

TRANSPORT **BRITAIN**

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GEESINKNORBA'S ALL ELECTRIC JOURNEY

FROM climate change to clean air, pressures to reduce our impact on the environment are mounting in every walk of life. But in the waste recycling industry, Geesinknorba has for many years been leading the way towards an emissions-free future.

And that future arrived earlier this year as the first all-electric refuse collection vehicles (RCV) glided onto the UK roads.

The new Li-on Power Pro uses Geesinknorba's GPM IV body, which had been electrically powered in its hybrid vehicles for several years, but now mounted on a chassis that is also battery powered.

It is developments in lithium-ion battery technology that have now enabled batteries to store enough energy to drive the chassis too.

Geesinknorba developed its own battery packs and the software to manage them produced a vehicle that has sparked interest across the industry.

UK Business Director Mick Hill said: "Geesinknorba was the first company to bring hybrid RCVs to the UK – as far back as 2009 – and these vehicles, with bodies powered by electricity from battery packs, have since become familiar across Europe, from London to Barcelona.

"But it is the driving around of a heavy RCV that is the real energy-sapping part of a waste collection operation.

"While early batteries were powerful enough to operate the lifting, compaction and tipping aspects of waste collection, the range they allowed RCVs

without having to be recharged was so small that it wasn't a commercially viable option.

"But recent developments to both lithium ion batteries and RCVs mean the sums now add up.

"Our GPM IV body – launched back in 2015 – was designed to be thoroughly energy efficient. The designers significantly reduced weight of the body – which is made with one-piece, high-strength pressed steel sides – without compromising on strength or durability of the body.

"And they further reduced weight and redistributed it for greater efficiency by moving key electronic and hydraulic components closer to the elements they are serving and away from the tailgate.

Clean up with Geesinknorba



“The battery technology followed a similar pattern and we now have smaller, lighter battery packs storing enough electricity to power the all-electric Li-on Power Pro on a complete round without recharging.”

The all-electric RCVs are currently targeted at urban rounds where vehicles travel relatively short distances before they've collected enough material to need emptying.

But urban areas are where action to reduce emissions is most urgently needed. Earlier this year, doctors warned that lives of people in the UK were being cut short by particulates and nitrous oxides from diesel engines.

It is estimated that a typical, conventionally powered RCV will consume around 70 litres of diesel fuel a day, adding up to the annual emission of 52

tonnes of CO₂, 160kg of CO and 380kg of NO_x gases – plus particulates.

In comparison, the Li-On Power Pro will produce none of these directly. Instead, its batteries will be charged by electricity which is increasingly likely to be produced from renewable energy sources. Several larger operators are already considering the installation of wind turbines at their own depots.

“Many local authorities are already taking action to reduce the problem with more than 200 towns and cities in 14 countries across Europe already operating or about to introduce low emission zones (LEZ),” said Mick Hill.

“In the UK, London introduced its LEZ in 2008 and will introduce its ultra-LEZ in 2019 and many others are planning to introduce clean air zones (CAZ).

“Geesinknorba is at the heart of the waste and recycling industry. As an RCV manufacturer, we have a key role to play in cleaning up the streets, minimising our impact on the environment and boosting the circular economy. We should be part of the solution – not contributing to the problem.

“So it's down to use to produce vehicles that have as little impact on the environment as possible. We led the way with hybrid vehicles and we've done it again with all-electric Li-On Power Pro.

“We can't wave a magic wand and do away with diesel vehicles overnight – they will still be needed for the foreseeable future. But we're now giving a lot of customers a genuine option of operating emissions-free RCVs. And the technology that enables this is only going to continue to develop.”

FROM THE EDITOR

THIS year has seen local and central governments set aside money and resources to improve their transport structures and safety. This is no more obvious than in London, where TfL is working diligently to reduce collisions on its transport network. Lilli Matson, Director of Transport Strategy, explains how Vision Zero is key to this.

Elsewhere, work on the first phase of HS2 is continuing at pace. The initial work highlights the importance of archaeology on the site. With that in mind, Mike Court, Lead Archaeologist on HS2, discusses the process.

The significance of Brexit continues to intensify. We spoke to the Chief Executive of the Chartered Institute for Logistics and Transport (CILT), Kevin Richardson, who outlined how members are being advised in preparation for the official exit from the EU on 29 March 2019.

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Transport Britain is a unique business to business marketing platform aimed at bringing together the best of British Business and providing the opportunity to showcase products and services relevant to the development and success of British companies in the domestic and international market place.



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// THE CHANCELLOR'S BUDGET WILL INVEST HEAVILY IN INFRASTRUCTURE

THE Chancellor of the Exchequer put forward several commitments to improve the country's infrastructure in the Budget, with the Transforming Cities Fund extended.

Philip Hammond's 71-minute Budget declaration to the House of Commons made a series of promises that will help to improve Britain's railways and roads.

Part of this is extending the Transforming Cities Fund; launched last year as part of the government's Industrial Strategy, the Transforming Cities Fund was initially worth £1.7 billion which was set aside for investment in transport links, upgrading infrastructure across the country and targeting weaknesses in the transport system.

As part of the Budget, Mr Hammond announced a significant boost to this fund, as well as investment for smart transport.

He said: "Our devolution agenda is giving power back to the people, and we go further to fire up the Northern Powerhouse, fuel the Midlands Engine and back our regions across the UK.

"We're increasing the Transforming Cities Fund to £2.4 billion and providing an additional £90 million to trial new models of smart transport, including 'on demand buses'."

Elsewhere, the Chancellor committed a further £37 million of additional development funding for Northern Powerhouse Rail; £20 million to develop a plan for "the critical section of East-West rail between Oxford and Cambridge," and an investment of £291 million that will unlock 18,000 new homes in East London through improvements to the Docklands Light Railway.

With housing shortages so

apparent in England, the latter is also an extremely important announcement.

In the Budget, the Chancellor also confirmed earlier reports about the multi-billion pound investment into the road network.

This will be supported by a £28.8 billion National Roads Fund which will be paid for by road tax and includes £25.3 billion for the strategic road network – so will upgrade motorways, trunk and A-roads.

This is, according to the government, the largest ever investment of this kind.

The network of local roads and larger road projects will also be supported by this investment, while local authorities will receive £420 million to fix potholes, renew bridges and tunnels, and £150 million will improve local traffic hotspots.

// NIC TO EXAMINE RESILIENCE OF UK'S INFRASTRUCTURE IN NEW STUDY

THE resilience of the UK's infrastructure will be examined by the National Infrastructure Commission (NIC).

Designed to consider the action required by the government in order to make sure that infrastructure can cope with the challenges associated with accidents, disruptions and shocks, the study of the resilience of the UK's infrastructure was announced in the Chancellor's Budget.

Philip Hammond committed significant funds to improve the UK's infrastructure, with billions of pounds expected to upgrade our roads; an increase in the Transforming Cities Fund; and extra money for Northern Powerhouse Rail.

In addition, the Chancellor has commissioned the study from the NIC which will look at resilience, how it can be assessed

and improved, with options including better design and the application of new technologies.

With transport and other services becoming much more sophisticated, it means infrastructure systems are much more vulnerable and can have a significant impact on businesses and people's lives if they are disrupted.

Building on the National Infrastructure Assessment (NIA) set out in July, the study will review UK and international knowledge and approaches; undertake 'stress tests' of sectors, areas and organisations; analyse the resilience of economic infrastructure systems, including the costs and benefits of improvements; and help to develop an understanding of public expectations and response to the potential loss of infrastructure services.

The NIC's Chairman, Sir John Armitt, explained the importance of the study.

He said: "The nation's infrastructure is not only critical for our economic success and prosperity, it's central to each of our daily lives.

"Whether it's the roads and railways that take us to our destinations, the telecoms that connect us or the energy we use to heat our homes, we all rely on these systems running smoothly.

"Our new study will examine how we can ensure our infrastructure is fit to cope with future changes and challenges, while at the same time capitalising on the opportunities presented by an increasingly digital world."

The final report and recommendations will be published in spring 2020.





// COMRES SURVEY HIGHLIGHTS NEGATIVE IMPACT OF 'BOOM AND BUST' RAIL FUNDING

A survey undertaken by ComRes on behalf of the Railway Industry Association (RIA) reveals that business leaders believe the 'boom and bust' pattern of funding in the rail sector has had a negative impact.

An independent polling company, ComRes has produced findings that show the 'boom and bust' mentality can hinder businesses from investing in projects, hiring staff, and can even be fatal to the future of the company, particularly for SMEs.

According to the findings, more than two thirds of respondents (68%) believe that the term 'boom and bust' accurately describes the nature of government spending within the UK's rail sector.

Almost all respondents (99%) say they experience peaks and troughs, with only 1% describing the pattern of spending as 'smooth and consistent'.

Crucially, the vast majority of business leaders who took part in the ComRes study reveal these peaks and troughs in investment are negatively affecting their businesses.

The number of respondents who said this equates to 86%, while only 1% said this type of spending has been positive for their business.

Elsewhere in the poll, 96% of business leaders believe that the government has to do more to smooth out the peaks and troughs associated with rail spending, while just 4% think enough is being done by the government.

The ways in which organisations are affected are wide and varied, with 61% saying they have had to freeze recruitment during this boom and bust cycle; 50% have decided against employing people as a result, while 45% say it has meant not going ahead with investing funds in their organisation.

The RIA has already spoken about the need to end 'boom and bust' spending, and Darren Caplan, Chief Executive, said this research provides further evidence.

He said: "This new polling is further evidence, as if it were needed, that all parties need to redouble their efforts to end 'boom and bust' in rail funding once and for all."

// DRAFT ROAD INVESTMENT STRATEGY 2 PUBLISHED BY DEPARTMENT FOR TRANSPORT

THE government has released its draft Road Investment Strategy 2, which sets out the objectives of the government to upgrade the Strategic Road Network (SRN).

As well as setting out objectives, resources available, and the timetable by which participants have to provide the government with more information, the second road investment strategy has been influenced and written in line with the consultation process.

This ran from December 2017 to February 2018 and researched road traffic growth, induced travel demand, road connectivity for ports and airports, public dialogue into future roads, and new road transport technologies and services impacts.

The Road Investment Strategy 2 will set out the spending on

the SRN for the financial years 2020/21 to 2024/25, which is set to be even more than the initial £15 billion set out in the first Road Investment Strategy for 2015 to 2020.

Jesse Norman, Parliamentary Under Secretary of State for Roads, Local Transport and Devolution, said that the documents published summarise what has been learned through research and consultations, with objectives set out in Road Strategy 2 in consequence of this.

He said that Road Investment Strategy 2 should reinforce progress in the key areas of safety, customer service and delivery.

The consultation has also identified a “desire for an SRN that provides reliably smooth journeys for its users, has a positive impact on its surroundings and the people who live, work and relax

around it, and that makes intelligent use of emerging technologies and ‘green infrastructure.’”

The draft Road Investment Strategy 2 makes it clear that, for the successful delivery of the strategy, cooperation of a wide variety of stakeholders will be required – in particular those with expertise and understanding of local and regional priorities, so that decisions are respectful of place.

Close working relationships will be required with sub-national transport bodies; devolved administrations in Scotland and Wales; local authorities with local highways responsibilities; and police and other emergency services.

The draft Road Investment Strategy 2 ends by confirming the finalised strategy will be published towards the end of next year.



// A FRESH START FOR AIR QUALITY

By Rebecca Kite, Environment Policy Manager, Freight Transport Association (FTA)

With the government making a firm commitment to improving air quality nationwide, much of the burden to do so will now fall on those operating vehicles on the nation's road network. FTA, the only business group representing all of logistics, is positive there will be significant progress in this area in the coming years, since much has already been done to clean up the air which we breathe.

2018 has seen the introduction or expansion of several schemes – most notably Clean Air Zones (CAZ) and Ultra Low Emission Zones (ULEZ) – and these will continue to grow as the UK seeks ways to reduce its pollution levels. Rebecca Kite, FTA's Environment Policy Manager, shares the most important developments and offers a peek into our greener future.

CAZs impose a charge on any vehicle entering an applicable city which does not meet the emissions standards set by the

European Union, which are Euro VI for diesel and Euro V for petrol vehicles. All new vehicles produced in the UK must now meet these standards, which include a range of environmentally-friendly features. Five cities have already been mandated by the government to reduce their emissions with a suggested CAZ – Nottingham, Birmingham, Southampton, Derby and Leeds – and it is expected many others will follow in the coming years. However, Derby is currently pursuing an alternative to a charging zone, and instead

hoping traffic management and rerouting will be enough to bring them into compliant levels.

FTA and its members recognise the importance of clean air schemes, but it is crucial they are planned and executed in a way that does not unnecessarily hinder local businesses and the wider logistics industry, which could find themselves without stock if excessive prohibitions prevent delivery vehicles from entering the relevant zones.

For example, an estimated 7,400 businesses will fall into the Southampton CAZ. By bringing thousands of companies and operations into its scope unnecessarily, the planned zone may force businesses out of city centre locations into areas away from the highest business traffic.

Most alarmingly, the bustling port of Southampton will also be included in the Zone, once again posing a serious threat to the city's economic vibrancy and future growth potential. And in Birmingham, the CAZ charge is expected to apply to 60% of all vehicles driving through the city centre, so its impact on local businesses, private users and freight operators alike must not be underestimated. This is a charge which will fall either on the logistics business itself, at a time when margins are already stretched and economic pressures are making trading difficult, or have to be passed on to the customer.

This challenge is exacerbated when we consider the speed at which these zones may be implemented – the first is due in just over a year – and the fragmented and inconsistent approach to their roll out across regions. FTA speaks on behalf of the logistics industry and, after consultation with its freight council members, has voiced its recommendation that all zones are consistent with schemes in

other cities; harmonisation and uniformity are key in ensuring their smooth adoption. FTA has also proposed that the start dates for implementation are delayed to October 2020 to coincide with the introduction of ULEZs in London and the Direct Vision Standard.

FTA applauds the government's commitment to and leadership in reducing carbon emissions, but it is important for vehicle operators to take the initiative in further reducing their emissions wherever possible. The Logistics Emission Reduction Scheme (LERS), an industry led initiative is being offered to industry as a tool to help reduce emissions. The scheme has adopted the government's voluntary 15% carbon reduction target, building on its existing achievement of a 7% reduction in its members' emissions by 2015 compared to 2010. The scheme aggregates its members' fuel usage and business activity data to establish a carbon footprint and has been successfully demonstrating industries ability to improve emissions on its own

without further government regulation. LERS supports its members by providing guidance on carbon reducing measures, regular policy updates and valuable information on reducing fuel costs.

Membership is free and open to all companies with at least one commercial vehicle. For more information, or to join the scheme, please visit <http://lers.org.uk>

Efficient logistics is vital to keep Britain trading, directly having an impact on more than seven million people employed in the making, selling and moving of goods. With Brexit, new technology and other disruptive forces driving change in the way goods move across borders and through the supply chain, logistics has never been more important to UK plc. A champion and challenger, FTA speaks to government with one voice on behalf of the whole sector, with members from the road, rail, sea and air industries, as well as the buyers of freight services such as retailers and manufacturers.





BALLARD POWERED FUEL CELL ELECTRIC BUS ACHIEVES 30,000 HOURS OF REVENUE OPERATION IN LONDON

Fuel cell electric buses operated by Tower Transit in the streets of London since 2011 have proven that they can operate like conventional buses on the same routes.

THE fuel cell engine in one of the buses has achieved a new durability record with more than 30,000 hours of revenue service. This is equivalent to operating a bus on a 14-hour daily schedule, 6-days per week for 7 years with no significant maintenance to the fuel cell stack, a core engine component. The bus – and several others nearing the 25,000-hour operating threshold – is part of the Transport for London fleet of the 10 fuel cell buses, all powered by Ballard FCveloCity® engines.

A fuel cell hybrid bus is an electric vehicle that includes

both a fuel cell as well as batteries working seamlessly together to provide an efficient zero emission bus. It provides the operator with all the benefits of electric drive while improving the bus performance with no compromise in service and operation compared to other zero emission technologies and no roadside infrastructure. Fuel cell buses operate over 450 kilometres during an 18-hour shift on the road with a single 10-minute re-filling at night.

With millions of kilometres in commercial service and more than ten years on the road in different climates,



including extreme cold weather, fuel cell buses have proven to meet operational requirements of transit agencies and bus operators. Today fuel cell buses offer an attractive business case and a lower total cost of ownership compared to other zero emission options and fuel cost parity with diesel buses.

Fuel cell electric buses do not require charging at the depot overnight or along the route. The on-board fuel cell power module will generate electricity for the electric drive and for the battery as well as heat for the vehicle. The fuel cell is a solid state power

generator using hydrogen gas and air as fuel. Hydrogen is stored in tanks on the vehicle roof and refilled at the depot once a day.

A number of commercial solutions for production, delivery, storage and dispensing of hydrogen are available from different suppliers in order to meet the specific requirements of transit agencies and operators. Hydrogen filling stations at transit depots are built to be scalable. The equipment is similar to a CNG station, and a station can simply and cost-effectively increase its capacity from 10 to 100 buses by upgrading the compression and storage equipment and adding dispensers. The latest generation of fueling stations offers a compact footprint and provides high refueling reliability.

Fuel cell electric buses offer a proven and now affordable solution to zero emission transit without compromise in operation or change in processes for the bus operators. Delivering the required mix of emission reduction, fast refueling, extended range and route flexibility, fuel cell buses are the only zero-emission direct 1:1 replacement for diesel and CNG buses.

Several European bus OEMs offer a wide range of buses, from single-deck buses in multiple lengths to double decker buses. The price of fuel cell electric buses has decreased over the years as volumes have grown offering now a competitive alternative for zero emission buses.

Ballard FCveloCity® fuel cell power modules have been integrated with different

electric drive systems by leading bus OEMs in Europe, US and now China. Ballard has unmatched field experience, with over 150 Ballard-powered fuel cell buses deployed over seven generations of product development under various weather conditions, operating conditions and duty cycles, logging more than 13 million kilometers in actual revenue service.



Power to change the world®
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New Wrightbus Fuel cell Double Decker bus





// FIVE NEW LOW EMISSION BUS ZONES INTRODUCED IN LONDON

THE Mayor of London has launched five new Low Emission Bus Zones as part of the wider commitment to clean the air in London.

The lethal toxic air in the capital and the pollution associated with this is a serious risk to public health; chronic illnesses worsen, life expectancy is shortened, and evidence reveals even children can see their lung development harmed.

These five new Low Emission Bus Zones are situated in the worst polluted hotspots of London, and only those buses that meet the cleanest emission standards will be able to operate within the Low Emission Bus Zones.

A combination of new and retrofitted vehicles will operate in these areas.

It fits neatly into the government's Clean Air Strategy, which aims to tackle pollution, which is the fourth biggest risk to public health, behind cancer, obesity and heart disease.

The drive to tackle pollution is necessary given a British Lung Foundation report that reveals in excess of 2,000 GP surgeries, and 200 hospitals are in areas of high pollution, while more than 400 schools in London are in regions that exceed legal air quality.

The five new Low Emission Bus Zones take the number currently in operation to seven in London, with estimations predicting annual bus NOx emissions will be reduced by an average of 90% in those zones.

In total, 12 of these zones will be delivered, with the final five in place at the end of next year, exceeding Sadiq Khan's initial target of 2020.

The Mayor said: "Pollution from vehicles including buses are responsible for over half the harmful emissions we breathe.

"Low Emission Bus Zones are an effective way of dramatically reducing pollution and improving the health of thousands of Londoners who live or work along the worst air quality hotspots.

"The results in Putney and Brixton speak for themselves, which is why I am committing to delivering all 12 routes ahead of schedule in 2019 rather than 2020."

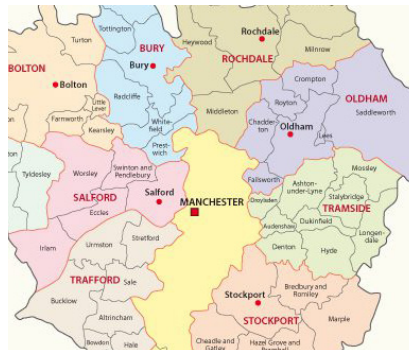
// NEW REPORT REVEALS FULL EXTENT OF AIR POLLUTION PROBLEM IN GREATER MANCHESTER

A new report has revealed the extent of air pollution in Greater Manchester.

Research from Transport for Greater Manchester (TfGM) shows that there are many more areas in the region that have higher levels of air pollution than was previously thought.

In the study, which will be considered by Greater Manchester Combined Authority (GMCA) before its Clean Air Plan is put together, more than 150 stretches of roads in the region will be in breach of legal limits of nitrogen dioxide (NO₂) in 2020 and beyond if urgent action is not taken.

The precise number of roads is 152, meaning air pollution levels is far higher and much more widespread than previous estimates of just 12 problem areas.



The fact that the incidences are more than 10 times higher highlights the extent of the problem which could be termed as a crisis.

What it does is once again hammer home the need to lower emissions; vehicles are being manufactured with this in mind, and the government's Clean Air Strategy is tackling the problem of poor air quality.

Air pollution is fourth in the list of hazards to health, behind cancer, obesity and heart disease, and it is the largest environmental public health issue facing the UK.

Road transport causes four fifths of NO₂ emissions at the roadside, and the pollutants are linked to a range of serious health problems, a reduction in life expectancy and, according to the figures, contribute to the equivalent of 1,200 deaths each year in Greater Manchester.

All of the 10 councils in the region are developing a single Clean Air Plan in order to reduce NO₂, and Councillor Alex Ganotis, GMCA Green city Region Lead, said: "Nitrogen dioxide is an invisible killer, and drivers and their passengers often don't realise that the air inside their car can be dirtier than outside.

"We're calling on government to give Greater Manchester the tools we need to tackle the problem altogether – this means a local vehicle scrappage scheme and funding for cleaner engines for buses and taxis."



TAKE CONTROL OF YOUR TOLLS THROUGHOUT EUROPE WITH PASSANGO FROM AS 24

The rapid growth of the transport industry over the last decade continues to present new and exciting challenges for the marketplace. The establishment of heavy goods vehicles (HGVs) as an essential pillar in the daily functioning of society has made their management an important topic of discussion both politically and economically.

In 2016, the total weight of goods loaded for road freight transport in the European Union was 14.2 billion tonnes; when considering the distance travelled for each operation, this equates to 1852 billion tonne kilometres.

Transport companies commonly travel through several European countries, and each time a HGV vehicle crosses a border, the company is confronted with different legislation and a different toll collection system.

Several European countries are already using electronic toll systems, but these are not yet all aligned with one another. This means that for international journeys,

lorry drivers are required to have a multitude of on-board equipment in their vehicles. Some countries, like Austria and Switzerland, still use a vignette system instead of on-board equipment.

Different systems for the payment of tolls in each country result in extra cost, administration and time lost for companies, so the introduction of European Electronic Toll Services (EETS) was very important in making progress and facilitating the life of road users.

As trusted partners to the transport industry for many years, AS 24 understands the challenges faced by operators and drivers out

on the road. The team know that the fleet operators of today must contend with a developing market and evolving legislation.

AS 24 has therefore designed a unique box which permits travel through several countries with only ONE single OBU.

AS 24 INTRODUCES THE PASSANGO TOLL BOX

The PASSango toll box from AS 24 facilitates the convenient payment of tolls for transit throughout Europe. The impressive technology relies on a transponder system, the sensor of which is automatically detected when passing through an electronic toll booth. This allows for quick and easy transactions through toll systems and high roads, the fees depending on the journey/ consumption/ badge utilisation.



PASSango Toll Box



After more than three decades in the industry, AS 24 has amassed an in-depth knowledge of toll systems across Europe. In line with this, the versatile PASSango toll box combines a number of different toll technologies facilitating travel through several countries, all in the same box, and adds all recorded transactions into a single invoice per country. This flexibility makes the PASSango toll box an exceptionally convenient solution for operators who are active across the continent.

CONTROL YOUR MOBILITY

Moreover, the PASSango EuroPilot option includes geolocation functionality to give significant cost savings for all AS 24 customers. Accessible from the Customer Portal or via the Fleet Manager mobile application, EuroPilot offers real-time monitoring of vehicles and a set of alerts to help the fleet manager to operate.

Haulage companies prefer PASSango's functionalities because they offer access to discounts for various highway operators, reducing costs and keeping the operator in control.

In addition, the integration of Viapass (a usage-based charging system for vehicles in Belgium) into PASSango was an essential step forward for users.

This year, AS 24 is making great efforts `Viapass was integrated in the last quarter of 2017; this was followed by Austria this year and soon by Germany summer 2019.

The PASSango offer facilitates the management of tolls throughout Europe. It adapts to the geographical perimeter of each customer, including France, Spain, Portugal, Belgium and Austria.

FIND YOUR SPACE WITH THE NEW EUROTUNNEL PARKING SERVICE

The life of a HGV driver can be difficult; long hours, a relentless schedule and tight deadlines mean drivers are always on the go in more ways than one.

Sufficient and comfortable rest breaks are therefore vital and a necessity. However, a lack of safe parking options with adequate amenities is making a tough job even tougher for Europe's HGV drivers.

Fortunately, AS 24 understand this and have developed their service in line with driver demand. Formally launched in June 2018, drivers with the PASSango toll badge for HGVs have enjoyed access to secure parking at the Eurotunnel.

On top of high security and a first hour free offer, the site includes an AS 24 station located inside the parking area; a restaurant; retail options; well-maintained bathroom facilities and free Wi-Fi. Just one of the many benefits of integrating PASSango into your fleet.

To learn which solution is the best for you, get in touch with the team at AS 24 today.



For more information:
www.as24.com/en/passango
 or www.as24.com/en



// TWO-YEAR ACTION PLAN RELEASED BY THE GOVERNMENT TO IMPROVE ROAD SAFETY

THE government has published a two-year action plan with 50 proposed measures to improve road safety.

All proposals are part of wider plans to reduce road rage and protect vulnerable road users by encouraging greater mutual respect.

Under the new plan, councils will be encouraged to spend 15% of their local transport infrastructure funding on both walking and cycling, while also gaining powers to tackle parking in mandatory cycle lanes that is deemed dangerous.

This news comes at a time where those organisations in charge of operating and maintaining London's transport network are making real commitments to Vision Zero, which aims to

get to a point whereby there are no fatalities or serious injuries involving road traffic.

Part of this commitment is to protect vulnerable road users from the likes of HGVs, therefore improving road safety.

To this end, part of the action plan involves the appointment of a new cycling and walking champion, ensuring new policies meet needs of road users across the UK.

The Department for Transport (DfT) will host a Bikeability Summit next year, encouraging businesses to promote the use of cycling and walking schemes to their employees.

Jesse Norman, Cycling and Walking Minister, said: "Greater road safety – and especially the protection of vulnerable road users such as

cyclists, pedestrians and horse riders – is essential.

"We want to improve air quality, encourage healthy exercise, reduce obesity and boost our high streets and economic productivity.

"That means more support for cycling and walking, and that's why these new measures are designed to deliver."

The government has compiled the action plan from a consultation that saw more than 14,000 people give their feedback.

This included representatives from Brake, Cycling UK, Living Streets and the British Horse Society, all of whom responded to the Cycling and Walking Investment Strategy Safety Review call for evidence.





// LONDON'S POLITICIANS AND BUSINESSES COMMITTED TO VISION ZERO

POLITICIANS, businesses and council leaders of London have come together to work on strategies so the capital can achieve Vision Zero.

Launched in Sweden more than 20 years ago, Vision Zero is a road safety project aiming to get to a point where there are no fatalities or serious injuries involving road traffic.

Since its establishment in 1997, the number of deaths in Sweden has halved and London is following in these footsteps, with the target of eliminating all death and serious injuries from the roads by 2041.

Emergency service representatives, international Vision Zero experts and victims of road trauma have joined with London's politicians,

businesses and councils to gain a better understanding of how they can implement changes to eliminate serious injuries and deaths from the transport network.

Transport for London (TfL) and the Mayor of London are already working to implement changes; this includes the transformation of London's most intimidating junctions; working closely with the police to target dangerous drivers and illegal road activity; and the introduction of the Direct Vision Standard, which rates what HGV drivers can see through their cab windows.

TfL is working with the manufacturers of HGVs so that they are produced with safety in mind and from next year, the new London buses have to include a host of new

safety measures, such as technology that limits speed of vehicles, an audible alert for pedestrians, and more blindspot mirrors.

The Deputy Mayor for Transport, Heidi Alexander, said deaths and serious injuries on the capital's roads should never be treated as acceptable.

She said: "How has society come to accept that road deaths and injuries are just the price we have to pay moving around in a big city?"

"Sadiq has made it clear he will do everything in his power to make our streets safer. As the first Mayor of London to commit to a Vision Zero ambition, he recognises that we need a radical approach if we are going to eliminate deaths and serious injuries."



ENRICHING DATA, ENHANCING SAFETY

WHY IS DATA VITAL FOR A SAFE ROAD SYSTEM?

*IN recent years the value of data has been increasingly understood within public service delivery and wider society. It is transforming how we look at the world, undermining some of our prejudices, preconceptions and flawed assumptions. It was the Nobel Prize winning economist Robert J. Shiller who said, **“Some of the best theorizing comes after collecting data because then you become aware of another reality.”** So, what is the new reality that data is starting to awaken the highway sector to?*

When Road Safety Analysis started work in 2010, it was after the UK launch of a new analytical platform called MAST online (roadsafetyanalysis.org/mast/). MAST was a global first, taking road casualty data and matching the driver and casualty postcodes to demographic insight data to provide huge enrichment and depth of understanding about the people involved in road traffic collisions. Eight years on, Dan Campsall one of the originators of MAST

takes another long gaze into the future to ask where the data will lead us next, and the importance of data in delivering a safe system.

Improving customer insights, understanding behaviour, prioritising communities that are at risk, delivering targeted investment, measuring performance and evaluating impact are all core competencies for a professional highways sector that is looking to deliver a safe system for road users.

In a data rich landscape, however, these tasks grow and become more complex placing a demand on our institutions and organisations to play catch-up. The potential to deliver social benefit is huge, but it requires a strategic approach that will set standards, facilitate coordination, integrate platforms and lead improvement across the sector.

In 2017, under commission from Highways England, RSA (and associated company Agilysis) worked on a symposium to look at current understanding and future trends in road user behaviour and safety. In the report that followed this event (roadsafetyinsight.com/paving-the-way/) we made clear that an increasingly democratic approach to data was a key challenge for leaders in highways:

*“Existing sources such as STATS19 make abundantly clear the value of openly accessible data and evidence. But there’s a lot more data and evidence out there that could help drive a refreshed approach to behaviour change in road safety. Tackling the practical, commercial and institutional barriers to that data being freely available to researchers is a significant challenge for leaders across the sector.” **Paving the Way, Christmas, Campsall & Christie, 2017***

In recent years, if you have spent time in other sectors, you will realise that there is a revolution going on that is being driven by big data analytics and data science. Healthcare, finance, security, education, retail and the media are all experiencing multiple revolutions through the application of machine intelligence, meanwhile the road sector is mostly preoccupied with connected and autonomous vehicles (CAVs). No one doubts that CAVS are the biggest game-changer out there for transport in general, but our fixation with the autonomous transport of the future risks paralysing us from doing what we should now to embrace solutions that are realisable within a much shorter time-frame and integrate well with a safe system perspective.

DATA IN A SAFE SYSTEM

The safe system view recognises the frailty of humans, because they make mistakes and they are prone to injury. The goal of the system then, is to remove the potential for conflicts, and where an impact does occur to ensure that the kinetic energy involved is below a threshold which might inflict serious injuries or prove fatal. Seeing the entire road network as a system, this approach promotes the development of solutions that will have a coefficient effect by working on different parts of the system at the same time.

Consider speed compliance for a moment, one of our areas of international level expertise. Safe speeds are part of the safe system, however, the mechanisms



for delivering safe speeds are many and various, which, working in concert can deliver significant casualty savings. So, the road design needs to be appropriate with a limit selected to preserve life and reduce injury, this should be well signed and may be supported by physical measures or automated enforcement. There is also a role for vehicle technology here as well. Intelligent Speed Assistance (ISA) as well as more conventional speed limiters can help road users to maintain an appropriate speed, but the road users may also need sensitising to the risks of exceeding the speed limit through telematics insurance or education programmes. This is the system working together and data is vital for every part of it to work.

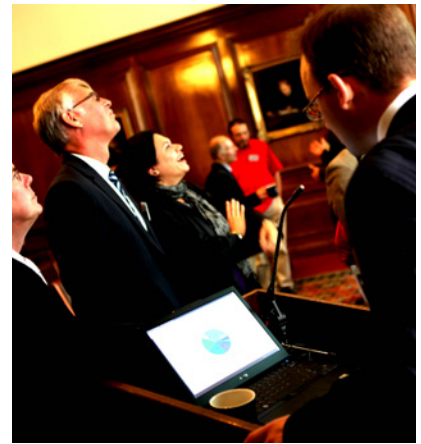


If road geometry, traffic flow data, land use and insights into modal mix are not available then setting a safe speed limit is impossible. For telematics or ISA to work effectively a reliable GIS based digital speed limit map is required (speedmap.co.uk). Enforcement systems are incredibly data hungry as they utilise recognition processes, draw on registration data, update licence records and process payments, but they also create underutilised 'exhaust' data that can provide insights into driver behaviour and performance.

SYSTEMS ARE IMPROVING

If I look back to the paucity of data tools that were available when I first entered the sector, it is great to note just how much

has changed. There is good public access to reported collision information through platforms such as crashmap.co.uk and RSA OpenData. This same data is being segmented and reported in meaningful ways through tools like PACTS Parliamentary Dashboard (pacts.org.uk/dashboard/). Highway authorities can easily subscribe to data rich dashboards and data visualisation tools such as those provided in MAST online and an increasing number of open-source analytical tools such as 'R' are transforming the quality, speed and volumes of analysis that can be undertaken. Emerging approaches, such as RAPTOR analysis, is moving the sector into more reliable predictive approaches.



LOOKING TO THE FUTURE

This still leaves the question about where we go next? Firstly, we have to embrace the need to work with a wider pool of data and we need to enhance our ambitions of what is achievable. We have underutilised data on travel demand, vehicle fleet, health outcomes, compliance and weather. Machine intelligence





(shrewdly deployed) will allow us to curate and create new, dynamic data sets with vastly improved insights into mode share, road design, asset condition, driver behaviour and the interactions between people and places. Our ambition is to build data solutions that allow us to deliver a genuinely safe system.

ABOUT ROAD SAFETY ANALYSIS

With market leading data platforms, analytical tools and approaches, Road Safety Analysis (RSA) has products and services ready to be tailored to all needs.

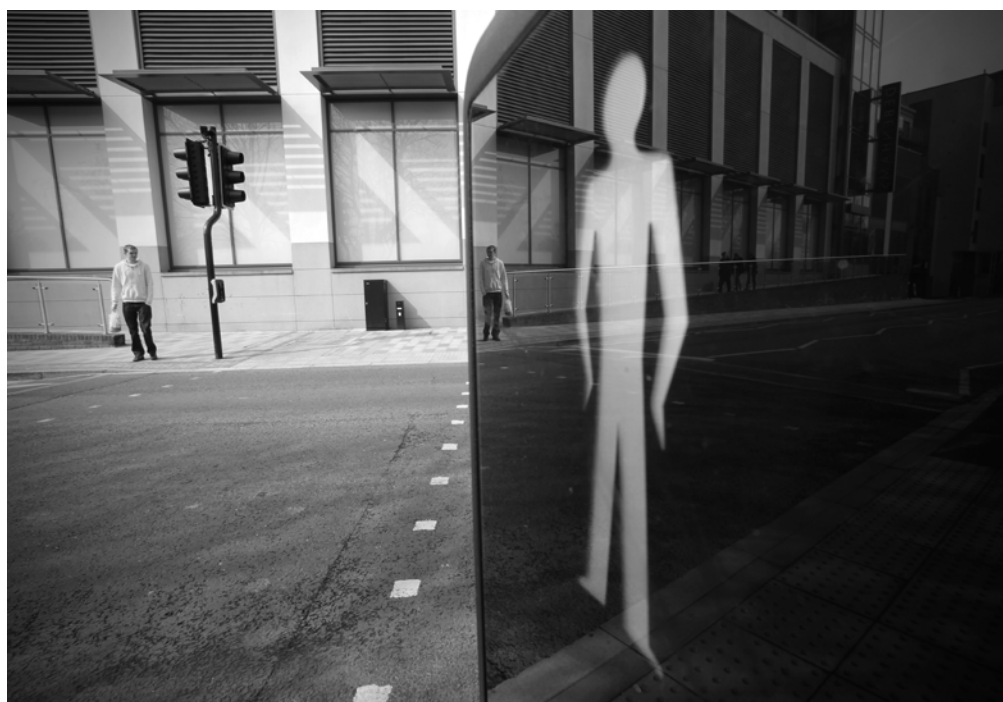
For many years the data platforms, road safety management services and campaign delivery developed by the RSA team have been recognised for their sector leadership. MASTonline; [CrashMap.co.uk](https://www.crashmap.co.uk); Safer Roads; DriveStart and Safer Rider have all received major

industry prizes such as the Prince Michael International Road Safety Awards or CIHT Awards, meanwhile the RSA team are continuing to push boundaries in the UK and abroad.

We investigate what works and what doesn't in the fields of road safety and public health. We help organisations to think critically, plan strategically

and deliver effectively. RSA blends expertise is research, policy and practice, meanwhile our sophisticated data architecture delivers management information, social marketing insight and dashboards for policy makers.

**Find more information
find us online at www.roadanalysis.org**





VISION ZERO IN LONDON:



Lilli Matson, Director of Transport Strategy at Transport for London (TfL)

Deaths and serious road injuries are a major problem for those who operate roads in major cities. Growing population means an increase in vehicles, cyclists and pedestrians. It can, and has proved fatal.

But Transport for London (TfL) is aiming to change this pattern through the introduction of Vision Zero.

The assumption that death and injury associated with road usage has been challenged by the policy that aims to eradicate all deaths and serious injuries on London's transport network by 2041.

TfL has recently held an event which saw politicians, businesses, council leaders and representatives from the emergency services join forces to commit to achieving Vision Zero in the capital.

Lilli Matson, Director of Transport Strategy at Transport for London (TfL), is heavily involved in the implementation of Vision Zero thinking into all areas of London's transport strategy. She explains what Vision Zero has done to make using roads in London safer.

What is the history of Vision Zero and how did TfL get involved?

There is a growing emphasis on Vision Zero at TfL, but our work on tackling collisions is nothing new. We have always had a position where we say that road deaths and people being injured in London is not acceptable.

When Sadiq Khan was elected as the Mayor of London in 2015, reducing deaths and collisions was within his manifesto and his Deputy Mayor Val Shawcross was personally very committed to this agenda and actually campaigned on it when she was in the assembly prior to



the election. She brought a real energy and drive to us, focusing on it and looking at what we're going to do in terms of an action plan to drive this forward.

What were the reasons for throwing your weight behind this scheme?

Vision Zero is a fundamental change to the approach to safety. A traditional approach to road safety would look at the road network, find out where people are getting hurt and try to put measurements in place to reduce the risks – it might include things like keeping people away from the road, improving safety that way.

But cities have grown and changed – and this is not just London. Many European cities are people-centred, with people walking and cycling. As a result, there's now a process of trying to reduce the danger that road users face.

By looking at the design, education and the way we run the network, we can remove risk.

Risk can be removed in a number of ways, including by designing roads differently; we can also remove risk by lowering speed limits; we can train people – drivers and road users – to increase awareness.

It is a systematic approach which has looked at all evidence of how the road is used, whether it's the vehicles, people or the road itself. We use data evidence to say what we know about road danger, what you can use to reduce that risk level, and by that you are creating a safer environment.

We have already seen a difference in the number of casualties.

The Vision Zero Action Plan outlines the different ways safety can be guaranteed. How do you go about implementing and educating everybody?

The Action Plan is a call to arms, if you like. We work closely with the London boroughs because they actually run 95% of London roads; we're working in partnership with the Metropolitan Police who are really important for the education of users, and enforcement of the laws on the roads.

All of these people and organisations were involved in developing the plan and agreeing the action.

The role of the plan is that everyone should be committed to the collective goal. By working together, we have held a stakeholder event to refocus Londoners' and London organisations' energy on the collective need to take action, whether you're in the police, in education, the council, so that we can actually address the need to reduce road deaths.

What has been the biggest success for you, and why?

I think the approach of reducing road danger, which is something we've been producing in London for four years, and the fact we have been able to grow the use of the road for what you might call 'vulnerable road users' – walking and cycling – while also reducing the risk of these being involved in a collision.

That is really key evidence in showing that this approach in reducing road danger works.



The plan is more about looking at changing the energy around stakeholder groups; that is the ambition and it releases a lot of new thinking, whether this is in using new data sources that we could be using, or people from other organisations coming forward and working together to see how we can address the problems.

By mobilising the energy around the groups, is this how you feel improvements can be made, or are there any other ways you're seeking to achieve this?

Within the plan there is a call to action which is quite clearly detailed. It includes substantial investment in making the road network safer by targeting locations where we know road danger exists, while also spending on our scheme designs.

We have a large investment programme aimed at London's road network, under the banner of Healthy Streets. That's achieved action through the Vision Zero Action Plan.

But we're also looking to improve the safety of vehicles themselves; we are working to develop what we call a new Direct Vision Standard. It basically means if you're sitting in a large HGV, you have a chance to design the vehicle so that it ensures maximum visibility of people around you on the road network. It is something that we're pursuing through European legislation.

That's the standard that will ensure only the safest lorries are entering London. It won't just be one measure that will

improve conditions; it will be a combination that are important and aimed at taking data out of the system and using it to make the network safer.

How important are your plans in making sure there is greater safety around the use of HGVs?

We know by looking at the data of who gets injured, that in terms of people being killed in collisions, HGVs are very much disproportionately represented, particularly in collisions with cyclists, but also with pedestrians.

Through detailed research of the actual files put together by the police and coroners at these collisions, we know that the collisions are largely because drivers are unable to see these road users when they are making close manoeuvres. Therefore, we have been working closely with manufacturers to literally design different cab structures that maximise visibility.

We do have evidence that that will improve safety because we know lack of visibility is one of the key causes of fatal crashes.

London has already introduced the Safer Lorry Scheme, which was the first stage in this campaign. At that stage, it wasn't focused on the visibility of the cab, but on safety measures like sidebars and extra mirrors.

That has been matched in a reduction in collisions between HGVs and vulnerable road users, but it's not sufficient so we know we need to go even further.



What do you feel are your biggest challenges moving forward to make sure Vision Zero is ultimately successful on the transport system?

The biggest challenges are centred around meeting aims for the growing city.

We are trying to make it a safer city as it becomes busier and will continue to do so. Maintaining the momentum and ensuring all parts of the system are working together, with the same energy, will continue to be a challenge.

That's why we need to make sure we embed Vision Zero into all of our existing systems, so every time something is designed, we make sure we know where the danger is.

It is something we have to continue to work at and keep energy levels high because otherwise shorter-term priorities could dominate.



<https://tfl.gov.uk/corporate/safety-and-security/road-safety/vision-zero-for-london>



// PUBLIC ACCOUNTS COMMITTEE REQUESTS FULL INVESTIGATION INTO CROSSRAIL

THE Chair of the Public Accounts Committee has written to the National Audit Office (NAO), requesting a full investigation into Crossrail.

Responsible for overseeing government expenditure to ensure spending is effective and honest, the select committee is concerned with the problems that seem to be emanating from the scheme.

Originally set to open in December 2018, this date has been pushed back by nine months; delays such as these to this important infrastructure project mean that, guaranteed income that would have been expected by Transport for London (TfL) will no longer be accessible.

Add to this the fact that a short term £350 million

repayable financing package has been allocated to ensuring the Elizabeth line can continue, and the London Assembly's concerns that it has been misled about the project's delays, and it is understandable that the Public Accounts Committee want to find out more.

Its Chair, Meg Hillier, has therefore written "to ask the National Audit Office to undertake an investigation on TfL's Crossrail project."

In particular, the Public Accounts Committee want clarification about when it was clear that there would be delays; why these have happened; and how financing has been agreed.

The letter says: "I would ask that you examine the governance of the project,

including what information was available to officials and when, and would welcome a firm timescale of when it became clear that the project would be delayed.

"I would also ask that you look into what the circumstances were that led to its delay, as well as the additional costs incurred.

"Furthermore, I would welcome clarification on when officials were aware that the programme was encountering major difficulties and how the financing deal from the Department was agreed."

It comes after the London Assembly once again expressed displeasure at information provided about the delays by the Mayor of London.

KEEP YOUR DRIVERS SAFE - AND LEGAL - AT ALL TIMES

DRIVERS working for your business already have lots to contend with. But with research showing that each text message they receive, even if their phone is switched to silent, can divert their attention for 40 seconds at a time, this is a distraction your business can probably ill afford.

Now there is a solution, developed and sold here in the UK, designed to keep your drivers' eyes, and minds, where they need to be – on the road around them. Romex Driver Protection is a mobile app which can prevent the illegal and potentially dangerous use of mobile phones while the driver is behind the wheel. As well as keeping your workers safe and free from unwanted distractions, this also cuts the risk of your business being prosecuted and facing a crippling fine.

After rigorous on-road testing, Romex Driver Protection was awarded "Highly Recommended" by the Transport Research Laboratory. The app comes

with a range of valuable features which can be customised to suit an individual driver's needs and your company's policy on the safe use of mobile devices.

For example, a driver can be restricted to receiving inbound calls only, or to have the phone switched on for specific periods, so that, if they are travelling as a passenger, they can still take and receive calls and texts.

The app is much more than just a mobile phone-blocking device and it doesn't stop drivers from being in contact in the event of an emergency – they can still make 999 calls, while an audio message can also be sent if there is something you need to quickly alert them to.

The government currently has a manifesto commitment to reducing the number of deaths on our roads, which it is enforcing through increased fines and penalties. There are cases where drivers have been prosecuted for

using their mobile phones as a sat-nav, even though they haven't touched the device while moving, and official advice is for them to keep their phones out of sight.

This is serving to confuse drivers and fleet managers, and putting them at risk of fines and other penalties which can hit their businesses hard. This is why Romex created the Romex Driver Protection app, to manage the fine balance which companies have to strike between keeping their drivers safe and being able to stay in touch with them while they are going about their work.

Even at just 30mph, a vehicle will travel nearly one-third of a mile in 40 seconds – or about the equivalent length of seven-and-a-half Jumbo Jets. Because no-one can afford to keep their eyes off the road for that long, Romex's Driver Protection app keeps them in control of when and where they take and receive those important calls and texts.

WHY THERE IS A NEED FOR A DRIVER MANAGEMENT SOLUTION

72% of drivers in the UK have admitted to multi-tasking whilst at the wheel

MULTI-TASKING
72%

31% of drivers admitted to driving whilst speaking on the phone without a hands-free kit

SPEAKING
31%

30% of drivers said they had read a text message whilst driving

READING
30%


120,000 Caught illegally using mobile phones whilst driving last year

9X Chances of being involved in a fatal accident if using mobile phone whilst driving

23X Chances of being involved in a fatal accident if texting whilst driving

Corporate Phone Driving Policy

Zero Tolerance	45%
Hands-Free	40%
No Phone Policy	10%

Source: Fleet 21 

COURT TAKES DIM VIEW OF MOBILE PHONE USAGE WHILE DRIVING...

TWO lorry drivers were for jailed for a crash on August 26 last year that killed eight people. One of the lorry drivers who was twice the legal alcohol limit has been jailed for 14 years and the other, a FedEx driver, for three years. The FedEx driver was on cruise control and chatting on his phone when he hit the back of a minibus at 56 mph forcing it under the other lorry.

that the FedEx driver did not break the law concerning using a phone at the wheel as he had been using a Bluetooth handset, but he added "It would be wrong of me not to take the opportunity to urge the public to download the app that deactivates your phone when on the move." The FedEx driver did not break the law but nevertheless caused a tragedy. Romex's application could have prevented this from occurring.

The presiding Judge Francis Sheridan acknowledged

Don't let it be your company making the headlines next



Occupational road risk compliance is essential, not only to exercise duty of care to employees and manage corporate and social responsibility, but also to control costs and protect profits.

Romex are able to provide a safe systems approach where all of your mobile workforce safety and compliance needs can be managed under one umbrella, significantly cutting the costs of using multiple systems.

Visit RomexWorld.com

// HS2 BEGIN HUNT FOR CONTRACTORS FOR £435 MILLION CURZON STREET STATION

HS2 has officially started the search for contractors to build the new Curzon Street station.

Costing £435 million, the station will be at the heart of the first phase of HS2 and in order to achieve the vision set out, HS2 Ltd is looking for “the best the construction industry has to offer.”

The procurement process was set out in a published contract notice, which reveals HS2 Ltd is looking for organisations to undertake the design and build of Birmingham Curzon Street station, including programme design, construction and commissioning, and associated works and services.

A shortlist of bidders is expected by spring 2019, with

contracts awarded the year after; HS2 Ltd envisages four companies will be shortlisted, with the maximum number expected to be five.

Preparatory work is already well underway on site so that the ground is ready for the start of construction.

When HS2 arrives in Birmingham in 2026 – when phase one is expected to finish – the city centre will be transformed, with up to 36,000 jobs created and the construction of thousands of new homes unlocked across Birmingham.

Curzon Street station will benefit from a striking arched roof that is inspired by the city’s transport and industrial heritage; work will also see the original Curzon Street

Station building restored and reopened as a visitor and heritage centre – the last remaining surviving part of the 1838 station.

Mark Thurston, HS2 Ltd’s Chief Executive, said: “HS2 is already unlocking new opportunities to create skilled jobs across the West Midlands and, over the next decade, the winner of the Curzon Street contract will go on to build one of the most exciting and high profile elements of the project.

“We’re looking for the best the construction industry has to offer.

“Companies that share our commitment to safety, good design, environmental protection and value for money.”



// EUROPE'S LARGEST ARCHAEOLOGICAL DIG UNDERWAY ON PHASE ONE ROUTE OF HS2

WORK on the largest archaeological dig in Europe has commenced on the site of HS2.

Part of the enabling works for HS2, the archaeological dig will take approximately two years and enlist the expertise of in excess of 1,000 archaeologists, specialists, scientists and conservators from all over the UK.

They will explore 10,000 years of British history, recording more than 60 archaeological sites for the project.

Europe's largest archaeological dig will explore sites ranging from Prehistoric and Roman Britain to the Anglo-Saxon and Medieval periods, and the Industrial Revolution and World War Two.

Central to the preparation works for the first phase of the large scale infrastructure project, the dig will provide fascinating insight into the lives of those people and their communities who made modern Britain.

The first phase of work on HS2 will see a new railway line constructed to connect London to Birmingham; the preparation work for this phase is well underway, with contractors and the supply chain already clearing sites ahead of the start of the main construction work next year.

But the site is of huge historical significance and as such, archaeologists are necessary to make sure that the site is cleared to a highly professional standard, leaving a lasting legacy.

Already, prehistoric tools have been found in Buckinghamshire, medieval pottery in Stoke Mandeville, as well as two Victorian time capsules.

More discoveries are expected, as archaeologists delve into our past.

Mark Thurston, Chief Executive of HS2 Ltd, said: "How we build HS2 is as important to us as

what we are building and we are committed to sharing as much of our cultural heritage as possible.

"Before we bore the tunnels, lay the tracks and build the stations, an unprecedented amount of archaeological research is now taking place between London and Birmingham.

"This is the largest archaeological exploration ever in Britain, employing a record number of skilled archaeologists and heritage specialists from across the UK and beyond.

"As well as improving connectivity, generating 30,000 new jobs and creating a network of new wildlife habitats, our archaeology programme shows that HS2 is more than a railway; it's an opportunity to tell the story of our past, create opportunities in the present and leave a lasting legacy for generations to come."

CACTUS RAIL OUTLINE BENEFITS OF ITS TRAFFIC MANAGEMENT SYSTEMS (TMS)

THE quest for smarter transport operations in the UK is well underway; we've seen it in the road network with smart motorways and in railway, with the government encouraging the rail sector to work closer with technology firms to improve efficiency and the quality of journey for passengers.

Efficiency is a key word used in rail; the regulator of Network Rail, the Office of Rail and Road (ORR) talk about this frequently when monitoring performance. In order to achieve this efficiency, traffic management solutions are becoming much more prevalent.

Based in Sweden, Cactus Rail has almost 30 years of experience in providing such solutions in the industry,

improving the way railways operate, using cutting edge technology that detects problems and ensures the smooth operation of the network.

Cactus Rail's Traffic Management Systems (TMS) and Cactus Communication Server (CCS) are both at the forefront of this technology. Constantly striving to improve, the company doesn't stand still and instead, develops these solutions even further, bringing new technology to the market. Fredrik Hansson is the company's CTO. He spoke to Transport Britain about the abilities of both the TMS and CCS, and Cactus Rail's ambitions to introduce this technology into the UK marketplace – something that would greatly benefit the rail network.

Can you give us a bit of background about the company and its origins?

The company actually grew out of our sister business, Cactus Utilities, which worked on the whole water treatment network in Sweden – one of the first companies in the whole world to digitally control water treatment facilities.

This is a big part of our heritage; its systems are used by more than half of Sweden.

Cactus Rail is the second organisation in the business and was established in 1989.

The origins of Cactus Rail are based in the identification that Stockholm's Metro system needed an enlarged supervision system. Somebody at Cactus



realised that the technology at Cactus could be used and that's how we got started.

Success has followed; we are still running Stockholm's Metro. Indeed, our supervision system covers and monitors all of the city's Metro stations. Our equipment is based within every station; there are alarms for escalators and elevators; we have personal protection systems and they monitor ground water levels too.

Our Traffic Management System delivery started in 1990 when we were asked to trial our first system by the same customer in Stockholm, on one of the local train lines.

Fast forward to today and there are four local lines in Stockholm; all of these are controlled by our TMS. Elsewhere, we control a number of lines in Denmark, close to Copenhagen, and have a large control centre in the country.

From there, we have rolled out our TMS further and now have what we call the local CTC, which is like a traffic management system, albeit downscaled. There are two suppliers selected in Sweden, one of whom we work with.

As recently as autumn 2017, we achieved success, winning a contract for a long train line in Sweden – more than 1,000km

of track travelling to the north of the country.

This includes our TMS but we also use our interface equipment in different stations too, as part of the contract.

What are your Traffic Management Systems and how do they work?

The main function of our TMS is to give the feeling of control; customers who use these solutions can manually control and present the status of the trains; they have the ability to set routes and allocate passage in the system.

On top of this core function, our system allows timetable information to be added so customers have knowledge on when certain trains arrive in certain positions; our automatic route setting function is based on this timetable information and track circuit occupancy, which shows how trains are moving.

There are also a great deal of management functions in our TMS, such as the ability to insert new train numbers, correct inaccurate information and inputting the location and routes of temporary trains.

Essential functionalities exist to interface towards external systems; for example, our solutions can present traction power status of a facility to

ascertain whether or not there is power on the line.

As you can already tell, there are so many functions that help to give maximum benefit from existing infrastructure.

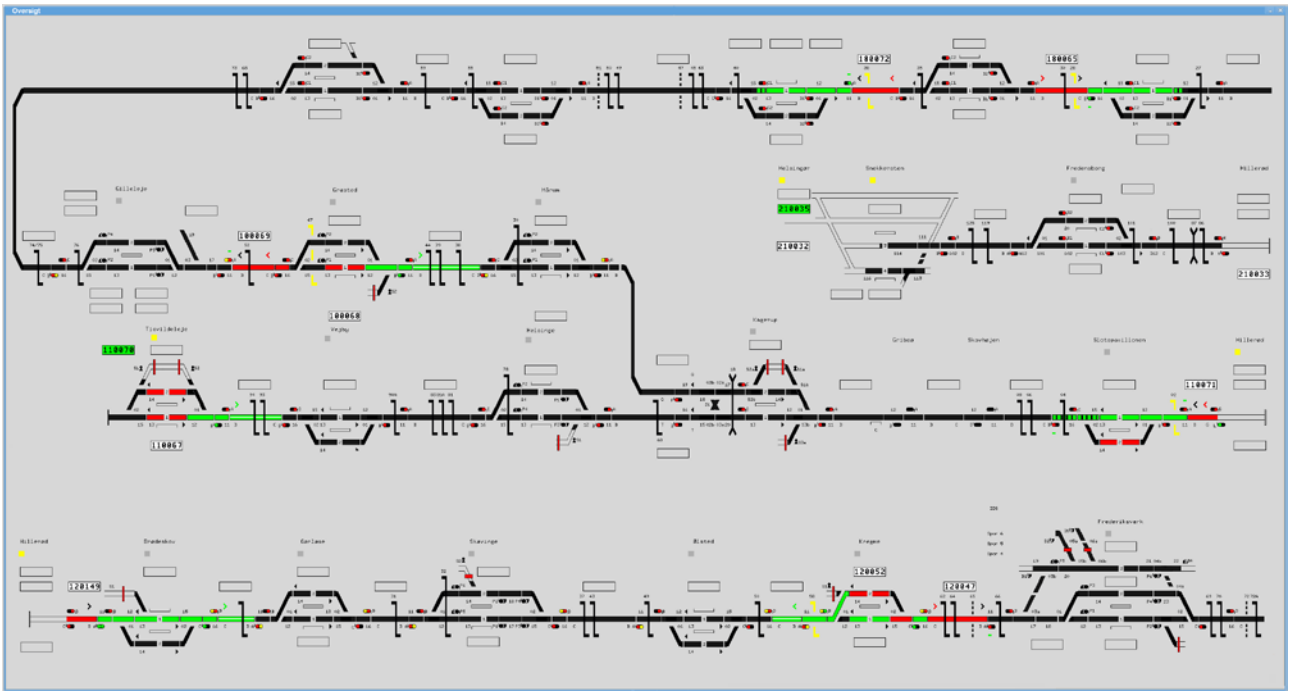
Through our systems, train graphs that show time and stations are aligned, showing how trains are progressing and moving. This helps to display any delays or breakdowns. Inevitably, disturbances and accidents happen on the rail network. Our technology allows users to replay any event and see what has happened. This storing of data is invaluable.

How did the progression lead to the Cactus Communication Server? What does this provide for the industry?

Throughout our history, it has always been important to integrate and assist client systems. This is heavily valued in the rail industry, so it has given us great knowledge in interfacing different types of equipment.

The need for CCS was identified years ago when the Swedish transportation system wanted a new national TMS. What was a priority for them was one complete system for complete national control; we were well placed because of our knowledge of current facilities





and communications of the different types of interlockings. As a result, we became a strong partner

However, what we lacked was a system of the scale required to control the entirety of Sweden. This is why we developed CCS: it is based on modern, truly scalable frameworks and development of best practices, and the methods and tools surrounding it used to secure automation to a very high extent.

One part of this automation is called continuous integration and it presents an automated approach to testing the system. One must understand that if such a system had a single point of failure, all trains in Sweden would stop. So we have put lots of efforts in testing all aspects of behaviour, such as testing seldom-occurring scenarios as often as possible, to prepare the system for all eventualities. In the railway business, compliance to CENELEC standards are required; this is something that may appear as a quite heavy process burden. Our approach in this field is also

automation to a large extent.

For all new code produced there must be an independent review by a separate party. In addition to this, tests are run on the specific parts of the code and this regression must also pass. Every night, we do what we call “crashing” the servers, as well as lots of other automated tests. This is an example of testing the seldom-occurring scenarios so that the coding stands up to scrutiny and ensures the system is a robust product. Every night, related documentation, such as requirement specifications, test specifications, test reports, cross reference documents and delivery notes are also generated, i.e. we are continuously ready to deliver.

For all of our clients, we ensure that our systems can provide for the whole lifecycle of what they are meant to deliver. This is particularly important when you consider we have contracts that expect us to successfully run this CCS on their train lines. Therefore, it's crucial we have this rigorous automated process in place. Note however,

once in place, it dramatically decreases the amount of manual work needed compared to a traditional manual approach.

The UK sector is really pressing ahead with digitisation; we've seen a lot of upgrades in terms of signalling, electrification and other technologies becoming much more prevalent. Do you see the UK as a market that your product can thrive in, and how do you plan to illustrate this?

We want to move into markets



in other countries and believe that our products are perfect for the UK market.

With all clients at Cactus, they have different requirements and demands on things like graphics and how these should be illustrated; our systems are simple and able to adapt to different markets.

I fully believe we have the functionality that is required. This, allied to our depth of knowledge and vast software libraries will allow us to create new interfaces that will guarantee the success of our systems in the UK marketplace and its rail sector.

The CCS itself is a generic industrial communications and integration platform, designed with true real time capabilities, a perfect match for a digitalisation platform.

What do these solutions provide for the industry that is different from what is already out there?

Quite simply, I don't see any platform that can match the true scalability and real time characteristics of our CCS, or how modern it is.

Because we base it on frameworks, if we run out of computing power, we can simply add new servers, which makes it very different compared the way systems were traditionally made.

Our solutions are part of a larger system so integration is easy; if a client wants to add analytics data processing, it is very simple to integrate into the same system.

The tools and process support surrounding the system already exist, so functionality is high. In addition, our regression testing means we can always see what

is working and what isn't. In the railway industry there are lots of old legacy systems, so it is tempting to simply replace them. This may be pushed by suppliers wanting to sell their specific solutions instead of establishing smart means of collecting status from the systems and predicting health, and understanding the lifecycle costs to make smart decisions on change.

Since a part of our CCS work is related to making a homogenisation of all different varieties of system into one model, this means that an interlocking can be changed without the TMS understanding that it has changed, which is extremely powerful and very well in line with upgrading the legacy piece by piece.

These are very advanced systems that save money, improve efficiency and create the solutions needed for smarter railways.

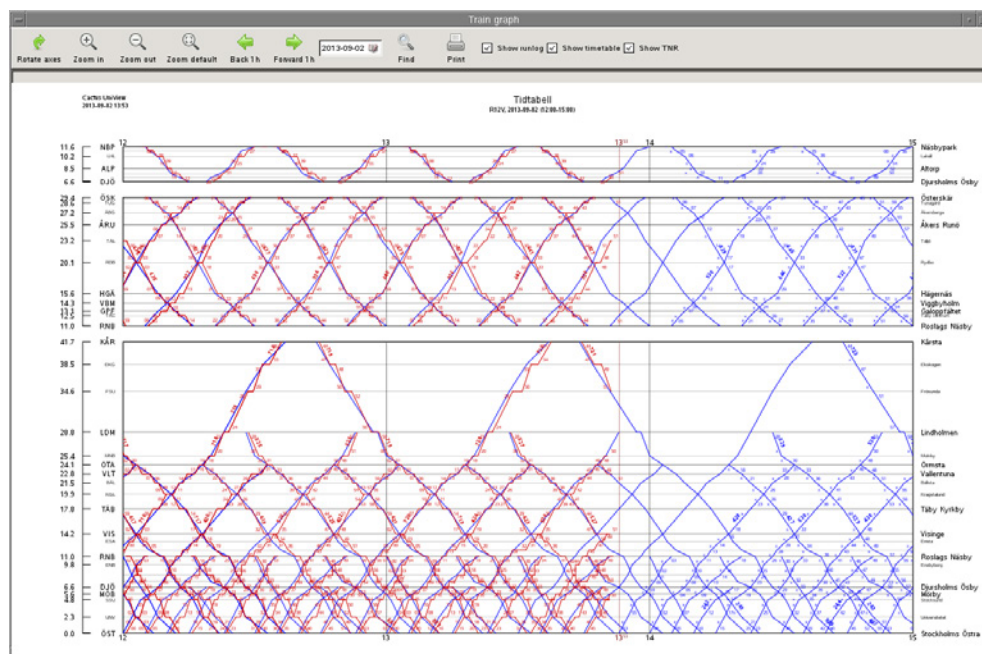
Do you see any other advancements to the solutions you provide, and what are the challenges of bringing these to market?

We are always trying to progress and will always develop better solutions; in Sweden, there is demand relating to security and information classification, and I expect this to happen in Europe.

Therefore, from a company point of view, we look a lot into security systems and off-the-shelf solutions. For these types of solutions, the TMS is the most critical part; you need to be able to regulate access to these systems, with different mechanisms.

Intrusion detection systems are required and this is an area in which we are working in at the present time. Because of the importance of security in rail, we expect this will become an important issue in the UK too.

Sweden is one of the first countries that has national control of its lines from one centre. But whilst this increases efficiency on the line, it also increases the vulnerability of the whole system, so that is something we continuously work on.





// THE CRUCIAL ROLE OF ARCHAEOLOGY ON HS2, AND HISTORICAL IMPORTANCE OF ITS FINDINGS

Mike Court, Lead Archaeologist, HS2, (Pictured centre)



THE creation of HS2 is the biggest infrastructure project in Europe - the first new intercity railway to be built north of London in over a century.

But before we build bridges, tunnels, tracks and stations, an unprecedented amount of archaeological work will take place along the line of route.

As part of HS2's enabling works, over the next two years, more than 1,000 archaeologists, specialists, scientists and

conservators from across the UK will be exploring and recording over 60 archaeological sites for the project. HS2's archaeology programme is the largest ever undertaken in the UK and the largest in Europe.

The work we are doing now is a central part of HS2's ground preparation works for Phase One of the project, from London to Birmingham. HS2, our contractors and supply chain are well underway with a programme of investigation ahead of main construction works next year.

A fascinating but sensitive aspect of HS2's archaeological work is the careful excavation of the remains of ordinary people and 'celebrities' of their time in three burial grounds in London, Buckinghamshire and Birmingham.

In London, a team of over 200 archaeologists and related specialists have started the careful archaeological work of preparing the site for construction of the HS2 London terminus. Those buried in the now demolished chapel and burial ground include individuals from all walks of life; paupers and nobility, artists and musicians, soldiers and sailors; inventors and industrialists.



The work will be the largest archaeological excavation of human remains from 18th and 19th century Britain, giving archaeologists, scientists and historians an extraordinary opportunity to study the population of London at a time of huge social, political and economic transformation.

In Buckinghamshire, the derelict church and burial ground of St Mary the Virgin in Stoke Mandeville presents a unique opportunity to study the buried population dating from at least the 12th to the early 20th century. This will give us the opportunity to re-tell the 1,000-year story of the development of a village and its inhabitants as they survived some of Britain's most important historical events.

At the other end of the Phase One line of route in Birmingham, the archaeological exploration of Park Street burial ground, on the site of the new HS2 Curzon Street station, is a unique opportunity to understand more about the people of



Birmingham at a time when the city's population grew 10-fold as a result of the Industrial Revolution.

While the burial grounds will give us a fascinating insight into life and death at various periods in British history, the unprecedented range of other archaeological sites along the line of route will also reveal to us how our ancestors lived and worked.

The HS2 line of route clips the edge of Edgcote battleground, an important battle in the Wars of the Roses that led to the capture and execution of Edward IV.

HS2's work will be the most detailed investigation ever of the physical remains of the battlefield and archaeologists hope to recover evidence for

engagements between the Royalist and rebel armies.

At Fleet Marston in Buckinghamshire, archaeologists will uncover the remains of a large part of a Romano-British town. We expect to find not just evidence of the settlement, the road network that surrounded it and an amazing array of artefacts, but possibly a Roman cemetery too. Archaeologists will also be able to compare the finds at Fleet Marston to those at nearby smaller Romano-British farming settlements at Stoke Mandeville and Doddershall to investigate different ways of living in the Roman countryside. This will show us how the population changed and adapted to the waves of incoming migrants at the end of Roman rule.



The sheer scale of possible discoveries, the geographical span and the vast range of our history to be unearthed makes HS2's archaeology programme a unique opportunity to tell the story of Britain. From Prehistoric remnants and Roman settlements to deserted medieval villages, Wars of the Roses battlefields and Victorian innovation, HS2's archaeology programme has it all.



HEADLAND ARCHAEOLOGY: ENABLING SIGNIFICANT INFRASTRUCTURE PROJECTS

From its head office in Edinburgh, Headland Archaeology has been leading the way in preserving heritage assets on development sites for more than 20 years.

HISTORICALLY, archaeology was undertaken through the 'rescue' movement, which mainly involved charities, universities, museums and local authorities securing grants to protect heritage on infrastructure sites.

However, the collapse of the system in the early 1990s led to damage on high profile sites that suffered because of the lack of money available to preserve.

Change was afoot though, and after alterations to the planning systems of England

and Scotland, it meant that developers had to pay for any impact on archaeology, thus creating a gaping gap in the market.

It was one that the four founders of Headland spotted, and in 1996, those archaeologists pooled their vast expertise to realise this potential, becoming one of the first fully commercial companies in the sector, married to a progressive ethos to preserve assets, offer strategic and tactical advice that reduces risk, provide best practice, and cost effective solutions.

The success of Headland is rooted in linear schemes; these skills were honed on huge road projects across Ireland at a time when the economy was booming.

These linear road projects – which could be up to 40 miles long – required a wide range of skills to ensure access, protection of ecology and preservation of assets.

Headland's experience in Ireland stood the business in great stead and now, as well as the Edinburgh head office, there are bases in Hereford, Luton and Leeds. Starting with four employees, Headland now boasts staff levels totalling 150.



CRUCIAL FOR THE 'AGE OF INFRASTRUCTURE'

Headland's expertise and services are vital in this 'age of infrastructure'. The company has worked on construction projects involving road, rail, pipeline and grid connections.

With what the construction industry calls the four H's – HS2, Heathrow, Hinkley Point C and Highways England – the initial work that is required when digging round in preparation for construction has never been more sought after.

At Headland Archaeology, preparations have been made to reap the rewards of this potential; its 150-strong staff bring a plethora of skills to the infrastructure market.

Archaeological knowledge is combined with individual specialisms, project management skills, and experience on large sites so that each bespoke requirement from clients – regardless of sector – can be met by the right person, on time and within budget.



In particular, Headland takes great pride in understanding each customer's business, what they require, and work in collaboration to guarantee that all objectives are met.

The company's attention to detail, understanding the markets it works in, and what clients will need, sets Headland apart from the competition.



Russel Coleman, Sales Director, explained the importance of preparation, in order to

understand which projects are targeted.

"As an organisation, we attend a number of trade shows, and infrastructure planning shows. The government has produced a report on national infrastructure projects, which we used to help plan our business strategy.



"Over 40 major infrastructure projects are planned across the UK in the period 2015-33 with the majority falling in the period 2015-21. The total capital cost is £464.9bn ...It is argued that £1.0bn of additional construction spend generates £2.3m of archaeological spend."

Headland undertakes archaeological work on large scale construction projects either in advance, or during the actual work.

Advance works – which can mean being on site up to three years before work commences – are projects usually secured by the company through a public sector procurement process; Headland then ensures all aspects of the site are readied in time for work to begin. This requires a great deal of forward planning and organisation. It is much



different to the projects that Headland works on during construction, which are procured from the large organisations who are responsible for archaeology on site.

Whether on site prior to work beginning, or during the construction of large infrastructure projects within the road and rail sectors, a specific set of skills are needed to meet the varying and sometimes unique challenges that are presented.

CHALLENGES OF WORKING ON INFRASTRUCTURE SITES

Headland has worked on some of the country's largest infrastructure projects; this is a real accolade but with it comes a series of challenges.

On a recent road project, Headland had approximately 300 archaeologists on the ground; guaranteeing the health and safety of all these

is an exceptional challenge; 2018 has underlined the great difficulties posed by adverse weather conditions, which make trips, slips and falls a greater hazard.

Construction companies like to be on site in the spring because this is the best time to undertake groundworks. It means though, that archaeologists will invariably work during winter months, when sites are prone to rain, snow and flooding.

The nature of archaeology work means staff are often working with soil, heightening risks associated with hygiene. It underlines the need for the expertise that Headland can bring onto a site.

Other challenges remain. Working on construction sites, road, rail and other infrastructure schemes won't always run smoothly in terms of what is expected on site.



Headland does its utmost to predict what archaeology is present on each site prior to work commencing.

However, there are always anomalies and variables associated with unexpected archaeology. It presents challenges to deadlines, as well as satisfying the requirements of local authorities.

Archaeological digs can be complicated, and long-term procedures. It is therefore important to meet these challenges; Headland's portfolio of clients indicates just how successful the company has been in this field.

THE IMPORTANCE OF TECHNOLOGY AND HEADLAND'S FUTURE PLANS

Technology is already playing a huge part in the success of Headland Archaeology. By working smarter, the company has helped to reduce the reliance on resources – something that is a potential problem for the future.

Archaeology is a popular subject choice at university. However, the conversion to jobs within the commercial archaeological sector is low; Headland is aware of this and is focusing on increasing awareness of the importance of commercial archaeology.

Graduates are targeted by attendance at recruitment fairs and universities, whilst Headland is pressing ahead with attracting career changers into the sector.

Already, this has seen success, and with salaries in the sector improving because of increased demand, there is hope that this drive produces the professionals that will benefit the sector – and infrastructure projects – for many years to come.

Where resources in terms of talent pool has struggled, Headland's innovative approach to technology has flourished. Russel Coleman explained: "We are doing a lot of work on developing drones, and we use geophysics in order to work smarter, so we need less resources than 10 years ago."

For now though, the infrastructure boom is one that is set to bring long-term benefits to Headland, the archaeology sector, and provide long-term careers.

The company's ambitions do not end there; Britain is a long way ahead of other countries when delivering archaeology on significant infrastructure projects.

Headland is at the forefront of this and the ambition to offer services internationally is the next step on a successful journey that began two decades ago.



BOOK YOUR TICKET FOR BREXIT - IT'S A MUST!



*by Kevin Richardson,
Chief Executive, The Chartered Institute
of Logistics and Transport*

Has your organisation booked its ticket for Brexit?

WHETHER you voted for Brexit or not, it really doesn't matter; it is here now, it is happening and we must work together to ensure the future success of our profession, so that we can continue to propel national economic growth.

If there is one clarion call which I have consistently recommended to Government, it is the imperative importance of frictionless borders. It is vital that we achieve this to get British products and services efficiently to market, both within Europe and further afield.

Following the vote for Brexit, our profession has been, and continues to be, in a period of continued uncertainty, but we must all be aware of the many opportunities that can arise from Brexit and be ready and able to seize them and add value.

CILT represents the expertise and experience of professionals and leaders in the logistics and transport sector – a key element of our economy and UK trade around the globe. For some time now, we have been involved in discussions with Her Majesty's Revenue and Customs (HMRC) and the

Department for Transport (DfT) to deliver impartial advice and offer solutions to the opportunities that will arise from Brexit.

The Institute is championing Authorised Economic Operator (AEO) certification to aid members to gain a competitive advantage, recognition for professional competence and trouble free border crossings. AEO status is an internationally recognised quality mark and is open to any company directly or indirectly involved in the international supply chain, however large or small.

Clearly, security at all border crossings is of vital importance,



but how this is managed is also critical to commerce. A 21st-century solution is required if goods and vehicles are going to flow smoothly. AEO is the crucial ticket to negotiating Brexit, and indicates that your role in the international supply chain is secure and that your customs controls and procedures are efficient and compliant.

AEO status is an internationally recognised quality mark indicating that your role in the international supply chain is secure, and that your customs controls and procedures are efficient and compliant. AEO certifies that a company meets the necessary standards in compliance, security and safety in the international supply chain – this will truly be the club to be in to guarantee success through Brexit and beyond.

The focus of CILT's position on behalf of its members to the UK Government is very much about keeping trade flowing across our borders post-Brexit. We believe that AEO status should give companies that have demonstrated their commitment to security in the supply chain access to what would in effect be a green lane through UK ports and airports.

CILT is encouraging that companies press forward and attain AEO status before Brexit, so that they can take advantage of the benefits available now and also be best placed to gain benefits post-Brexit. Holding this status is going to be key to experiencing the frictionless border or green channel that industry wants and needs, in whatever shape that is available post-Brexit.

The application process takes months not weeks and companies do need to prepare prior to submitting their applications. Now really is the time to get started. Those that have not yet chosen to be certified should be giving it serious consideration.

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TURO: CAR SHARING SERVICE TO BUILD A SUSTAINABLE FUTURE

Turo has introduced an innovative new solution to the issues associated with car travelling, by facilitating the shared use of vehicles. It has the potential to revolutionise car use in the UK.

Established more than nine years ago, Turo is a car sharing marketplace where guests can choose from a vast selection of cars for their travel needs, at their convenience, for a fraction of the costs associated with car ownership.

The business model builds on the need to solve instant mobility needs, getting people around towns and cities quickly, giving those who don't want to or cannot afford cars, the chance to use these vehicles on longer journeys.

Whether customers want to go shopping, visit friends and family, or enjoy a getaway to the countryside, by hiring a car through Turo, all these options and more are distinctly possible.

The idea originated in the US, but has since expanded into Canada, Germany, and the UK – where Turo is focused on building its community of hosts who list their cars on the platform, and the guests who use them.

POTENTIAL OF THE UK MARKET

The UK is crying out for a concept like Turo for a multitude of reasons: greater efficiency, cost savings, environmental targets.

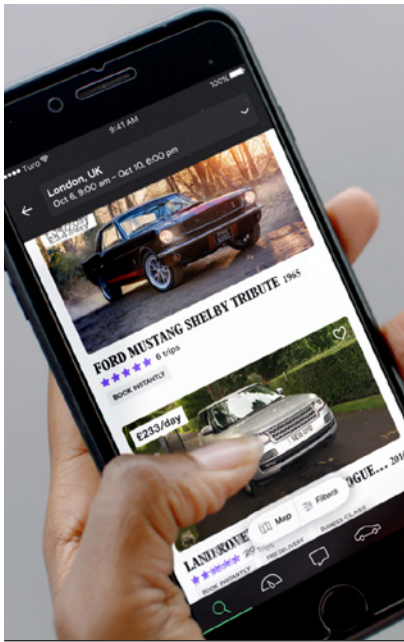
Turo is aware of all of these but another major factor that confirmed to the company that the UK is indeed a market of huge potential is the popularity of the service expressed by UK users.

Xavier Collins, the company's UK Director, said: "We see the UK as a huge opportunity for us because, through our success in the US – which has had 10 million users – a significant percentage of those had travelled from the UK.

"A lot of our loyal users have asked us when we're launching in the UK, and that we should have a presence in Europe."

For the UK, the conditions are there to provide a car sharing service that can be enjoyed by customers all over the country, whether in built-up urban areas where there is so much traffic that people choose not to own a car, or in rural areas where vehicles are needed for longer journeys.

Turo's interest in the UK has been piqued by the fact that so many UK nationals have



Choose from over 850 unique makes and models, while hosts earn extra money to offset the costs of car ownership.

displayed interest in, and already used the car sharing service in the US.

The company's research has also revealed that, of the 37 million cars that are registered in the UK, they sit idle a staggering 95% of the time.

When this under-utilisation of cars is combined with a real demand of people looking for access to vehicles, it makes perfect sense for Turo to move into the UK's market and make a real difference.

This, Xavier Collins says, is key to the wider strategy of unlocking the European market.

"At this stage, it's still such a new concept that no one has really pioneered the market in the UK, as the world leaders in the space we see the UK market as strategically significant for expanding across Europe."

BENEFITS OF CAR SHARING

Owners, renters, the wider environment all benefit from what Turo can offer in the UK market and beyond.

It is a fundamental change in the nature of car ownership, so for those who own cars – an asset that factually depreciates in value over time – a host on Turo can make up to at least £500 a month.

When it is considered that the average cost of a car is £14,000, and its maintenance is upwards of £1,500 each year, Turo really is changing the equation.

Instead, something that loses money and sits idle for the majority of the time can work to pay for itself, which should be exciting for all car owners.

For customers, they can enjoy access to a wide range of cars; at the present time, Turo boasts approximately 850 different makes and models of cars on the website, so renters will get the car that they want, for use on vastly

different types of journeys.

Because of its online presence, guests don't need to wait in long car rental queues, signing endless forms, having other products potentially sold to them.

The website and its method of allowing people to hire cars is entirely **transparent and slick**; Turo doesn't seek to load customers with additional extras, and instead ensures they receive exactly what they have asked for.

Thanks to the agreement with insurance provider Allianz, both owners and guests can feel safe in the knowledge that any and all eventualities are covered.

Improving the environment and working to emission strategies

By benefiting car owners and customers who need to rent vehicles, Turo is also providing an extremely important function by putting the world's cars to better use.





A rise in services like Turo's will lead to a fall in car ownership, less reliance on cars for the majority of transport needs, and in hugely urban areas like London, helping to remove the number of cars on the streets will mean cleaner air, and less congestion.

Turo is vital in providing a whole new perspective to car ownership, by helping people realise that what they really **rely on is access, rather than ownership.**

In the UK, major cities are introducing low emission zones, and the central government's Clean Air Strategy is trying to tackle the scourge of pollution.

Turo is ideally placed to ensure those people in the cities still have access to vehicles as and when they are needed; Xavier Collins believes low emission zones are a "huge tailwind" to Turo's business model – facilitating the reduction in car ownership; by increasing the reliability and options associated with renting and accessing cars, the company will succeed in driving down ownership.

In the long term, it will benefit owners, customers

renting cars, and the wider country, such is the significance of the service.

SAFETY IS PARAMOUNT

As with any sharing platforms, there are risks associated. Turo takes these extremely seriously, which is a given in a marketplace that is built on the highest level of trust.

The vetting process is thorough, with a review system that can be used by everybody who has had a trip – guests and hosts alike.

The company use a plethora of data sources, and running licence checks if there are any concerns.

If necessary, Turo will speak to the prospective guest.

A series of tests are used in respect of guests; by machine learning, the company and the hosts can build a picture about who is booking vehicles and why.

This risk profiling helps to build a detailed and clear picture on who is renting cars, why they are renting them, ensuring there are no problems in the process.

It promotes safety, and contributes greatly to guaranteeing that booking a car on Turo is frictionless, but at the same time the hardest place to book if your motives aren't correct.

The end result? A safe platform that gives value for money to hosts and guests, and given the already high approval ratings, Turo's business model has the potential to change the behaviours and attitudes towards car ownership and use in the UK and beyond.





// NEW FINANCING PACKAGE WORTH £1.4 BILLION AGREED FOR CROSSRAIL PROJECT

A new financing agreement has been confirmed for the Crossrail project by Transport for London (TfL), the Mayor of London, and the Greater London Authority (GLA).

In a fresh blow for the new high capacity railway that is set to improve journeys in London and the South East, further delays are expected, increasing the financial strain on the development.

Originally set to open its first section in December 2018, this was pushed back to autumn 2019 earlier this year.

However, those in charge of the Crossrail project say it “has now become clear” that even more work is required to ensure the infrastructure is completed, before the extensive testing commences to ensure safety and reliability.

It means that even the autumn 2019 opening date

cannot be guaranteed; Mark Wild, Chief Executive, said the Crossrail project team is working to implement an deliverable schedule.

The financial fruits of this labour will therefore be delayed by more than nine months, which puts a huge hole in the income streams that TfL will have planned for.

Finance and governance reviews are currently underway, but the findings available reveal the cost impact of the project delay that was announced in August will be in the region of £1.6 billion and £2 billion, which includes the £300 million contribution from the Department for Transport (DfT).

It means an estimated £1.3 billion to £1.7 billion is required to complete the project.

To cover these costs, the GLA will borrow up to £1.3 billion

from the DfT; the GLA itself will provide £100 million, taking the financial package to £1.4 billion to complete the project.

A contingency arrangement between TfL and the government has been put in place in the form of a loan facility from the DfT of up to £750 million, in case the final costs are actually higher.

This combined financing replaces the need for the interim financing package offered by the government in October.

Mark Wild said: “My team and I are working to establish a robust and deliverable schedule in order to give Londoners a credible plan to open the railway and provide a safe and reliable service.

“Once that work is completed, we will then be in a position to confirm a new opening date.”



// CITY OF LONDON LAUNCH TRANSPORT STRATEGY TO IMPROVE AIR QUALITY

THE City of London Corporation has developed an ambitious Transport Strategy that will tackle air quality in the capital.

Under the proposals set out, the Transport Strategy outlines a framework for future investment on the streets of the Square Mile for the next 25 years.

It is the first undertaking of such a long term strategy in the history of the City of London Corporation.

The need to reduce pollution and improve air quality is at the heart of the proposals in the Transport Strategy, but this is not the only topic for proposals; elsewhere, tackling road congestion and reducing road danger are also part of the overall strategy.

Through the Transport

Strategy, the City of London hope to become UK pioneers for a zero emission future, championing Britain's first large scale zero emission zone that will cover central London.

In the interim, the plan is to introduce local zero emission zones covering the Eastern City Cluster and Barbican, and Golden Lane.

In terms of reducing the number of accidents on the network, the City want to introduce a City-wide speed limit of 15mph, which will help to achieve Vision Zero.

The aim is to decrease the likelihood and severity of collisions, as part of the fight to eliminate death and serious injury from the streets of the capital.

Chris Hayward, Planning & Transportation Chairman

at the City of London Corporation, commented:

"I am delighted that the City Corporation engaged with over 2,500 people during the earlier public consultations, the findings from which shaped these proposals.

"The Square Mile is a unique place to travel, therefore radical proposals are required to future-proof this world class, growing business and cultural centre.

"Once finalised, this Transport Strategy will be transformative in ensuring that the Square Mile remains a healthy, accessible and safe commercial and cultural centre."

The Strategy builds on other proposals that address accessibility, including electric vehicle charging infrastructure and emerging technology.



SHARE-NORTH: MAKING TRANSPORT MORE SUSTAINABLE

FOR almost three years, SHARE-North has worked tirelessly to educate people, councils, businesses and governments about the huge benefits surrounding changing behaviours and enjoying the benefits of shared mobility.

The EU-funded Interreg North Sea Region project, SHARE-North has been vital in the promotion, development and implementation of shared mobility in urban and rural areas, as well as places of employment.

The project is necessary because of the need to inform public stakeholders about the potential of shared mobility and how this can resolve transport issues in towns and cities.

Ten project partners throughout the North Sea region make up SHARE-North; in the UK, the South East of Scotland Transport Partnership (SEStran) and the West Yorkshire Combined Authority are benefiting from the collaboration of ideas.

Elsewhere, the City of Bremen, Advier in the Netherlands, [Autodelen.net](#), the City of Bergen, Leiedal, Lund University and Taxistop in Belgium are part of the project.

ComoUK is the latest organisation to join the consortium for the project, the success of which has resulted in a three-year extension of SHARE-North.

Although these organisations have different needs and motives for pushing the drive towards shared mobility, the major principles are the same: all want to provide solutions for the problem of **too many cars in cities; too many single occupancy vehicles, and poorly utilised public space.**

SHARE-North is tasked with tackling these issues, allowing cities to utilise infrastructure better, reduce greenhouse gas emissions through decreasing the number of vehicles on our roads, and promoting **social inclusion and accessibility.**

The final point is extremely significant; SHARE-North looks at all aspects of shared mobility and is committed to providing possibilities for those less mobile to ensure their daily mobility needs are met.



High Parking Pressure in Cities for people in Bremen - Copyright City of Bremen



Opening of first mobilpunkt in Bergen Norway - Copyright City of Bremen

BENEFITS OF SHARED MOBILITY

Cost effective and flexible

Shared mobility encompasses all manner of vehicle sharing – bike, car, and ride sharing are just some of the methods. SHARE-North’s mission is to put shared mobility on the radar of stakeholders and allow them to see the benefits, of which there are many.

Car clubs and other shared mobility schemes are beneficial not just for councils and governments, but also for people.

The cost of owning and operating a car is already high and continues to grow; the average car is used for one hour a day, but to own it, pay tax, insurance and any associated maintenance, means the prices rocket. And this means that, as a choice, it is not cost effective.

Car clubs are; members have access to an **entire fleet of vehicles**, all of which can be

used to meet differing needs of vehicle use.

Rebecca Karbaumer, at the City of Bremen, said: “The broad range of vehicle you have access to as a car user adds flexibility for life.”

Rather than paying for the upkeep of a vehicle, you **only pay for the time you use it**. Not only is this much cheaper, but it adds a great deal of flexibility for the user.

Zero emissions

Although car clubs and shared mobility through SHARE-North aren’t set up with emissions as a motivating factor, the projects are certainly supporting reduction in harmful emissions.

By tackling issues like parking problems in town, congestion and accessibility to car sharing, SHARE-North is succeeding in driving down pollution.

One of the UK partners, the West Yorkshire Combined Authority, has prioritised reducing air pollution and

greenhouse gases in the region. By incorporating shared mobility in the area, it has facilitated the decrease in emissions.

In particular, the council is working with a travel plan network team to convince employers in the region to create travel alternatives to and from work every day.

One of these alternatives is shared mobility, which helps with sustainability.

It is the same story in Bergen, where the government has passed legislation targeting CO2-neutral emissions by 2030.

In order to do this, lift sharing and car clubs are promoted, which is taking city closer to the CO2-neutral goal.

High-occupancy vehicle lanes are endorsed, congestion charges have been set and people are encouraged to share rides to reduce costs; these solutions are exactly what SHARE-North is promoting throughout the North Sea region.

Success of shared mobility

The project partners in the North Sea region have already felt the benefits of shared mobility, whether car, bike or scooter clubs.

West Yorkshire Combined Authority has, by working with large employers in the region, helped to solve a number of transport problems such as parking, congestion and limited capacity issues.

Bergen is making real progress towards a CO2-neutral future and in Bremen, the German city has a long-term strategy that has promoted car clubs as part of the municipal transport strategy since 2003.

For the past 10 years, a Car Club Action Plan has been in place, encompassing a five-step strategy that makes car clubs more attractive to people.

One of the major building blocks for this strategy was the **creation of mobility hubs** by designating public street space for the purpose of car clubs that can link to other shared transport modes.

These hub networks have been expanded throughout Bremen's neighbourhoods.

It is vital because it succeeded in bringing the network much closer to the user and, significantly, provided a much more viable and attractive alternative to the privately-owned car.

The concept has grown, with Belgian partners rolling out similar projects of car clubs linked with public transport and bike parking facilities that are, crucially, highly visible and in easily accessible spaces in a public environment.

Bergen too has flourished, with its first shared mobility hub opening in May 2018 – a first for Norway.

It shows that Bremen's shared mobility example is, according to Rebecca, "inspiring other cities and regions to adapt the approach to their local area and improve it."

SHARED MOBILITY CHALLENGES

The examples in Bergen, Bremen, Belgium and beyond prove beyond doubt how the landscape of cities and their travelling habits can be improved through shared mobility.

However, much work still needs to be done; SHARE-North understands that, although progress has been made, not all public authorities see the range of possibilities offered by shared mobility, so **awareness is paramount.**

When pollution can be reduced, emissions targets achieved, and a healthier population using bikes more and cars less, it stands to reason that local authorities and beyond would be wise to integrate shared mobility into their transport policies.

The authorities that are part of SHARE-North are reaping the rewards of all these benefits, guaranteeing **long-term sustainability in their regions.** But it is a wider message that the project coordinators are intent on communicating.

Rebecca added: "In order to be successful, public support and the support of government is instrumental."

By increasing the visibility of shared mobility in the public realm through the hubs; and by emphasising the changes to individual lives these schemes can provide, SHARE-North will ensure that towns and cities across Europe will be hotbeds for shared mobility schemes in the future.

More information:
<https://share-north.eu>



Signing of Green Deal at Shared Mobility Rocks Conference in March 2018 - Copyright Autodelen.net



// . GOVERNMENT-FUNDED ELECTRIC VEHICLE CHARGE POINTS TO USE SMART TECHNOLOGY

ELECTRIC vehicle home charge points that have been funded by the government must be 'smart' from July next year, it has been confirmed.

This innovative smart technology has to be used so that charging costs are kept to a minimum; the charge points must have the ability to be remotely accessed, with the capability of receiving, interpreting and reacting to a signal.

By reducing high peaks of electricity demands, the charge points will minimise the costs of vehicles to the electricity system.

It is a significant announcement, as it fulfils a promise made in the government's Road to Zero Strategy, which will lead the way in zero emission

technology by expanding green infrastructure throughout the country.

The target of making 70% of car sales ultra low emission by 2030 – and encouraging the use of vans and trucks with zero emission – requires the expansion of the infrastructure to support these vehicles.

Ensuring electric vehicle charge points at home use smart technology will help to achieve this aim.

The government has also announced that grants have been maintained to install charging points at home and the workplace that cost up to £500.

It will result in greater accessibility for charging electric vehicles for consumers, ensuring cars,

vans, trucks and fleets that lead the way in hitting zero emission targets can be used to their full potential.

Jesse Norman, Roads Minister, spoke at the announcement of the smart technology charge points. He explained the significance of these announcements.

He said: "The government wants the UK to be the best place in the world to build and own an electric vehicle, and through leadership and innovation it is paving the way to a zero emission future.

"We have already supported the installation of over 100,000 home charge points.

"Now the measures announced will give more people the opportunity to make the move to electric."



CALIBRATION ENGINEERING SERVICES

CALIBRATION Engineering Services has just celebrated its 16th birthday. It has been quite some journey from those beginnings in the South East of England.

In a relatively short space of time, the organisation has become a major player in the market, providing a nationwide calibration service.

Businesses that need to make sure their equipment is safe, in working order and set in line with industry standards can call upon Calibration Engineering Services, who use the very best in diagnostics software and testing equipment to make sure that all tools meet necessary standards.

But the company is much more than that. Through a network of fully equipped sprinter vans – where everything is UKAS-accredited – Calibration Engineering Services offers the highest levels of convenience by going out on site when required, also



saving on the cost of sending tools away to be calibrated.

The platform is important for those companies that value customers and equipment; in one easily accessible online tool, information about calibration testing is uploaded instantly from engineer's tablets, providing easy monitoring for health and safety managers, equipment managers, site managers and calibration and inspection service providers.

By providing a **one-stop shop service**, customers

can be assured that all their needs will be met, their concerns will be listened to, resulting in the very best in equipment safety.

MARKET-LEADING ONLINE EQUIPMENT AND MANAGEMENT SYSTEM

Testing equipment, diagnosing any problems and resolving any issues are all crucial elements of Calibration Engineering Services' work. However, during the company's growth, another vital element was added.

By 2004, the business had introduced a national calibration service, comprising of engineers all over Britain to inspect and repair equipment.

Around this time, a further addition was made that has been key in setting the organisation apart from any contemporaries.

The formation of the unique asset management system – www.mycalibrations.com – has changed the face of the way information regarding calibration testing is stored. It has proven extremely important for all stakeholders, resulted in significant progress, and given Calibration Engineering Services an even stronger footing with national transport companies.

www.mycalibrations.com is a market-leading online equipment and asset management system that helps businesses with the management of equipment, their customers and organisation in one solution.

The platform is important for those companies that value customers and equipment; in one easily accessible online tool, information about calibration testing is uploaded instantly from engineer's tablets, providing easy monitoring for health and safety managers,

equipment managers, site managers and calibration and inspection service providers.

By implementing and introducing the online management system, Calibration Engineering Services provided an important enabling function for its customers, allowing them to view all their assets and equipment online for the very first time.

It has completely revolutionised the way that clients look after the certification of their calibrated equipment; previously, packs of certificates would be sent by post to be filed in the many offices of companies.

But how reliable is this? These important documents can end up in drawers, disorganised filing cabinets, or worse still, completely lost.

Thanks to www.mycalibrations.com, these concerns are a thing of the past.

Now, customers view all their assets online and can see which certificates are up to date; they are alerted when calibration services are required for specific equipment, and because certificates can be searched for by serial number, equipment type and date, it makes access easier than it's ever been.

It really is at the cutting edge of user-friendly.

By equipping all engineers in the field with tablets, they can update files very quickly so, when a customer's equipment has been tested



and undergone the full calibration service, results can be instantly **uploaded to the website, available for immediate view.**

And Calibration Engineering Services understands the importance of the website; it means even more money is being invested into the system.

Instead of hunting for paper certificates, the computer system gives customers all they need, which has the added advantage of making internal and external audits much easier.

The sophistication continues to grow too; the computers that engineers use in the field are equipped with a **QR coding system.**

An industry first, this coding system allows Calibration Engineering Services staff to tag equipment that is logged on the website.

Tools benefit from having labels immediately printed by engineers on site, which are complete with the QR code.

It is an exciting development because smartphones can read the coding of the labels, which are attached to each and every piece of equipment. By simply scanning this with a smartphone, the details of the last and next inspection dates for all every piece of equipment can be instantly viewed.

Therefore, if operators of equipment on site are



worried something hasn't been inspected, by scanning the QR code, this can be quickly ascertained.

It is imperative for site managers, health and safety personnel and auditors; instead of visiting the website, equipment can be checked there and then – something completely unique to Calibration Engineering Services.

The company has a number of significant clients that work within the transport industry and beyond; all have found the service to be exceptional, allowing easy viewing of the status of all assets and equipment throughout the country.

WHY USE CALIBRATION ENGINEERING SERVICES?

The risks of leaving equipment unchecked and untested cannot be overstated; although there is no law about calibration, the company's involvement in LOLER testing makes inspecting equipment for any safety or technical issues a requirement.

It goes without saying, but by regularly looking at and testing equipment, organisations can give themselves peace of mind.

In the transport sector, a variety of tools and equipment will be used by businesses who work on



This one-stop shop, 100% service to customers means the business has a number of stakeholders within its portfolio who began with calibrating a few items but became large customers because of the nature of such a comprehensive service.

In turn, it means everybody at Calibration Engineering Services is committed to improvement; there is investment in people skills, equipment, training and software development to deal with all customer requirements.

The approach of always finding a way to meet client needs, training staff so customers don't have to go anywhere else, is a major reason why the company has flourished for the last 16 years.

Flexibility like this, and an already complete service, is exciting for the future of Calibration Engineering Services and the organisations it works with.

Please contact us for more information:
www.cesws.co.uk/LandingPages/TransportBritain.aspx



and look after a range of vehicles and fleets. If repairs or maintenance on these are being undertaken by tools found to be faulty, the results could be catastrophic.

However, Calibration Engineering Services guarantee that customers avoid these issues, giving them equipment that is safe and can be used on vehicles.

Indeed, the company has calibrated torque wrenches for a client which found that this tool previously had a 50% failure rate.

“The client immediately checked all vehicles where the torque wrench was used, and we found a number of loose wheel nuts; so without calibration, there could have been a major incident.”

A COMPLETE CUSTOMER SERVICE

The mentality of Calibration Engineering Services means once customers benefit from their services, they no longer need to go anywhere else.

That is because the organisation, from top to bottom, prides itself on liaising with clients and meeting every one of their needs.

It has resulted in a move into the hand-arm vibration market, testing ride on equipment, and hand-held power tools.

The company's success is rooted in the simple yet extremely effective practice **never saying no to a customer.**

Elizabeth line
↑ Eastbound platform A

Sheffield
Abbey Wood

Elizabeth line
Westbound platform B ↑

Heathrow
Maldenhead
Reading

// CROSSRAIL LTD HAS CONFIRMED MARK WILD AS ITS NEW CHIEF EXECUTIVE

CROSSRAIL Ltd has announced the appointment of Mark Wild as its new Chief Executive.

Having taken up his new position on 19 November, Mark Wild joined his new employers on 5 November in preparation of taking up the reins.

Since June 2016, he has served as Managing Director for London Underground – a position he will return to once the Elizabeth line is open through central London.

Initially, Mark Wild will work with outgoing Chief Executive of Crossrail Ltd, who will depart the role before the end of 2018, as originally planned.

While Mark is working at Crossrail Ltd, Transport for London (TfL) revealed his

role will be filled by London Underground's Director of Network Operations, Nigel Holness, who will move to a new job as Deputy Chief Executive for Metro Trains Sydney at a later date.

This new appointment for Crossrail Ltd – one of Europe's largest infrastructure projects – comes at a time the development has failed to hit targets.

Its opening has already been delayed by nine months, and in October, it was announced that £350 million short term repayable financing was handed over so that the project can continue with construction and testing so that the Elizabeth line can open as soon as possible and cope with loss of income that would have been

budgeted for by a December 2018 opening.

The delivery of Crossrail is something that will benefit from the "extensive knowledge" of its new Chief Executive, according to Mike Brown MVO, London's Transport Commissioner.

He said: "The Elizabeth line is the single most significant addition to London's transport infrastructure in a generation.

"It is absolutely vital that Crossrail Ltd completes the job of delivering it safely and reliably for London.

"Mark's extensive knowledge and experience of delivering major signalling and systems integration projects will be vital for the final stages of the project."



// ORR APPROVE NETWORK RAIL'S CP6 SPENDING PLAN IN ITS FINAL DETERMINATION

The Office of Rail and Road (ORR) has published its final determination on Network Rail's spending plans for Control Period 6 (CP6).

Publication of this document determines what Network Rail should deliver in respect of its role in operating, maintaining and renewing the network in the next funding period, which starts in April 2019 and runs to 2024.

The ORR called for greater spending on safety and reliability in its draft determination; Network Rail has responded to this challenge, leading to the regulator to approve the plans – worth £35 billion – to improve Britain's railways, reliability and timetabling.

As per the final determination, £16.6 billion will be spent on renewing the existing railway – a 17% increase on spending from CP5, while

£7.7 billion will be invested on maintaining the railway.

Overall, this equates to £24.3 billion on maintenance and renewals of the railway, which will help passengers, freight and businesses by cutting delays caused by infrastructure failures.

Elsewhere, £3.4 billion will be spent on operations; £2.6 billion on support; and a further £4.3 on unspecified other areas.

The Performance Innovation Fund has increased from £10 million in the draft determination to £40 million in the final determination, in order to provide better support for the testing and implementation of new ideas from across the entire industry to improve punctuality.

Network Rail's plans for significant funding and resource boosts for

timetabling and planning functions have been approved by the ORR, with spending almost doubling from £145 million in CP5 to in excess of £270 million in CP6.

John Larkinson, Chief Executive at the ORR – who has previously spoken to Business Britain about the Periodic Review process – explained the focus of these plans.

He said: "These plans are focused on improving performance for passengers and freight operators by getting the basics right – ensuring that the railway is properly maintained and renewed, and on improving the daily operation of the railway.

"There is no time to lose; Network Rail and, in particular, the routes and system operator must make sure they are ready to deliver from day one of the new control period."

// ORR PUBLISH PROPOSALS TO ‘SIGNIFICANTLY’ REFORM ITS DPPP

The Office of Rail and Road (ORR) has published “significant” revisions to its Disabled People’s Protection Policy (DPPP), to make the railway more accessible.

Described as wide-ranging, the reformed guidance will give train and station operators the information and direction they need to ensure that greater quality, consistency and reliability is delivered in terms of assisted travel for disabled passengers.

These are the core fundamentals of the DPPP; reforms are necessary because the evidence-led review from the ORR has found new insight into longstanding problems – specifically the industry systems and processes – that contribute to undermining the ability of railway staff to deliver assisted travel with consistency expected.

This is despite the fact that the vast majority of disabled passengers say they get the help they need

and are satisfied with the service received.

However, through extensive passenger research, the input from disability groups, as well as industry experts, the new insight means that changes will be made to the DPPP.

As a result, the ORR will consult on a range of proposals to improve the service for disabled passengers.

These include an increase to the reliability of assistance for disabled passengers through a new standardised handover process in all mainline stations in Great Britain.

Elsewhere, accessible journey planning will be improved by standardising key accessibility information on facilities, step-free access and staffing to provide an accurate picture of what disabled passengers can receive at each station.

The notice period for booking assistance will be reduced; all train companies

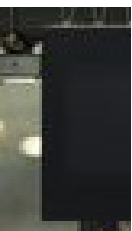
will be required to provide compensation to passengers who don’t receive the necessary assistance; and staff training will be strengthened.

It adds to the initiatives being developed to improve rail journeys for disabled passengers, and Stephanie Tobyn, Deputy Director of Consumer Affairs at the ORR, commented.

“Assisted travel is a vital service that should offer disabled people the opportunity to travel with ease.

“Our proposed reforms are a much needed change to the current guidance that was written in 2009. Much has changed since then and while there has been good practice, this often has not gone far or fast enough.

“We recognise the potential cost of changes and that they may take time to put in place, but we are ambitious in our vision of a more accessible railway for all.”





TRANSREPORT: INNOVATIVE SOLUTIONS IMPROVING THE EXPERIENCE OF DISABLED PASSENGERS

RAIL journeys can be difficult at the best of times. Everybody has bore the brunt of delays, packed carriages and congested stations.

However, the experience can be much worse for disabled passengers, who can understandably find it difficult to undertake journeys comfortably, and in a stress-free manner.

The need to improve rail journeys for disabled passengers has been of great importance for years. The government is working to change this with a number of initiatives; the Office of Rail and Road (ORR) meanwhile set up the Disabled People's Protection Policy (DPPP) to ensure train and station operators put the measures in place so disabled passengers are not inconvenienced.

With the advancement in technology, one company is using innovative methods to help these passengers; Transreport has been active in the UK rail industry since 2016. In these two short years, so much progress has been made to help. Here is a little about its rise and the development of products.

Transreport is currently developing some of the most exciting technology and apps within the transport industry. This highly progressive company's success in the rail sector can be attributed to their ability to maintain their agility and inventiveness, whilst focusing on the key needs and requirements of the rail sector and the passengers it serves.

What sets Transreport apart from other technology companies is the focus and empathy it puts on people – the end user of the products. The diverse team bring expertise in various fields, from research and development to software engineering; products are created that solve the problems faced by the rail industry, both on a business and consumer level.

Managing Director, Jay Shen, puts this at the centre of the company; he believes that technology should always make life easier and more enjoyable. This principle is reflected across the Transreport team and can be seen in the methodical and thorough approach that doesn't cut corners but takes the time to gain a real understanding of the needs and desires of both train

operators and passengers, before delivering innovative solutions that put their customers first.

Jay said: "Rail is a growing and interesting industry, with many opportunities, both here in the UK and abroad. There is a deep history behind the rail network that has played such an important part in building the country's social and economic infrastructure over the years. We are excited to be a part of its future, by using technology to make it a more inclusive form of transportation that is accessible to as many people as possible."

The company is determined to go beyond simply creating products that users need and

enjoy. Crucially, the products will also truly have a positive impact on the rail industry. Providing meaningful change that can go on to affect the lives of passengers, train operators and the rail industry at large is what continues to inspire Transreport to innovate. In alignment with the company's key principles, the team focuses its attention on using technologies, such as blockchain and machine learning to improve the way people travel and experience the transport industry.

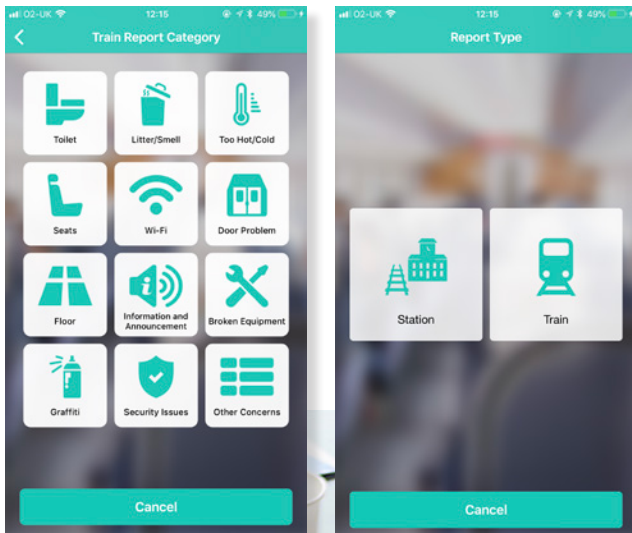
This is a company that truly understands the importance of adding value to its customers and keeping it simple but relevant to the passengers' needs, in order to make a real difference in their travel experience.

APPS TO REVOLUTIONISE RAIL TRAVEL

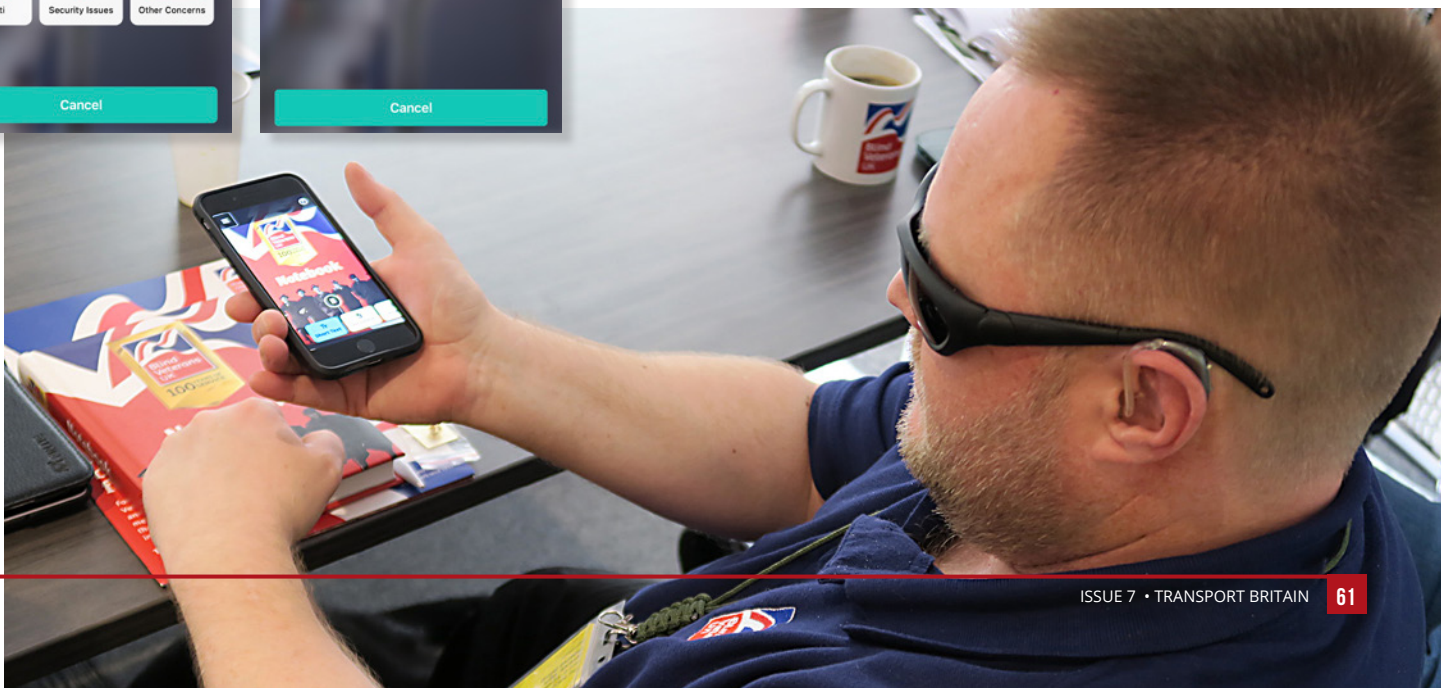
The **Transreport app** is the debut defect reporting tool, created by Transreport to allow passengers to directly communicate any problems on board a train or at a station to the rail operator.

Any issue associated with transport can be reported. For example, a broken seat, disabled toilets not working or faulty Wi-Fi. The state-of-the-art sensor technology used by Transreport allows passengers to report any fault during a train journey; whether a passenger notices a broken piece of equipment, or a suspicious item left around – **3 simple clicks and the app does the rest.**

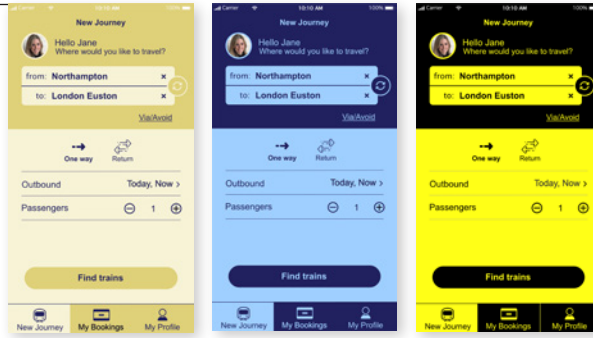
The patent-pending technology automatically works out exactly which train and which carriage the report was sent from, as well as station locations, then sends all the information to the relevant teams within the transport operators (i.e. engineering teams, cleaning teams, or customer service teams).



The Transreport app allows passengers to select a category before reporting a defect on a train or at a station in the U.K.



Transreport has designed different colour themes that have been known to benefit users with Autism, Dyslexia, Anxiety and Visual Impairments



in alignment with the Rail Delivery Group (RDG) and the Office of Rail and Road (ORR).

The new system comprises of a **staff app** and passenger app, which work hand-in-hand to improve the journey experience of disabled passengers, for a more inclusive rail infrastructure. Processes which were once hugely time-consuming for passengers and extremely costly for rail operators have been simplified dramatically, leaving all parties far better off than they are with the current system.

Accurate reports made by both passengers and staff can be quickly and effectively resolved, while an option is available for rail operators to update the user on the progress of their report, with an optional before-and-after image of the resolved issue. This enables a better travel experience, by bridging the communication between the operator and their passengers to improve customer satisfaction, for a better journey.

demand and necessity for a system that can help manage the required assistance needs for train journeys.

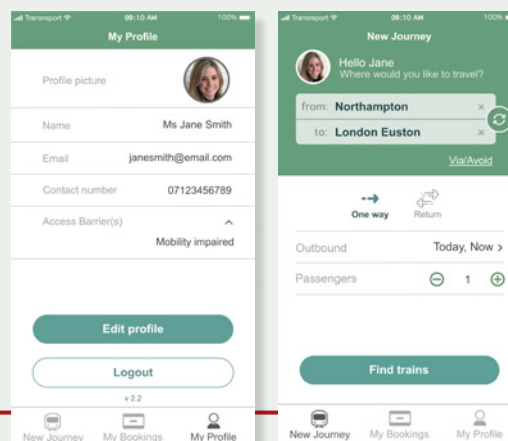
Passenger Assist is the first-of-a-kind app that has been developed by Transreport, allowing passengers with specific needs to request assistance at train stations across the entire UK rail network. For the first time, passengers can accurately and efficiently communicate their transport needs to rail operators in real-time, enabling passengers to travel more independently and without the need to book 24 hours in advance – like they currently do. This project has been in development for 18 months; it has been part-funded by the Department for Transport's Innovate UK programme and developed

The work leading up to the roll-out of this new Passenger Assist system in Summer 2019 consists of extensive and thorough research into how Transreport's technology can improve the assistance-booking process for both passengers and rail operators. This has been made possible through funding opportunities, such as Innovate UK's 'First of a Kind' (FOAK1) competition - further testifying to the DfT's commitment to putting disabled passengers at the forefront of customer experience. Trials of the system

Transreport's latest app – **Passenger Assist** – is a further testament to the passenger-centric ethos of the company. Research by Transport Focus and the Department for Transport revealed 5% of all UK rail journeys are made by passengers with a disability or long-term illness – which equated to 85 million journeys in 2017 alone.

The Passenger Assist app enables passengers to request assistance by either **booking in advance** or simply **"turn-up and go"** for passengers wanting to travel spontaneously. With a growing, older population and recent media attention calling for more accessible rail transport, there is a

Passenger Assist



Passenger Assist allows passengers to create a custom profile (left) and then request assistance by searching for a train journey (right)

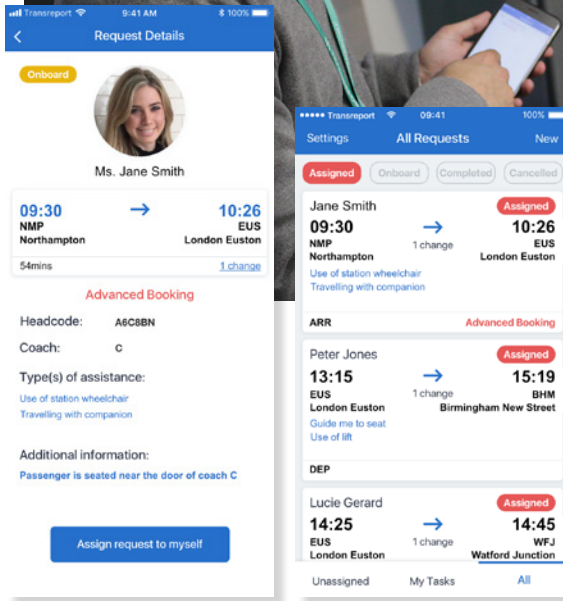
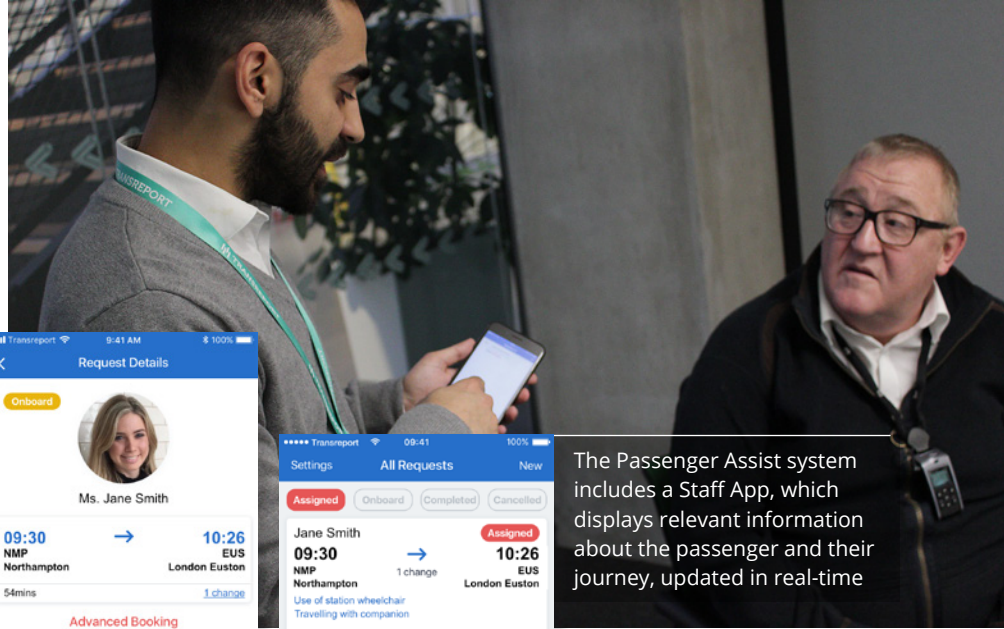
with companies such as West Midlands Trains, South Western Railway and Greater Anglia have allowed Transreport to truly understand how to build a system that is fit-for-purpose.

As well as working closely with rail operators in this project, Transreport has gone above and beyond to work closely with the people who will be using the app – disabled passengers. With frequent workshops and engagement sessions with members of Disability Rights UK, Blind Veterans UK, RNIB and Anxiety UK, Transreport truly understands what it takes to deliver a system that disabled people have been waiting so long for. With the help of these organisations, Transreport has been able to put accessibility-by-design at the forefront of their development, leading to features like varying text sizes and changeable colour themes for passengers with specific needs.

LEADING THE WAY IN TECHNOLOGY

Although Transreport is a newly-established technology company, the company's expertise and skills in Big Data and the Internet of Things technology are mature and extensive. With a range of skill sets and educational backgrounds at the helm of this up-and-coming tech company, they are fearless when using their technologies to tackle exciting challenges in unprecedented industries.

Transreport's objective is to democratise transport.



The Passenger Assist system includes a Staff App, which displays relevant information about the passenger and their journey, updated in real-time

14 million disabled people, it is safe to say that Transreport has made tremendous growth in two years. This young, fast-growing company has gained

Whether Transreport accomplishes this through the passenger-focused apps, or through its supporting back-end systems, the goal is now well within reach. With high hopes for the future of their company, the team is well-prepared and well-equipped to transition into a range of new fields, including multimodal transportation; artificial intelligence within ChatBots and other solutions that look to improve the overall customer experience of passengers.

With the recent success of their Passenger Assist system being rolled out nationally, motivation and morale are high within the team and Transreport has every intention of taking the UK tech world by storm in the coming months.

From working in a tiny office with a team of fewer than five people in 2016, to now launching a national system for

a positive reputation within the rail industry and among the public. The support from the Department for Transport, ORR, numerous disability charities and influencers has been highlighted when they referred to the Passenger Assist project as "life-changing" and a "facilitator for true inclusion" within the rail industry.

They have not only used their national media attention to raise awareness about their new system, but also to start an open conversation on how we can create a better, more accessible transportation system throughout the UK. This is very much in line with their aim to revolutionise and democratise transport; to give passengers a platform to influence change, for a better journey experience. Transreport seems to be a fast-moving train that doesn't look to be slowing down anytime soon.



// RAIL INDUSTRY REACTION TO THE CHANCELLOR'S AUTUMN BUDGET IS MIXED

THE response to the Budget from the rail industry has been mixed, welcoming certain announcements, but expressing concern that key requests from the sector haven't been delivered.

Chancellor Philip Hammond used the last Budget prior to Brexit committed billions of pounds to upgrade and improve Britain's infrastructure.

As well as almost £30 billion set out to improve the country's roads, the government has announced a range of measures that will upgrade and potentially revolutionise the rail industry.

An extra £37 million will support the development of Northern Powerhouse Rail; £20 million will develop a strategic outline business case for East West Rail.

The Transforming Cities Fund is being increased to £2.4 billion, and the government will consider the recommendations of the Independent Affordability Review for Crossrail 2, and consider the project's case in the spending review.

One of the most prominent voices in the rail industry, the Railway Industry Association (RIA), welcomed the commitment to investment in Northern Powerhouse Rail, East West Rail and the Docklands Light Railway, which Darren Caplan, Chief Executive of the Association, said "are vital and will unlock economic growth, investment and jobs in different regions of the country."

However, one of the key asks from the RIA in its Budget submission was a commitment to ending the 'boom and bust' nature of rail funding.

The fact that this wasn't tackled in the Budget is a source of concern for the RIA.

Mr Caplan added: "The RIA is concerned that the government did not use this opportunity to deliver on the key asks of the rail industry, namely smoothing out 'boom and bust' rail funding, providing a visible pipeline of enhancements, ensuring electrification remains on the table when decarbonising the rail network, providing match-funding for rolling stock R&D in Control Period 6 and ensuring the Rail Review does not stall investment in the rail network.

"RIA will continue to campaign on these issues, and calls on the government to engage with the industry to ensure the rail supply community can deliver the best rail network possible."

// ANDREW JONES CONFIRMED AS NEW RAIL MINISTER FOLLOWING JO JOHNSON'S RESIGNATION

THE government has confirmed Andrew Jones as its new Rail Minister.

MP for Harrogate and Knaresborough, Andrew Jones takes over from Jo Johnson, after his predecessor's shock resignation from the cabinet due to the Brexit deal offered by the Prime Minister.

Mr Johnson said he would push for a second referendum ahead of the current deal the Prime Minister will try to push through Parliament, and accused the choice as one between "vassalage and chaos."

The role of Rail Minister is currently very busy indeed; in November, Mr Johnson confirmed that a short term repayable financing package will be handed to Crossrail.

His resignation will have caught the government unaware and the shock loss meant the government had to respond quickly.

They have done so by appointing Andrew Jones, who has most recently held the post Exchequer Secretary to the Treasury, where he served between June 2017 to January 2018.

He does have experience within the Department for Transport (DfT), having previously held the position of Parliamentary Under Secretary of State at the Department for two years.

His appointment has been welcomed by the Railway Industry Association (RIA), the voice of the UK rail supply community.

Its Chief Executive, Darren Caplan, hopes the new appointment will be a "keen ally."

He said: "I would like to congratulate Andrew Jones on his new appointment as Rail Minister and welcome him to the industry on behalf of the rail supply community.

"As someone who has previous experience in the Department for Transport, we hope he will be a keen ally of rail and look forward to working with him at this important time for our rail network.

"We look forward to working with Andrew Jones and DfT on these issues in the coming months and years ahead, in order that we can continue to deliver the best for passengers and freight users, and the wider UK economy."





// GOVERNMENT ALLOCATE INVESTMENT FROM TRANSFORMING CITIES FUND

THE government's Transforming Cities Fund is accelerating its drive to transform transport, with the confirmation that two further towns will benefit from a share of the investment.

The Department for Transport (DfT) has announced that Bournemouth, Christchurch and Poole, and Preston will receive a share of the £2.5 billion government fund to ensure its businesses that use the road network will benefit from much faster and easier journeys in the future.

Both are in line for £50,000 so that business cases can be developed to deliver these necessary benefits.

It follows September's announcement of 10 cities shortlisted from an £840 million investment to transform and upgrade infrastructure and transport links.

Part of the government's Industrial Strategy, the Transforming Cities Fund was initially a commitment of £1.7 billion. However, the Autumn Budget saw the Chancellor extend this, such is the need for road and rail improvements.

The levels of investment – and the wider commitment to the country's infrastructure – have been welcomed; and now, two further regions are set to improve their respective transport networks.

Both have individual ideas as to what is required; for Preston, an upgrade of the South Fylde and East Lancashire rail lines are very much front and centre of thinking.

For Bournemouth, the local authority wants to develop cycle highways, high-speed direct buses, and use technology to deliver real-time traffic management.

Chris Grayling, Transport Secretary, spoke about the latest announcement.

He said: "Our great cities and their suburbs are home to world-leading businesses.

"The Transforming Cities Fund will help develop good bus, cycle and tram routes to transform transport systems – making it easier for people to get around and get to work, school or the shops.

"We want to see more places like Preston and Bournemouth, Pool and Christchurch benefit from better and more sustainable transport links to help the area flourish."

Already, £1 billion of the investment has been allocated to the six Mayoral authorities and in the next five years, transport links will be drastically improved throughout the country.

//. IMPORTANCE OF EVOLVING WELDING PROCESSES

NETWORK Rail is responsible for maintaining and renewing 20,000 miles of track; it is an enormous undertaking that includes looking after the whole structure that trains run on.

This includes points, switches and crossings, sleepers, and the rails. The owner and operator of the railways always plan for those occasions where track is too worn, or maintenance is either too expensive, or ineffective.

It is apparent that much investment goes into this process – the latest Control Period will see the largest ever investment in a five-year period.

However, Network Rail is also looking at welding processes to guarantee longer life of the tracks, safety and efficiency of both work and journeys.

The company's engineers have access to technical and vocational training for welding on tracks nationwide. It ensures staff are equipped with "vital safety behaviours needed to get our people home safe every day."

However, in addition to this, there is a reliance on improving welding processes and developing technology.

Traditionally reliant on conventional welding processes for joining and repairing rail, Network Rail is aware that the evolution of this process means these techniques can be limited in application and require high levels of individual skill.

Developments have been made, including automation of the flash butt and arc welding processes.

Significantly though, although

developments have been made, there has been a feeling that potential benefits of automation are yet to be full felt.

In order to realise this, the research and development department has committed to increase automation and reliability of rail joining, as well as introducing plant and equipment that is specifically for welding and repairing rail.

It is hoped this plant and equipment will result in improved quality of track, greater reliability, safety – both of assets and individuals – and ultimately higher levels of sustainability.

More work is still required to realise the potential of innovative welding techniques, but Network Rail is committed to guaranteeing improvements across the network.



WRIST: DISCOVERING NEW WELDING PROCESSES FOR INCREASED RAIL QUALITY

FUNDED under the Mobility for Growth 2014-2015 work program of the European Commission, the WRIST research and innovation project has shown the potential new welding technologies can bring in terms of joint performance and reliability, with expected extensions in-service life.

The WRIST project has developed advanced joining technologies, able to join conventional and premium grade rails with a higher quality and reliability.

Railways across the whole of Europe are vital for businesses, tourists and the wider economy; the fact they are getting busier means tracks have to be able to withstand the stresses and strains of increased train services.

It falls under one of the project's major objectives: to meet **the stringent infrastructure requirements imposed by increased speed and load**, resulting in less maintenance and a longer track lifetime.

The quest to develop and demonstrate the cost effective and flexible joining processes for rail products is being supported by a range of project partners throughout the whole of Europe; the University of Huddersfield, and Jackweld are the partners based in the UK.

Throughout mainland Europe, two representatives are located in Belgium – including the Belgian Welding Institute – three organisations from the Netherlands, one each in France, Germany, and Sweden.

The collaboration is key in obtaining a step change in the joint performance and reliability, ensuring much increased lifespan for a plethora of rail materials.

By developing these new techniques and demonstrating their viability, the WRIST project aims to reduce maintenance costs, because of the fact life cycle of rail and welds will rise.

Both developed processes have environmental benefits, friction welding being a more environmental friendly joining process, and automation an in-process monitoring of the aluminothermic process will be more energy efficient and environmentally friendly.

JOINING TECHNIQUES

Within the project two different techniques have been developed. The first being advanced **semi- automatic forged aluminothermic welding**, and the second is **advanced orbital friction welding**.

These two methods could have a revolutionary effect on the railway industry, as both techniques for joining rail can reduce the width of the heat affected zone (HAZ), and therefore minimise the loss of mechanical properties in the weld zone.

Aim has been clearly to develop mechanised or automated technologies, to partly relieve the welder from heavy work, but also to get consistent quality and process control data.

A thorough requirements analysis has been carried out, showing two possible methods for assessing currently uncontrolled aspects of the finished weld geometry. Recommendations for improvement have been defined.

AUTOMATIC FORGED ALUMINOTHERMIC WELDING

Unlike conventional aluminothermic welding, the advanced method results in both **economic and qualitative improvements** of the weld.

The developed prototype starts with automatic vertical and horizontal alignment of the two rail ends, as well as setting of the gap. Preheating and welding are carried out as in normal aluminothermic welding, but upon cooling the joint will undergo a controlled compression and forging process.

It resulted in, the project team said, “the highest possible level of automation during rail alignment, forging and shearing operation.”

All relevant process data is being captured and stored in a database.

When coupled with the applied mist cooling system, also developed within the project, drastic reductions in overall cycle times have been achieved.

Within the WRIST project several prototypes, for joining of full scale UIC60 rails were developed. The prototype named ‘ALFONS’ is the machine capable to automatically align the rails, carry out the forging operation after welding, followed by shearing of the thermite mould. The required parameters (alignment, forging distance/force etc) are defined within the control system of ALFONS, which also stores all relevant process parameters. Two further prototypes have been developed and tested, both for the accelerated cooling after welding, and a belt grinding device that can be placed on the ALFONS machine.



Based on its uses <Aligning, Forging and Shearing> this equipment has been nicknamed **ALFONS**



The second development is a process and machine control system that collates all the incoming data from the welding process and generates and documents the manual inputs of the operator, the specified process parameters and the measured values from sensors during the sequence of the automated process steps.

Compared to manual aluminothermic welding this system gives welding teams on site significant benefits, by enhancing productivity as well as quality. This is coupled with the database that stores all relevant welding process parameters, as well as geometrical data after weld grinding.

ADVANCED ORBITAL FRICTION WELDING

Friction welding is a solid state welding process (meaning all material stays solid during welding), able to join a wide variety of materials, with a high degree of reproducibility.

This process has been adapted for rail welding by Jackweld, the so called advanced orbital friction welding for rail profiles. This is a fully automated process,

very rapid and energy efficient. To be able to join two rail profiles by orbital friction welding, the process has been adapted in such a way that the rails stay stationary, and an intermediate part performs the orbital motion.

During testing and development, the project partners – led by Jackweld – built a prototype, based on data gathered regarding process parameters for orbital friction welding.

It is a large machine, capable of achieving an orbital friction weld over the cross-sectional area of a UIC60 rail, at a tangential velocity of 1 m/s.

The welding method comprises of clamping the two rail ends, followed by a stepped forced cycle. This starts with a low contract

pressure (pre-heating), then ramping up of the pressure to obtain plastic deformation and finally moving to the forge pressure (at which time the orbital motion stops).

The extended testing has shown that welding in this way **minimises loss of mechanical properties**; due to the fact that, during this process, there is no melting during solidification. The resulting weld is extremely narrow.

BENEFITS OF NEW WELDING PROCESSES

The WRIST project team has diligently and methodically carried out advanced Finite Element modelling for both processes to not only assist in the development of prototypes, but also to define the optimised welding parameters.



Large industrial prototype machine for orbital friction welding of rails

Joints realised by the advanced forged aluminothermic welding process have even been tested on a heavy-haul track site in the Netherlands.

Research teams have been quick to make it clear that further track and laboratory testing will be required to develop these techniques further – a necessity to guarantee the long-term viability of the processes. However, the investigations already undertaken point to real benefits for rail projects through using these **two new joining techniques**.

Both have revealed feasibility for rail joining on a full-scale prototype level, and resulting from microstructural refinement and HAZ width, providing the industry with real potential.

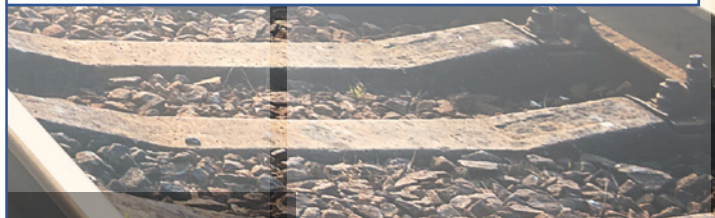
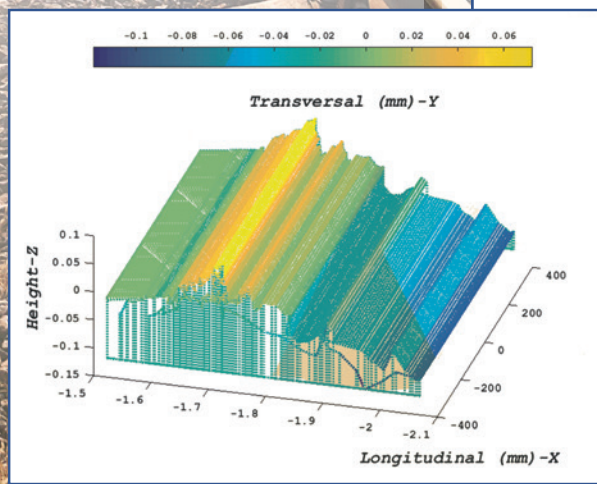
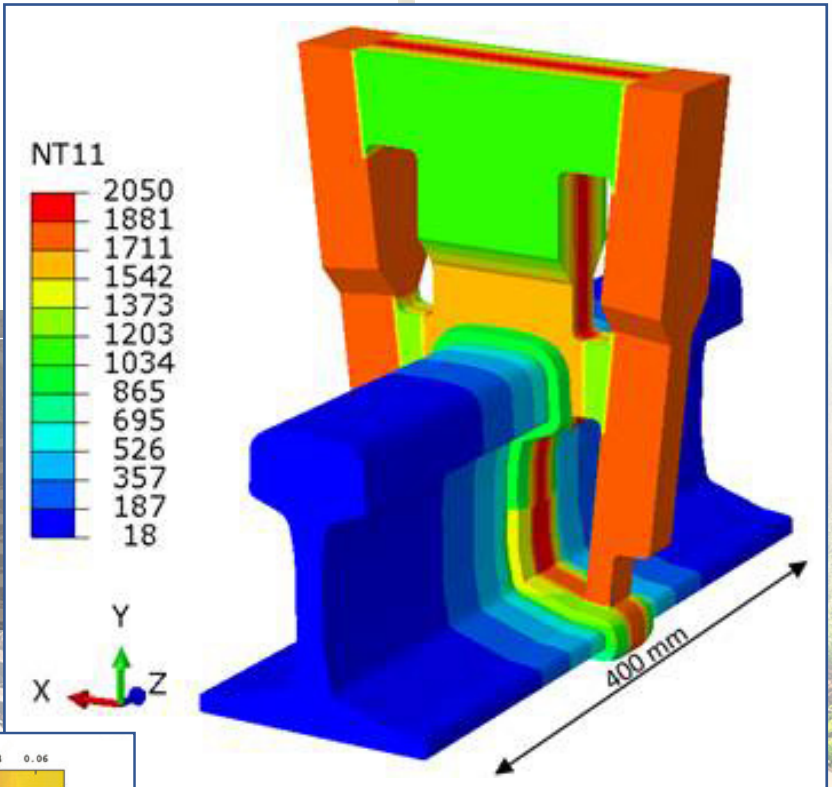
The consortium is still actively looking for interested parties to continue these developments, and are open to joint developments.

Please contact us for more information:

www.wrist-project.eu



Finite Element model, showing the validated temperatures after pouring of the aluminothermic charge



Example of 3D rail profile showing the weld area.



// TRANSPORT SPENDING HAS INCREASED FASTER IN LONDON DESPITE NORTHERN POWERHOUSE

THE launch of the Northern Powerhouse was meant to usher in a new era of spending on transport in the region. However, government figures reveal in the four years since, transport spending has increased faster in London than in the North.

Figures detail the historic spending on transport for the different regions of the country between 2013/14 – when the Northern Powerhouse was set up – and 2017/18.

Data reveals spending per capita in London has increased twice as much as in the North in that time; in the capital, public spending has gone up by £326 per person in that time.

But for the North, the increase is recorded at £147 per person.

It means that transport investment per capita is

almost twice as high in London – something that has remained broadly steady for the last decade.

Between 2016/17 and 2017/18, spending in the North per head has increased by £69 – less than the £91 for London.

For the North East, this spending has increased by scant amounts, and in Yorkshire and the Humber, spending per head has actually decreased in the last year.

It is only the North West that has seen a rise in the past year of public spending per head, with a rise of £158 per person.

And in 2017/18, spending per head in London was recorded at £1,019 – well above the £528 in the North.

IPPR North's research from earlier this year revealed

investment is dwarfed by that of London.

And after the government's figures revealed the Northern Powerhouse hasn't accelerated spending in the region, IPPR North urged the government to improve transport spending in the area.

"Next year will offer the government an opportunity to improve their record on transport spending.

"They must take it. Transport for the North is now developing investment plans that will address this long-standing problem and the government will then have the chance to follow through on their promises: to give the green light on long-overdue investment in the North; and to devolve real power so that the North can take responsibility for its own transport network."

// TRANSPORT FOR THE NORTH LAUNCH FIRST PHASE OF ITS SMART ON RAIL PROJECT

TRANSPORT for the North (TfN) has launched the first phase of its Smart on Rail project.

In collaboration with Northern and TransPennine Express, Smart on Rail will embrace technology to initially focus on upgrading tickets for customers from paper to smartcard, allowing people to buy season tickets on a smartcard at the ticket office.

Customers can expect to see a series of improvements – the first step in the quest for a smarter travel system – that will see changes to how tickets are bought and used in the coming months.

This will include the ability to buy online and load tickets onto smartcards at gatelines

without having to queue at ticket offices or machines.

The Smart on Rail project will initially be rolled out on rail lines between Hull, Scarborough and Malton, before a wider roll out across the whole network.

Ticket offices at rail stations in the region have been upgraded in preparation for the move to smartcards, with contactless now supported, and capped payments across the bus, rail and tram networks.

Alastair Richards is the Programme Director. He wants the project to set standards “for future smart innovations.”

He said: “Working in collaboration with Northern

and TransPennine Express has allowed us to develop and begin delivery of a Smart on Rail project across the rail network in the North.

“The launch of the smartcard project is a vital first step in the delivery of an even more ambitious, integrated smart travel system for the whole of the North.

“We hope it is well received by customers and sets the standard for future smart innovations.”

Smart on Rail is one phase of TfN’s wider Integrated and Smart Travel programme – something that TfN believe will play a key role in transforming the experiences of passengers and businesses on their rail and bus journeys.



GAI-TRONICS LEADING THE WAY IN PROVIDING RELIABLE COMMUNICATIONS

Established more than 70 years ago, GAI-TRONICS is the world's largest organisation focused on the communication needs of worldwide industrial markets.

The company is adept at successfully tackling challenging communications needs, providing reliable solutions to a range of sectors.

Rail is just one of the industries that relies on effective and ongoing communications; with huge infrastructure schemes such as Crossrail ongoing and HS2 ramping up in the next few years, the importance of these solutions will continue to grow.

GAI-Tronics explained to its products and services to Transport Britain, and how they specifically benefit the rail sector.





Can you give us an overview of the organisation?

Founded in 1946, GAI-TRONICS' earliest products set the industry standard for durability and reliability. While maintaining our commitment to the principles of quality and customer service, today's GAI-TRONICS applies leading edge technology to solve the world's most challenging communication needs, and is backed by stability, reputation, and financial strength of Hubbell Incorporated, a worldwide leader in electrical and electronic products.

Any enterprise where individuals are subjected to an environment that poses challenges to reliable communications and potential harm to people, property, and process, must deal with the need for responding to a possible emergency. These environments are an opportunity for GAI-TRONICS to provide systems, products, and services to improve communications. The benefits to the stakeholders in these environments are to improve reaction time, improve chances for minimizing injury, and saving lives. It is therefore

the mission of GAI-TRONICS to provide systems, products, and services of the highest reliability in every one of these opportunities.

GAI-TRONICS recognises the importance of close customer relationships and responsiveness to customer needs. Our company's divisions are organised to encourage extensive one-on-one contact with our customers: the Americas Division serves North, Central, and South America, Mexico, and Canada; the European Division serves Europe, the Middle East, and Africa; and the Asian Division serves Asia and the Pacific Rim. A comprehensive network of highly-trained, customer-focused sales representatives are located strategically throughout these regions to support our customers worldwide. In the Americas Division, we maintain a 75,000 sq. feet facility located in Reading, Pennsylvania.

Today, all locations Reading-PA (USA), New Orleans-LA (USA), Burton-Upon-Trent (England), and Milan-Italy have ISO9001 certification. In Europe, GAI-TRONICS boasts two facilities Burton-Upon-Trent, England and Milan, Italy. Burton's 44,000 square foot facility produces most of GAI-TRONICS' IEC standard equipment.

What communications needs within the rail industry did you first identify as potential problems that you can solve?

Lineside communication was GAI-Tronics' first move into this industry. Although Signal post telephones (SPT) were already used on the railways (for communicating between the signaller and driver), obsolescence, environmental conditions and vandalism were big issues for telephone manufacturers. GAI-Tronics identified the synergy of skillsets and product requirements with its current work, and had the design capability and build quality already available to transition into the rail industry. The designs over the years have been changed to include new advances, most notably the CB telephones, where the battery was housed inside the phone casing. Specific rail requirements have also been included over the years, including strong door springs, and selectable timers.

When did you start working in the transport sector and within rail? How did you identify the gap in the market?

In the late 1980s, GAI-Tronics already had 25 years of experience covering harsh and hazardous environments, primarily within the mining industry. As you can imagine, the products used in these environments had to be built to an incredibly high standard of robust reliability. With extreme dust, gas, dirt, weather and temperature changes presenting a constant challenge, these phones had to be built strong enough to last. With this pedigree of engineering behind them, GAI-



Tronics were confident they could provide products that would suit the rail industry and pass the stringent safety tests required.

How have you managed to take advantage of this?

GAI-Tronics has always worked hard to ensure that the reliability of their telephones continues throughout the life of the products. The telephones and help points are already used extensively in other industries which give credibility to their longevity and whole life costs. Ease of installation, maintenance and integration into the infrastructure makes GAI-Tronics telephones an attractive option. Open protocols on all technologies ensures that the user gets the best from the telephones rather than being tied into expensive, phone-specific head end controls.

What products are used in rail? How has these evolved over time?

When GAI-Tronics first moved into the rail industry, it was to provide analogue voice telephony. This continues today across a large part of the network. Even with the advent of GSM-R radios on-train, and mobile telephones for workers, the standards state a requirement to provide fixed lineside telephones, especially where a significant risk has been identified. They are used as the fallback option when all else fails, mobile blackspots, GSM-R fallover.

Relief drivers, track workers, or emergency situations still use lineside telephones. It is a good method of verifying the location of the track worker when discussing a line blockage. As technologies have advanced, the move towards



VoIP SIP telephones and GSM in commercial markets has pushed into rail. Recent Network Rail approvals for the VoIP lineside and level crossing telephones sees this trend increasing. The GSM-R network has allowed the move for GSM-R level crossing telephones - where there is no other infrastructure to connect it. The option of solar power to feed the internal batteries negates the need for mains power.



In addition to lineside telephones, requirements for level crossing and tunnel telephones, and platform/station help points have seen an increase in the portfolio for rail.

Can you give us examples of what your products provide and how this benefits railways?

We have a range of products to cover a variety of functions within the rail industry, from on-board train comms and help points, to trackside phones and control systems. Our Titan phone is a great example of a trackside unit. Its simple but classic design, a robust aluminium body that is designed to last longer in hostile outdoor environments. It's vandal and weather resistant, so you don't have to worry about wear and tear, and is available in Standard Analogue, SMART Analogue and Voice over IP (SIP protocol). In addition to that, GAI-Tronics' team of engineers can customise the product to suit the customer's needs. So, if they need a lock, or a spring door (so there is no danger of the door coming open when a train hurtles past), or a certain colour, we can create exactly what they are looking for.

Our Train Comms unit is a good example of one of our products improving the staff and customer experience on board a train. This modular, customisable, IP driver/guard communications and PA unit, which can be as big or small as the customer requires, sets a new standard for on-board communication. PRM-TSI and RIA12 compliant, Train Comms can integrate seamlessly with visual displays for synchronised information, as well as boasting self-diagnostics and fault reporting to give complete



peace of mind. Not only is it compatible with existing Ethernet backbones, but you can also swap carriages with your fleet, with the units able to auto realign. And the list goes on, with features like text to speech, passenger assistance and an audio interface for connection into PIS.

Who do you work with in rail and how do you see yourself expanding this client base?

GAI-Tronics works directly with Network Rail, as well as undertaking project work with companies such as Thales, Babcock, Amey and Atkins.

What are your plans for the future?

The move from analogue towards VoIP and GSM-R is certainly being seen in the rail industry as a significant shift, and GAI-Tronics' range of products will be at the forefront of that sea change. The development of fibre phones where optical fibre is connected directly into the telephone using SC connectors is also a big step forward in terms of the technology we employ. This allows a longer distance than the standard, copper based, SIP telephones, and can be powered by mains or solar and battery.



THIRD PARTY INVESTMENT IN THE RAILWAY INDUSTRY



James Dunshea



Feras Alshaker

The railway industry is one that is thriving with infrastructure projects worth billions of pounds either in the construction pipeline, or already underway.

Spending plans have been outlined for the next five-year Control Period on the railway, with levels of investment at a record level.

This though, puts a strain on the public purse; any government-funded project invariably is paid for primarily by taxpayers.

It is why the industry – and the Office of Rail and Road (ORR) in particular – are committed to improving guidance for potential investors in railway projects.

James Dunshea, Enhancement Projects Manager, and **Feras Alshaker**, Head of Planning and Enhancements, both spoke to Transport Britain about the success of third party investment in the rail network, any barriers that exist, and the work the regulator is undertaking to ensure funds are available to facilitate projects, while also protecting those third party investors.

Can you give us an overview of third party investment in rail? How is this used and how is the finance secured?

FA: With third party investment, there's a split between public and private. Local authorities have traditionally invested in improvements at stations, but also put forward money for railway schemes in local areas. That could be anything from bike sheds through to funding of re-signalling in areas. It is a fairly mature process for public funders.

Network Rail and the government's ambition is to get a bit more private

investment in more traditional infrastructure-type projects such as signalling, track, paying for new lines.

It's fair to say that the bigger areas are maturing; where Network Rail has had success is around stations. They've got a joint venture with Kier which has been cited as an example – they've worked on a few stations, where they paid for the refurbishment of facilities but then built on top of it, where traditionally, this has come from local authorities through what's called Network Rail's investment framework.

Statistics show that private investment in rail sector is at its highest level for a decade. Why is this?

FA: It's very difficult to say because there will be a lot of causal factors; rail numbers have increased over the last 20 years. It's a successful industry in that sense. Mobility, more generally, is key to the way we live our economic lives in Britain, so rail plays a massive part of that and we have seen a lot of investment at iconic stations such as St Pancras and King's Cross.

I think also infrastructure investment is a good long-term return for investments like pension funds for example.

If you look at HS1, it used to be owned by a Canadian pension fund because you've got the guaranteed income over the life of the

asset, pretty much. This will support all the annuities you've got to pay. As part of a diverse portfolio, it's quite a safe bet.

There's also a lot of investment in rolling stock.

JD: I agree that it's been one of the successful markets in the industry. For decades now, it's proven to be a good investment.

Obviously the increase in passenger numbers means there is a larger audience,

but it also means you have an increasingly congested network, and that creates competitors for train operators to invest in their own areas.

So if they identify bottlenecks such as crossings, they will put their own investment in to improving that. This is more targeted than generic government investment because the government might not be aware of the issues, so that has been quite a big benefit.





in place between Network Rail and the third party.

Now that it has gone, that avenue has been removed and not been replaced, which effectively means third parties will have to secure their own finance as required.

That could make borrowing more expensive, and it could prove to be a dis-incentive but we're just not sure yet. We haven't seen an impact in the level of investment so far.

Agreements had already been reached by the time that access to RAB was removed and in the current control period, so we'll have to wait and see in the next couple of years if that deters investment in future.

FA: That is part of the challenges associated with policy decisions, because it's such a long-run process through development, design and delivery of these schemes, you don't necessarily see the ripple effects of the policy for some time.

What is the process for anybody who wishes to invest in projects? What is the due diligence procedure?

FA: At a strategic level, there are a few different avenues to go down based on the scale of your ambition. If you want to build a new railway from scratch, on green or brownfield land, you probably want to go to the government, who has been running market-led proposals.

Another area has been an appreciation of the benefits to local authorities and property developers of enhancing and building new stations. It's proven to be a major draw, particularly if you're putting in new housing developments, because you can help sell it by having a new station nearby.

One thing our consultants have identified is there's a lot of liquidity about; there are limited options for investment and I think railways are seen as a safer bet for long term investment.

Finally there has been historic access to the Regulatory Asset Base (RAB). Obviously this is no longer possible, but it did facilitate cheap finance for investors which made things much easier. That funding was a big plus.

How has the removal of RAB affected investment and how do you think it will do?

JD: It may do. We're not sure yet; as I said, it was a good source of government-backed, cheap finance, and there was a simple payback mechanism

I'm sure they'll be open to more new, good ideas, and you can talk to them.

Whereas if you have a lesser ambition - that's not to say it isn't a large ambition in terms of millions of pounds - then Network Rail has set up business development directories in each of its eight geographic devolved businesses. Each of those have a director with responsibility for engaging with third parties, be that public or private.

JD: As Feras said, the first thing for the third party to do is to engage with Network Rail to outline some of the background, what the business case is based upon, the proposed scope and the main timescale for the delivery of works.

Network Rail will be able to advise upon the viability of the project, contestability - which outlines any areas that would be reserved entirely by Network Rail due to asset protection or safety issues; they'd advise on asset protection in terms of the issues of working on or near the railway; and then they'd be able to discuss contracting and template agreements.

Template agreements are included within the investment framework and these comprise a suite of documents that - depending on type and complexity of project and cost of works - are effectively a quick and simple way of setting an agreement

between Network Rail and the third party to help distribute risk, manage liabilities and to ensure that third parties are fully protected.

If the third party isn't content with the template agreements, they can renegotiate between themselves and Network Rail but it might take longer and cost more money.

Generally the interaction during development and delivery of project will be

between Network Rail and the Business Development Manager. Network Rail will also appoint a sponsor and project manager for the works if necessary.

ORR's role tends to come later on in the process and typically centres around safety, access, authorising work and licencing.

You wouldn't need a licence in every case, because not every third party would be interested in operating





corridor, or various traffic management systems at Didcot, which were third party funded and they get paid basically on results; to the value they create, they get a fee.

Certainly as far as digital railway goes, government and Network Rail are very keen to leverage private sector innovation and look at ways they can share risk and benefit from each scheme.

I don't think we've seen anything that makes people stand back and think is a game changer. We might not be too far away; there are things going on which could lead to that. I think it's a general attitude of trying to make something happen.

It's quite tough with Network Rail being a public sector body. The challenge is if you want to do something off the government's books, it means that at no point really can Network Rail and the government be at risk for anything if for some reason everything falls through.

If the project is private sector-funded but Network Rail or government carry some risk, it still has to appear on government books, so it makes it quite challenging.

There's no shortage of effort to try and make something happen.

It's about trying to find the right projects to test these things with.

services or the infrastructure, but they would be relevant for authorising any works that are deemed to be inter-operable, and obviously we have a role in regulating safety.

Our role tends to be towards the end of the process. In terms of our involvement in investment framework, we do have a role in ensuring template agreements are fair, so we review those when they are updated by Network Rail to make sure that distribution of risk is deemed to be fair and reasonable.

In the years the ORR has been established, how have you seen the effect that third party investment has had on projects, and how has funding changed in that time?

FA: In the last few years there has been a different attitude to innovations around the way Network Rail and the government think about the railway as a system and how they might parcel up parts of the system for investment.

Examples like the telephone systems, or laying data cables next to railways in the

How can the right projects be found? Is there are particular type that is targeted?

FA: We spend a lot of time talking to lots of different companies with many great ideas, and it's a case of running through the scenarios; we speak about how to get the returns on investment.

Even if you were to build a railway, if you were seeking a government franchise operator who would pay you to access the infrastructure and you could recover the cost of your investment through that, in theory, that's still on the government books potentially.

Those things that end up a long way down the asset lifecycle can be barriers; it's just a case of working all these things through.

I go to conferences and hear lots of great ideas; there's no shortage of those. It's just finding one that works. Once we find this I suspect that it will become easier for everybody else because it will set a precedent.

Is there a way that the ORR advise Network Rail to ensure there is more private investment in rail?

FA: We certainly work to make sure what we're doing isn't an unnecessary barrier to investment. We talk to promoters, particularly around making access decisions.

We talk about safety requirements and standards, and are open to conversations around them.

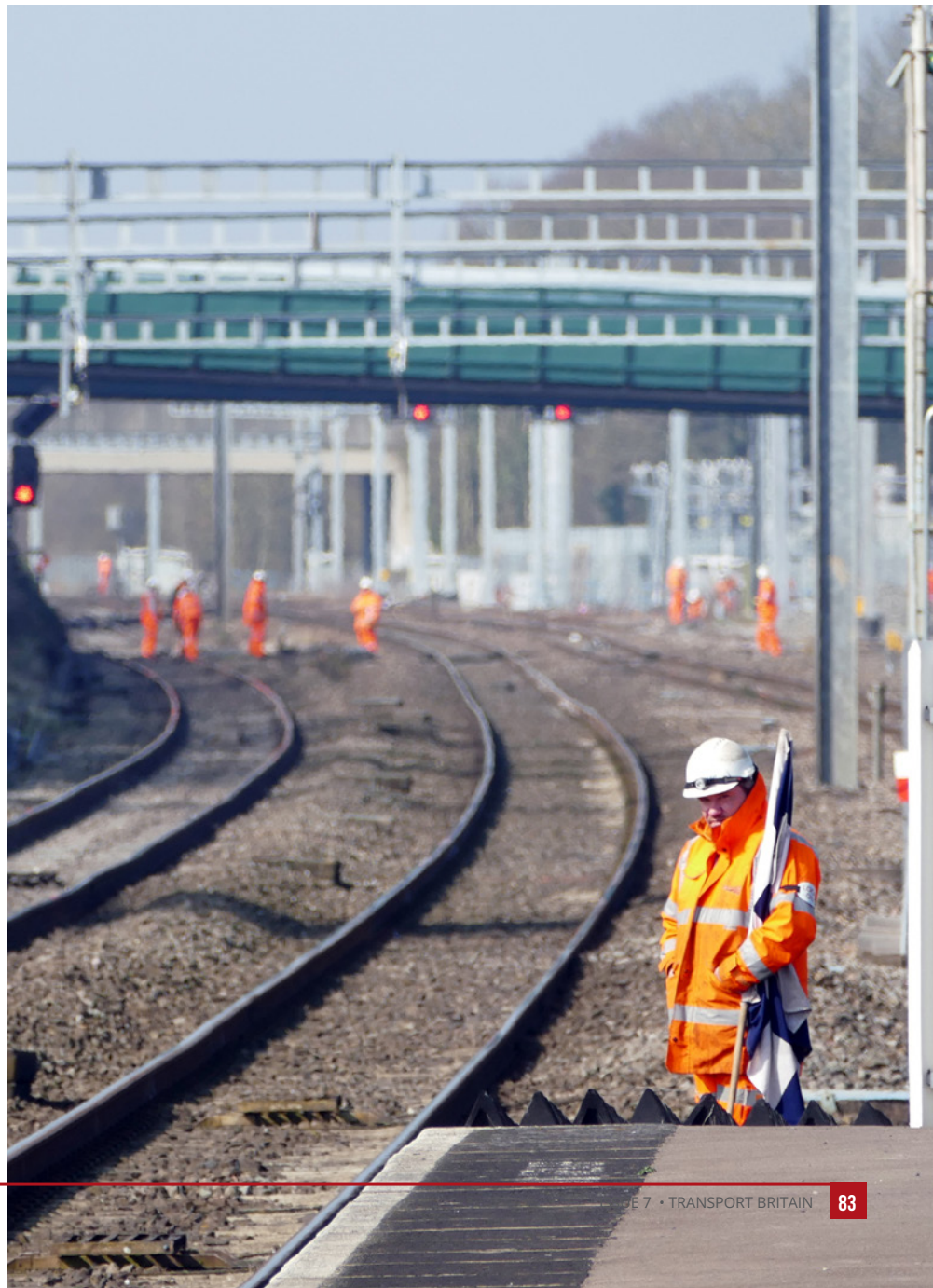
If representations are made to us that Network Rail is abusing its monopoly position as infrastructure manager, we would look into that. But at the moment, nothing like that has happened and I wouldn't expect it to.

Network Rail is putting a lot of effort into its Open for

Business programme, so at the moment, there's nothing on my to-do list that would suggest that we would have to take action in that area.

How important is private investment to the delivery of these projects? How does private sector investment make the projects more successful?

FA: In the long term, it makes it more sustainable; government-funded means taxpayer-funded or fare





the government and says “We’ve heard you’re doing something. We think we could make money out of that if we invested and took some of the risk out of the way.”

Again, Business Development Directors and others at the DfT should, in theory, be promoting the opportunities.

We’re supporting that through publicising the way we regulate.

We’ve been doing a lot of work based on risk funds to support delivery.

JD: There are two risk funds associated with third party investment; one is the industry risk fund and the other is the Network Rail Fee Fund. The latter is a fee that third parties pay that covers Network Rail’s costs of contracting and its contractual liabilities to the promoter.

payer-funded, so if we can get some other way of funding these projects, the burden falls less on the public purse.

Also, if you have third party investment, the natural tendency is to think there will be more innovation, because there’s also competitiveness that is created from market conditions so you potentially have an opportunity for innovation, not just in a technological sense, but also in a delivery sense, which could improve the value for money cycle through Network Rail or the other

delivery agents in improving their own performance in terms of efficiency.

In terms of CP6, how is the industry ensuring that the five-year funding period and its projects receive the necessary third party investment?

FA: Network Rail has a number of business programmes; you’ve got market-led proposals for the DfT where the market says we’ve got a great idea and want to do something; there’s another strand where somebody goes to

These aren’t funded by central government so without them, there is no means of Network Rail being able to engage with third parties, so they’re absolutely key.

The second fund – the Industry Risk Fund – is there to cover the low probability of high impact risks that might be associated with third party projects.

For example, if the work causes major disruption on the line due to a collapse, those type of costs could typically bankrupt the third party working on the network.



for questions that investors might have.

It's a significant improvement because previously it was scattered about in different places and in complex language and terminology. We tried to simplify that as much as possible and put it in the one place.

This is all working towards trying to facilitate and encourage greater levels of investment, in line with government priorities for the next control period.

Both funds have been consistently raised as barriers to investment by third parties, despite the fact that work couldn't be done without them. So we tasked our independent reporter to review the funds, in order to establish if they were fit for purpose, how could they be optimised and whether there were any alternatives that might be more suitable that they could identify from across the construction industry.

investing in the network section which brings together all the advice we have on the investment framework, authorisation and so on.

It puts everything in one place and sets out some simple FAQ-type responses,

They've just completed the report and we aim to publish the summary report in the near future. There are some interesting findings regarding the transparency of the funds and their overall status in terms of surplus and the typical pay-ins that have been requested from projects.

Overall the findings reveal the funds remain fit for purpose, but there's a lot more work we need to do around governance and transparency to make sure that investors know how the money is being used, where it goes, and that Network Rail is being held accountable to manage it appropriately.

Another piece of work we've done recently is update our website. It has a new





KIWA: WORLD LEADERS IN TESTING, INSPECTION AND CERTIFICATION

Mark Eldridge, General Manager, Kiwa Gastec

The market for using hydrogen in the transport sector is expanding; plans are being made to reduce pollution and air toxicity in towns and cities across the UK. In this context, the importance of hydrogen is only going to increase.

It is therefore important that advanced testing is carried out to ensure safety; Kiwa is one of the world's foremost experts in this field. The company's General Manager, Mark Eldridge, explains how the company's TIC capabilities have grown, why they are so important for transport, and what the industry can expect from Kiwa.

Can you give some information about the history of Kiwa

Kiwa Gastec in the UK evolved from the Coal Research

Establishment (CRE) founded in 1946 and has been at the forefront of UK Energy vectors ever since. History includes the development of smokeless fuels in the 1950s addressing

issues of smog, to the coal liquefaction process in the 1970s, producing synthetic oil to power motor engines.

Post-privatisation in 1994, a joint venture between CRE and Gastec NL was formed, and subsequently bought by the Kiwa Group in 1998 - a global leader in Testing, Inspection, Certification and Consultancy (TIC).

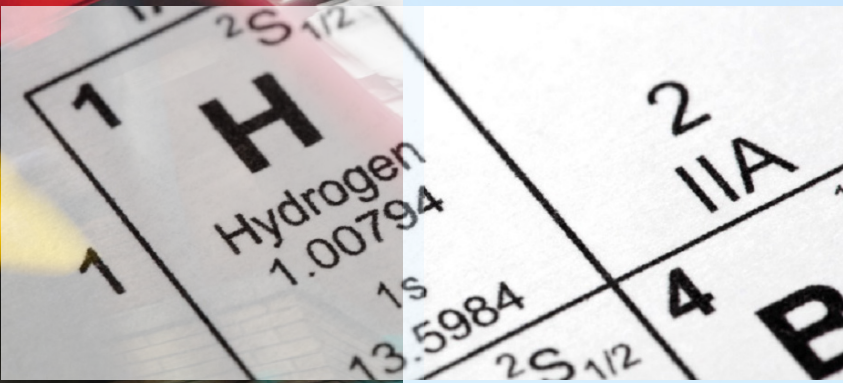

The Kiwa Group now holds an international leadership role for hydrogen expertise.

profile of hydrogen vis-a-vis natural gas.

The outcome was reassuring. Hydrogen is much lighter than natural gas, meaning any leak generates large convective forces mitigating local hydrogen concentrations. Key conclusions were that with appropriate engineering, the risk associated with using hydrogen was comparable to natural gas. This work then led to the Leeds H21 study, where Kiwa were principle Technical contractors, looking at converting the City of Leeds to hydrogen.

Hydrogen refuelling stations could be a part of such infrastructure fed by simple gas mains (at 4bar) from re-purposed gas grids. Appreciating that pipeline hydrogen needs to be cleaned up to be fuel cell grade, and compressed to vehicle pressure, such a conversion is considered relatively straightforward. Kiwa Gastec are a key part of the Cadent funded H2GV project working on this.

The advantage of using hydrogen through the existing gas infrastructure is the ability to de-carbonise heat, process and transport using one storable vector. Hundreds of tonnes of hydrogen have been stored under Teesside since the 1970s and hydrogen storage caverns are commonplace in Texas. All of the technology has been demonstrated, is proven and scalable.



Has this always involved hydrogen testing? If so, how has this developed?

Kiwa Gastec has used hydrogen since the 1960s, and Kiwa's Energy consultancy has been at the cutting edge of decarbonisation technology and UK thought leadership since its inception 20 years ago.

In 2012 Mark Crowther (Technical Director of Kiwa Ltd) addressed BEIS (then DECC) on the potential for repurposing the existing gas grid to use hydrogen, similar to the change made in the 1970s from Town Gas to Natural Gas. This pivotal presentation alerted the government to the potential role of hydrogen in the UK's energy strategy. Prior to this, views on future low carbon societies were unequivocally all electric.

One hurdle to the acceptance of hydrogen for use in transport and cooking/heating is the perceived safety. To address this, Kiwa Gastec obtained funding to evaluate the risks associated with using hydrogen in a domestic setting. The 'HyHouse' project took place in Scotland to understand the fire and explosion risk

How did you become involved in testing, inspection and certification (TIC)?

The forerunners of CRE had been conducting fuel and appliance testing since the 1930s, with the Ministry of Fuel and Power establishing test methods and standards of performance for all types of solid fuel heating appliances, leading to the first Appliance Approval Schemes. The testing and certification heritage of Gastec was a strong fit to Kiwa to expand its extensive TIC portfolio.

In the current market, why is TIC so important for hydrogen transport and equipment?

The market is rapidly expanding, so ensuring that best practice is followed, components and systems comply with the relevant standards and that all staff are trained is vital to the success of this ground-breaking direction. Safe and certified hydrogen components and systems are critical to the success of a hydrogen economy.

What do you offer that other organisations do not?

An understanding of the applications for hydrogen, the technologies and safety surrounding use, regulatory and personnel training dimensions. At Kiwa we have a unique blend of practical engineering experience to thought leadership with a pool of experts advising government, gas network operators and related trade bodies. We support decision makers with practical knowledge as well as scientific understanding across the whole industry supply chain and stakeholders.

What are the benefits for the transport sector?

With the growing challenges posed by air pollution and climate change, automakers must change their fuel options to meet emissions legislation. Low cost hydrogen

(which is likely to be much cheaper than electricity) available in existing networks vastly simplifies the provision of hydrogen to local filling stations, reinvigorating the hydrogen vs electric vehicle economics for car, bus, train and HGV markets. Local filling stations then only need a compressor and high-pressure storage; without the high voltage supplies needed by electrolyzers

Whilst electric battery vehicles were once hailed as the next generation for many, Kiwa believe that low-carbon hydrogen vehicles also offer a complementary and more significant potential for the UK, especially when considering the ability to rapidly reduce our national carbon footprint, aligned with an existing infrastructure to deliver.

The difference of hydrogen to battery life is clear. Hydrogen has an energy storage capability of 39kWh/kg compared to a current Lithium battery of up to 0.4kWh/kg - a hundred-fold difference. Advanced material fuel tanks are reducing cylinder weight and volume. Furthermore, it is difficult to envisage the installation and operation of millions of electric charging points down every street, for example in London or other big cities to realise an electric future, especially given the high costs of transmission infrastructure.

Kiwa Ltd posits that the use of hydrogen from a re-purposed natural



gas grid, can make a significant contribution to decarbonising transport.

How can your services advance the industry in the future?

- A Notified Body under the Gas Appliance Regulation, Kiwa has extensive experience of hydrogen appliance inspection, field trials, consultancy and thought leadership in the practical and safe application of hydrogen. It has advised BEIS and the Climate Change Committee on the national use of hydrogen. Kiwa recently advised all the UK gas distribution networks on the potential demand for hydrogen in the 10 largest cities in the UK.



- Expertise in hydrogen and supported by the wider Kiwa group of 4,500 employees worldwide in 40 countries, including a large hydrogen vehicle component test facility in the Netherlands, which acts as a technical office for European vehicle certification authorities. The laboratories can test and certify hydrogen tanks and vehicle components to EC79:2009, GTR No. 13, and ECE 134 along with hydrogen fuel cells to the full EN 62282 suite of standards. We also provide vehicle pre-shipment inspections, offer advice on hydrogen vehicle garaging and safety inspections of HRS installations.
- Kiwa is Europe's largest hydrogen automotive component certifier and has inspected the hydrogen boat on Bristol Docks.
- Kiwa has inspected and carried out safety inspections of a wide range of hydrogen filling stations and hydrogen fuelled systems.
- Bespoke training for personnel working with hydrogen.
- Testing and certification of components and systems for hydrogen fuelled transport (HGV, automotive).
- As a Notified Body for testing and inspection for both the Dutch and the German Road & Vehicle Safety Authorities, as well being accredited by the Dutch Council for Accreditation (RvA), Kiwa is well qualified to provide expertise for hydrogen due diligence testing and inspection activities.

We are here to help your hydrogen conversion. We Create Trust. **We are Kiwa.**



Kiwa hydrogen Expertise;
Changing Energy For Good

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