is already there but it's going to take some time to design and implement. The Thameslink service through central London already uses in-cab signalling, as does the Docklands Light Railway, the Victoria, Jubilee and Northern lines. The benefits are obvious: 50 per cent more trains can operate on the same lines (up to 33 trains per hour on the Victoria line compared with 20 trains per hour on the Bakerloo line.) The technology uses in-cab tracking systems and so there's no line-side system that manages the services. Many lines are already at full capacity, with operators running longer and longer trains and running them more often, but with trains that are twice as regular you can double line capacity using the same infrastructure, and it's far cheaper than building new lines through environmentally sensitive areas costing billions.

Big data will also have a major impact on the industry, facilitating moves towards a better integrated service. Data can now be collected on any asset, any infrastructure, any train. It can measure performance and help manage the system far more reliably. It can show service providers where to prioritise spending on repairs and maintenance, whether on tracks, trains or other infrastructure. This prevents asset failures, reduces costs and improves safety, driving the potential benefits of integration in an industry that is too often siloed.

This kind of massive increase in capacity and efficiency, with new technologies acting as the catalyst, requires a more integrated system and holistic outlook to manage it. Network Rail already agrees common operating procedures with train companies, trying to initiate a more joined-up approach between the different parts of the transport service. There's good evidence that the private sector and public sector can work together to improve system performance, particularly where transport authorities

have acted to nurture and oversee an interconnected and cohesive network.

Will further devolution help?

It's a long time since privatisation – 25 years – and a lot has changed since then. A lot more people are travelling by rail. At the time, privatisation was seen as the sale of an industry that was in terminal decline as passenger numbers went down and car sales and intercity motorways seemed to grow and grow. But now there's a compelling case for doing things differently. Passenger numbers are higher than ever and the industry has been a victim of its own success. We're at a point where new models are required to deal with issues of capacity and with the application of new technologies – devolution can play a huge part in this.

Running a light rail system is different from running heavy inter-city rail, but Transport for London, Transport for Wales and Transport for Greater Manchester provide really significant clues as to where the future should lie in the heavy rail industry. The Welsh government, with the help of KeolisAmey, is in the process of taking control and integrating infrastructure and assets. London's devolution settlement has had an incredible impact on public transport in the city, and TfL's franchise system provides real cohesion as standard. Transport in Manchester has been transformed by the regional authority taking responsibility for assets like the trams and the airport.

Devolution is about localities taking responsibility and being held accountable for decisions, and can be a real driver of transformation and integration. Devolved bodies have greater clarity of policy aims and outcomes, and have a genuine desire to link transport to social and economic objectives. We should never lose sight of this ultimate goal – breaking down the siloes with better integration of track, trains and assets, and partnership between public bodies and operators leads to better transport outcomes that transform lives and communities.

Sharon Hodgson's constituency, Washington and Sunderland West, is home to the UK's biggest car factory. She looks at the opportunities for the next generation of vehicles

Will Brexit put the brakes on the North-East's auto industry?



The car industry in the UK is facing an extremely difficult period. Declining sales of diesel vehicles, the shift towards electric cars and autonomous vehicles and continuing uncertainty over Brexit are just some of the factors that have led some in the sector to suggest the industry is experiencing a “crisis”.

In May this year, responding to news that the number of cars built in the UK fell by almost half in April compared with a year ago, Mike Hawes, chief executive of the Society of Motor Manufacturers and Traders (SMMT) said: “Today’s figures are evidence of the vast cost and upheaval Brexit uncertainty has already wrought on UK automotive manufacturing businesses and workers.” He has previously also warned that

“Brexit is an existential threat to the UK automotive industry.”

As MP for Washington and Sunderland West, home to a large car plant, I am all too familiar with the potential impact that any further decline could have on the livelihoods of many of my constituents as well as thousands in the surrounding region. The Nissan plant in my constituency was opened in 1986 and today is an integral part of the manufacturing industry in the North East, providing a total of 40,000 jobs both directly and in the supply chain.

I was a teenager at the time it was announced that Nissan would be building the plant, and I remember feeling a real sense of amazement that something so positive was coming to our area. We had been through an



“Brexit is an existential threat to the car industry”

unbelievably difficult period under Thatcher, with the loss of thousands of jobs from major industry and an abject lack of investment in communities that were consequently suffering.

Today the plant has grown into a large site that runs two production lines and is one of the continent’s most productive car factories. Sadly, there have been some setbacks this year, with Nissan announcing it will end the production of the Infiniti brand at the plant and taking the decision to build the new X-Trail model in Japan, rather than in Sunderland as planned. After the latter decision had been taken, I wrote to the Prime Minister to outline some of the concerns I had, and to seek some assurances for the industry, including asking her to rule out leaving the

European Union without a deal.

At that time, there were just 51 days to go until we were due to leave the EU without a deal in place. Although the Brexit deadline has now been extended, the threat of a “No-Deal” outcome remains, and we now have a Conservative leadership contest to look forward to in which many of the candidates are seemingly trying to outdo each other on their No-Deal or Hard Brexit credentials.

The automotive industry has been clear in laying out the risks that such a scenario would pose, and Nissan has been no different. In February 2017, Nissan explained to Parliament’s International Trade Committee that trading under World Trade Organisation (WTO) rules would mean potential new delays at the borders and a financial impact of tariffs coming in at around £500m per year of additional costs.

Whatever happens next with Brexit, the automotive industry needs the security of zero tariffs and frictionless trade to continue operating successfully in this country. That is why the Labour Party has consistently called for the government to negotiate a new, permanent customs union with the EU.

Such a customs union would be UK-wide and seek to replicate the beneficial outcomes of the EU customs union, thereby removing many of the reasons for friction at the border. However, frictionless trade can only be delivered if a UK/EU customs union is complimented by regulatory harmonisation and alignment with the single market.

The shift towards electric vehicles presents both a challenge and a huge opportunity for the automotive industry. That shift is entirely necessary as just one way in which to combat the climate crisis we are experiencing.

Earlier this year, Labour forced the government to declare an environment and climate emergency and called on them to increase support and set ambitious short-term targets for the rollout of renewable and low-carbon energy and transport. Urgent action is

The UK lags behind Europe in uptake of EVs



needed, and the current Government has been woeful in its approach to tackling this existential threat.

Nissan has been at the forefront of developing electric cars and the battery technology which they rely upon. The Nissan LEAF, produced at the plant in Sunderland for the European Market, was the best-selling EV in Europe last year, and earlier this year became the first to surpass 400,000 sales. The Sunderland plant is also the only high-volume car manufacturer in the UK making a pure battery EV and has the first UK battery plant. With sales of the LEAF up to the end of 2018 growing year-on-year, it is becoming an increasingly important model for the plant.

Frustratingly, the uptake of EVs in the UK lags behind other countries in Europe. This is in part because the government has failed to create the necessary environment in which the EV market can thrive. They have cut grants for EVs, failed to invest sufficiently in charging infrastructure, and continue to hold an unambitious phase-out date of new petrol and diesel models of 2040.

By comparison, Norway has a target of 2025 for all vehicle sales to be low emission, the Netherlands and Sweden by 2030 and Scotland by 2032. Reaching the target of either 2040, or a more ambitious one, requires significantly bolder action by the UK government.

For consumers to make the transition to EVs, they need to have confidence that there is enough charging infrastructure across the UK for them to do their usual journeys, and the price of purchasing a vehicle needs to be affordable up front, not just over time.

Currently, electric cars can cost up to £10,000 more than petrol or diesel, and last year the government cut the grant for EVs from £4,500 to £3,500. We simply cannot expect people, many of whom were encouraged to purchase diesel vehicles not that long ago, to be able to afford new EVs when they cost so much. In the Labour Party, we were strongly opposed to the Conservatives' cuts to grants available and at the last election pledged an additional £200m to the Office for Low-Emission Vehicles.

We are also calling for a new Clean Air Act, with a network of clean air zones and an ambitious clean transport strategy to tackle illegal air pollution as a priority. We are currently a long way from achieving a widespread universal network of vehicle charging points which are both accessible and can charge a vehicle at the appropriate speed to match the location and consumer expectation. The current market-led approach is likely to lead to an unequal distribution of charging points and points being put in that may not be the most suitable in years to come.

If the government expects consumers to take the plunge and go electric, it needs to urgently set out a national strategic infrastructure plan for charging points across the UK, and support individuals with home charging and new technologies such as Vehicle to Grid (V2G) capabilities.

The move to electrification can and should be not only an opportunity for the automotive industry but for the country as part of radical action on achieving our climate change targets. It's a hugely exciting time but it simply cannot happen without certainty on Brexit and our future trading relationships, nor without the necessary support from government in supporting the industry to thrive in the future.

A breath of fresh air

Kevin Reynolds,
director of corporate
and public affairs
at the British
Parking Association,
discusses parking
and air pollution
in an age of
self-driving cars

If all vehicles were self-driving, would they ever need to park? If all vehicles knew where they could park would they ever park where they shouldn't? Air pollution is the UK's top environmental risk to human health. Transport is the biggest cause of air pollution, with children being classified as a vulnerable group. The National Travel Survey in 2017 revealed over 40 per cent of five to ten-year-olds travel to school by car or van. Effective management of parking around schools, which are notorious congestion hotspots, offers the greatest potential to improve air quality locally and benefit children.

There is immediate and growing pressure on government to reduce nitrogen dioxide levels. Nearly half of British Parking Association members are local authorities and we are working hard to raise awareness on how parking management can improve air quality with initiatives like our Association-backed Positive Parking Agenda. Our research shows that the average motorist in the UK cruises for nearly four days a year looking for parking spaces, highlighting the importance of having effective management of parking spaces, clear signs for car parks and using mobile and in-vehicle technology and smart data to help drivers locate available parking spaces.

We live in a digital world and the way we use data is transforming our lives. Key components of our future transport network will be underpinned by parking data which will allow autonomous vehicles and consumers to

search, book and pay for parking quickly and easily, reducing congestion and harmful emissions. The opportunities are immense, and we are leading the way on the appropriate use of data to make parking smarter.

Our members' ability and willingness to adapt and innovate with market-leading products is supported by a desire to improve everyone's parking experience. It is imperative that we continue to listen and communicate effectively with everyone. Today, consumer preferences are a key driver of change within our sector. Information is their lifeblood and that's why our digital initiatives are so important.

Our collaboration with the Department for Transport, GeoPlace and Ordnance Survey is improving our understanding of Traffic Regulation Orders, so we are ready for smarter vehicles. Working with our partners at the Alliance for Parking Data Standards, which we jointly own with the International Parking & Mobility Institute (USA) and the European Parking Association, we are developing a world-leading harmonised data standard for parking to enable vehicle manufacturers, parking technology providers and others to share parking related data across platforms globally.

In 2020 we celebrate 50 years as the leading association for our sector and there can be no doubt regarding our achievements: our focus on driving issues and raising standards is helping to deliver effective and efficient parking services across the UK that are a crucial part of our lives. Equally, we all recognise our world is changing and we must adapt to meet the evolving needs of our members, stakeholders and consumers. With Ford, EoN, and Uber joining us, and BMW and VW-Audi already part of our community (having acquired existing members providing services such as in-car journey planning, parking guidance and payment technologies), we are ensuring we are relevant now, and for the next 50 years, in a future that goes far beyond parking.

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A step up to real smart cities

For genuine, practical smart cities the technology is already here, says **Neil Herron**, founder and CEO of **Grid Smarter Cities**

What do you see as the future for smart cities?

For all the talk of “smart cities” and their future the conversation is often based on technologies more associated with science-fiction, rather than being grounded in practical steps that can be taken here, today.

Grid Smarter Cities believes it’s important to focus on the here and now and to implement common sense solutions to everyday problems. We’ve got backing from Innovate UK, which promotes business-led innovation, and the technologies we’re developing can be used in any city across the world.

How do these new technologies fit into the drive towards smart cities?

At Grid Smarter Cities we’ve developed an application called, appropriately, Kerb, which allows freight vehicles and commercial operators to book slots on previously restricted kerb space for unloading their goods, rather than circling their destination, competing for kerb space and causing unnecessary congestion and emissions.

Kerb space holds the key to huge amounts of commercial activity in any city. It is the first port of call for many a business, from small market traders to multinational giants, and yet it is a hugely undervalued piece of real estate, and is used incredibly inefficiently. Kerbs are where taxis pick up and drop off, where cars park, where we find cycle hire schemes, where buses stop, deliveries are made and commercial vehicles load and unload.

Many larger cities are struggling with

crowding, traffic problems and air pollution, with some imposing congestion charges in city centres to try and stem the tide. But a lot of these problems could be addressed with more effective management of kerbsides.

How would kerbside management work and what benefits would it have for local authorities and for businesses?

At the moment, in London, there are £130 fines for parking on red routes, but many delivery companies see that just as a cost of doing business. Large commercial freight operators are collectively picking up fines running into millions every year.

The Kerb app would allow a better regulated system that uses pricing to “nudge” vehicles into using limited kerb space at off peak times, or limit commercial vehicle use in low-emission zones through differential charging. Planes would never be allowed to land without a slot, so councils should look at ways to move away from a chaotic free-for-all system to a managed approach that offers permissions and incentives for commercial activities at times that have the least impact on the traffic network.

We’ve also developed an app, Dash, Delivery as Service for High Streets, which has the potential to revitalise small business activity in cities by connecting market traders digitally to consumers, adding them to a virtual marketplace as well as a physical one. The app allows small businesses to operate online on the same terms as multinationals. It’s been piloted and tested in Sunderland, and could play a key part in giving high streets a much-needed boost.

Simple, clear solutions to common problems like congestion and business improvement – that’s what is needed if we want smart cities to become a reality. Technologies such as Kerb and Dash have the potential to do just that.

For more information, please visit:
www.gridsmartercities.com

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The speeding crisis needs a smart solution

Here's a business idea that you can use to make a few hundred million. To start, you'll need a small computer that runs Linux (I'd recommend the British-made Raspberry Pi, for £23) and a couple of camera modules. Next, you'll need to write (or pay someone else to write) a programme that uses the input from the two cameras to correctly judge the speed of a passing car. This is the tricky part, but it's not insurmountable – I've asked engineers exactly how tricky it would be, and the consensus is that there is now widely available machine learning software that could accomplish this. Combine these elements into a waterproof case, with a power supply (ideally a solar panel) and a SIM card. Train and test your AI speed camera until it works reliably.

Why? Because the most common speed camera in the UK and Europe costs from £20,000 per unit to install (or £40,000 if it's in a rural area and needs its own power supply). This doesn't include the contract for maintenance, which is necessary because many of them still use film – which tells you all you need to know about how ripe for disruption this market is. People I've spoken to say it's possible to make a networked digital speed camera that works well enough to achieve certification for under £1,000.

Better yet, offer them for free. Use the same model that Apple uses with developers: give councils the tools to make money, and take 30 per cent of the income. For cash-strapped local government, the offer of income without investment will be irresistible. You could also increase adoption, and generate



Roads may be the one area in which mass surveillance is truly justified, writes Will Dunn

public support for the system, by allowing people to request them on an online map. People say they hate speed cameras, but they all want one next to their children's school.

The 6,564 speed cameras in the UK represent well over £150m in installation costs alone. The most recent Home Office statistics record over two million speeding penalties in a year – about one every 16 seconds – with fines ranging from £100 to £2,500. Capturing 30 per cent of the UK's speeding fines would be worth over £100m a year. And that's just in the UK; the installation cost of Europe's speed cameras is well over £1bn.

You will be despised for your efforts by people like Jeremy Clarkson and Nigel Farage, but then, you're a *New Statesman* reader; they hate you already. And you will make people a lot safer. Studies conducted in 1996 and 2003 found that speed cameras reduced fatal accidents by 28 to 35 per cent. At 40mph, someone sitting in a front seat is five times more likely to be severely injured than at 20mph. Last year, 1,770 people were killed, suddenly and violently, by cars. Of the 26,610 people who were killed or seriously injured on the UK's roads last year, 1,310 were child pedestrians.

No other form of transport would tolerate this kind of danger, and the risk we all have to bear is not remotely worth the tiny gains in time or efficiency it offers. People who insist on the right to speed are lethal idiots, but they are also voters, and governments have not stood up to them. But for an inventive business, this crisis may also be an opportunity. Why not give it a go?



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