

Press release: Report 16/2017: Track worker near miss incidents at Camden Junction South

Summary

At around 01:03 hrs on the morning of Tuesday 28 February 2017, a passenger train travelling towards London Euston station nearly struck a track worker in the vicinity of Camden Junction South. The train was travelling at about 47 mph (76 km/h) at the time and the track worker managed to get clear of the line before the train passed him. About four minutes later, the same train was involved in another near miss with a second track worker some 510 metres further up the line towards London. In this case, the track worker was unable to get clear of the line, but the train stopped just before reaching him. There was no injury or significant delay as a consequence of the incidents.

The incidents occurred because the signaller authorised track workers to go onto a line over which he had just routed a train, having overlooked the fact that engineering work was taking place on that line. This was caused by a loss of information during the processes for implementing the engineering work. In turn, this was due to the layout and formatting of documentation associated with the work, as well as the nature and implementation of local processes at the signalling centre. The signaller was also possibly affected by fatigue, and the RAIB observed that, although not causal to the incidents, Network Rail's management of fatigue risk for signallers is not in accordance with current good practice.

One underlying factor was associated with processes and methods for managing and communicating information regarding engineering work in modern, multi-panel signalling centres. A second was that the processes for setting up such work still require people to be present on track, exposing them to risk in the transition period before protection is fully implemented.

Recommendations

The RAIB has made three recommendations and identified two learning points. The recommendations are all addressed to Network Rail and concern improved processes and documentation for supporting the implementation of engineering work, and reducing the exposure of track workers to risk arising from the need to be on the track. The learning points highlight the need for safety-critical staff to be appropriately prepared and fit for duty, and for track workers to be alert to the risks on the railway, even when they believe that they are working under protection.

Notes to editors

1. The sole purpose of RAIB investigations is to prevent future accidents and incidents and improve railway safety. RAIB does not establish blame,

liability or carry out prosecutions.

2. RAIB operates, as far as possible, in an open and transparent manner. While our investigations are completely independent of the railway industry, we do maintain close liaison with railway companies and if we discover matters that may affect the safety of the railway, we make sure that information about them is circulated to the right people as soon as possible, and certainly long before publication of our final report.
3. For media enquiries, please call 01932 440015.

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[Statement to Parliament: Drones update, 27 November 2017](#)

My noble friend, the Parliamentary Under Secretary of State for Transport (Baroness Sugg) has made the following ministerial statement.

Today (27 November 2017) I am setting out new measures the government is taking to ensure the UK remains at the forefront of the exciting and fast-growing drones market, while putting the correct legislative framework in place to guarantee it is also safe and secure.

As the government's [industrial strategy](#) sets out, we have the potential to cement our status as the leading location where technology companies want to build their businesses, where scientists and engineers drive innovation and where investors want to invest. Drones are an important part of this emerging industry.

Our police, fire and search and rescue services all now regularly use drones in emergency situations to help save lives. Drones are also being used to inspect and maintain key national transport infrastructure – reducing the risk of accidents and driving industry productivity and efficiency.

UK drone companies are exporting their services across the world, showcasing Britain as a leader in innovative services and generating productivity and growth across a range of sectors.

The potential for expansion is significant, but this is an advancing and

developing industry which faces a number of challenges. If we are to realise the full potential of this new technology, we must also maintain our world class aviation safety record and address certain safety and privacy concerns.

In response to our [consultation on drones](#), we committed to a review of the current powers available to law enforcement agencies. My department has been working with the police, the Home Office and the Ministry of Justice. This review has highlighted some gaps, reflective of how aviation technology is being used in such a broad and varied way across many industries and by the public.

This can pose extra challenges for the police when investigating and prosecuting crimes, and when carrying out their duties to protect safety and security more generally.

As such, we will look to include in our draft bill [new police powers](#) where drone users would need to produce registration documents on request, ground a drone safely in certain circumstances and the ability to seize and retain a drone's components if there is reasonable suspicion of it having been involved in an offence.

The consultation response also set out our intention to explore the concept of mandating the use of safety and airspace awareness apps. The draft bill will build the regulatory framework to ensure these apps meet required standards and issue correct information.

These kinds of apps give drone users easy access to the data they need to determine if a flight can be safely and legally made. Apps can also make it possible for drone users to make their flights visible to other airspace users, making drone use more accountable and transparent.

As well as safety issues, apps can help avoid compromising the security of surrounding organisations or industries such as national infrastructure, government and military sites. The app's information can also advise on any particularly sensitive local sites, such as schools and residential areas, to respect the privacy of others.

Alongside the publication of the draft bill next spring, we will create the powers necessary for registration and leisure pilot testing through amendments to the Air Navigation Order (ANO), and we are developing the technical systems and educational materials that will be needed to implement these.

The government is also reviewing the potential restriction of all drones flying above 400 feet, as well as the use of drones within the proximity of an airport. Subject to the outcome of this review, we will also look to include these measures in the ANO amendment in spring 2018.

Finally, I want to update Parliament on progress with Project Chatham. This is the data project we announced in our consultation response to improve geo-fencing – when drones can be restricted from entering into 'no-fly zones' using the drone's inbuilt GPS to find its location and prevent it from

continuing if it approaches a restricted zone.

A group comprising departmental experts, the Civil Aviation Authority, and NATS (the national air traffic service provider), has been set up and is progressing well. To implement geo-fencing effectively this group is looking at how we release information on the UK's airspace restrictions in a format that manufacturers and tech developers can easily use.

We are working to have a sample set of data ready for wider engagement with stakeholders by spring 2018. When fully developed, the data will help drone users fly safely in accordance with the rules.

Our approach will keep Britain at the forefront of the global market, whilst delivering a flexible framework for a safe, secure and successful drones industry.

Press release: Government unveils Industrial Strategy to boost productivity and earning power of people across the UK

- Business Secretary launches flagship Industrial Strategy for the UK today with a plan to boost the economy, build on the country's strengths and embrace the opportunities of technological change
- Industrial Strategy Challenge Fund will invest £725 million in new Industrial Strategy Challenge Fund programmes to capture the value of innovation
- launch of the Industrial Strategy comes as government announces it has secured a major strategic investment into UK by world leading life sciences company MSD
- first 'Sector Deals' – construction, artificial intelligence (AI), automotive and life sciences – to help sectors grow and equip businesses for future opportunities
- 4 'Grand Challenges' which will take advantage of global trends to put the UK at the forefront of the industries of the future

Business Secretary Greg Clark has today (27 November 2017) launched the government's ambitious Industrial Strategy, setting out a long-term vision for how Britain can build on its economic strengths, address its productivity performance, embrace technological change and boost the earning power of people across the UK.

With the aim of making the UK the world's most innovative nation by 2030, the government has committed to investing a further £725 million over the next 3

years in the [Industrial Strategy Challenge Fund \(ISCF\)](#) to respond to some of the greatest global challenges and the opportunities faced by the UK. This will include £170 million to transform our construction sector and help create affordable places to live and work that are safer, healthier and use less energy, and up to £210 million to improve early diagnosis of illnesses and develop precision medicine for patients across the UK.

The government has previously [committed £1 billion to the first wave of Industrial Strategy Challenge Fund projects](#), including investing £246 million in next generation battery technology and £86 million in robotics hubs across the UK.

Last week the Prime Minister [announced an ambition to increase the level of investment in research and development \(R&D\)](#), rising from 1.7% to 2.4% of GDP by 2027. This could mean around £80 billion of additional investment in advanced technology in the next decade, helping to transform whole sectors, create new industries, and support innovation across the country.

The white paper also confirms government will be pressing ahead with a series of [Sector Deals](#), with construction, life sciences, automotive and AI the first to benefit from these new strategic and long-term partnerships with government, backed by private sector co-investment. Work will continue with other sectors on transformative sector deals.

Ahead of the signing of the Life Sciences Sector Deal, due in the next few weeks, the government has [confirmed today that world-leading life sciences company MSD is set to make a major investment into the UK economy with the opening of a new state-of-the-art UK hub](#), helping ensure innovative research into future treatments for patients and pioneering medicines are completed in Britain.

The investment announced by MSD today will support a new world-leading life sciences discovery research facility in the UK, supporting 950 jobs.

Prime Minister Theresa May said:

Our modern Industrial Strategy will shape a stronger and fairer economy for decades to come. It will help create the conditions where successful businesses can emerge and grow, and support these businesses in seizing the big opportunities of our time, such as artificial intelligence and big data, whilst also making sure our young people have the skills to take on the high-paid, high-skilled jobs this creates.

As we leave the European Union and forge a new path for ourselves, we need to focus on building a better future for our country and all the people who live in it. With the Budget last week, and our Industrial Strategy in the years ahead, we will build a Britain fit for the future.

In the strategy, the government has identified [4 Grand Challenges](#); global

trends that will shape our rapidly changing future and which the UK must embrace to ensure we harness all the opportunities they bring. The 4 are:

- artificial intelligence – we will put the UK at the forefront of the artificial intelligence and data revolution
- clean growth – we will maximise the advantages for UK industry from the global shift to [clean growth](#)
- ageing society – we will harness the power of innovation to help meet the needs of an ageing society
- future of mobility – we will become a world leader in the way people, goods and services move

Each Grand Challenge represents an open invitation to business, academia and civil society to work and engage with the government to innovate, develop new technologies and ensure the UK seizes these global opportunities.

Business Secretary Greg Clark said:

The way we earn and live our lives as workers, citizens and consumers is being transformed by new technologies. The UK is well-placed to benefit from this new industrial revolution and we start from a position of significant strength. We have a thriving research and science base and are home to a wide range of innovative sectors, from advanced manufacturing and life sciences, to fintech and creative industries.

The Industrial Strategy is an unashamedly ambitious vision for the future of our country, laying out how we tackle our productivity challenge, earn our way in the future, and improve living standards across the country.

The white paper follows extensive engagement by government with industry, academia and business bodies who submitted almost 2,000 responses to the [green paper consultation](#) earlier in 2017.

The strategy unveiled today reflects this engagement, with a new and unique partnership between government, academia and industry, supported by policies that are committed to making the UK economy more productive and giving it a competitive edge in the future and abroad.

The white paper focuses on the [5 foundations of productivity](#) – ideas, people, infrastructure, business environment and places – with a clear and complementary vision for each.

Each foundation is supported by a range of policies designed to provide businesses with certainty and reassurance that the UK will continue to have a competitive edge, including:

- raise total R&D investment to 2.4% of GDP by 2027
- increase the rate of R&D tax credit to 12%
- invest £725 million in new Industrial Strategy Challenge Fund programmes

to capture the value of innovation

People

- establish a technical education system that rivals the best in the world to stand alongside our world-class higher education system
- invest an additional £406 million in maths, digital and technical education, helping to address the shortage of science, technology, engineering and maths (STEM) skills
- create a new National Retraining Scheme that supports people to re-skill, beginning with a £64 million investment for digital and construction training

Infrastructure

- increase the National Productivity Investment Fund to £31 billion, supporting investments in transport, housing and digital infrastructure
- support electric vehicles through £400 million charging infrastructure investment and an extra £100 million to extend the plug-in car grant
- boost our digital infrastructure with over £1 billion of public investment, including £176 million for 5G and £200 million for local areas to encourage roll out of full-fibre networks . ###Business environment
- launch and roll-out Sector Deals – partnerships between government and industry aiming to increase sector productivity; the first Sector Deals are in life sciences, construction, artificial intelligence and the automotive sector
- drive over £20 billion of investment in innovative and high potential businesses, including through establishing a new £2.5 billion Investment Fund, incubated in the British Business Bank
- launch a review of the actions that could be most effective in improving productivity and growth of small and medium-sized businesses, including how to address what has been called the ‘long tail’ of lower productivity firms

Places

- agree local industrial strategies that build on local strengths and deliver on economic opportunities
- create a new transforming cities fund that will provide £1.7 billion for intra-city transport; this will fund projects that drive productivity by improving connections within city regions
- provide £42 million to pilot a Teacher Development Premium; this will test the impact of a £1,000 budget for high-quality professional development for teachers working in areas that have fallen behind

To ensure that the government is held to account on its progress in meeting the ambitions set out in the strategy, an Independent Industrial Strategy Council will be launched in 2018 to make recommendations to government on how it measures success.

Juergen Maier, CEO Siemens UK, said:

By working in strong partnership with national and local government, we have created a very positive example of Industrial Strategy in action for the off-shore wind industry in the Humber which is creating a new and vibrant local economy.

Through today's Industrial Strategy announcement we are optimistic that through greater investment in R&D, and especially through the application of advanced industrial digital technologies like AI and robotics, we can support many more new and existing manufacturing industries – raising productivity and creating thousands of new highly skilled and well paid jobs.

Mike Cherry OBE, National Chairman of Federation of Small Businesses, said:

FSB has been delighted to work with the Business Secretary Greg Clark as he delivers this government's first Industrial Strategy. The UK's 5.5 million small businesses have a huge role to play, if we are to increase productivity across the economy, and in every sector. This is the only way to achieve sustained wage growth and higher living standards.

We particularly welcome the focus on improving technical skills, new physical and digital infrastructure and increased research and development. Local industrial strategies and local investment such as the new Strength in Places Fund are also very welcome steps.

Stephen Martin, Director General of the Institute of Directors, said:

The Industrial Strategy identifies the key challenges that the UK economy will need to overcome if businesses are to remain competitive in an increasingly global race. It also takes some important steps in starting the flow of public investment to overcome these hurdles. We hope it will become the cornerstone of a long-term vision of post-Brexit Britain, one that promotes innovation and the free flow of ideas.

It is particularly welcome to see how the government has acknowledged the calls from industry to take a more broad-based approach to addressing questions around skills, infrastructure and research to support our future economy. We hope this will continue as these plans are taken forward.

Terry Scuoler, EEF Chief Executive, said:

The introduction of a new Industrial Strategy is key to supporting

efforts to improve productivity and invest in not just current industries, but those of the future which are set to radically change the ways in which people live and work.

The white paper acts as a good foundation for a new partnership with industry where government and business can ensure consistency in policy thinking and implementation to ensure the UK is world leader in these new technologies.

And by introducing independent scrutiny of the progress of these plans, the government is signalling that there will be a strong focus on measuring delivery which boardrooms will recognise and welcome.

Adam Marshall, BCC Director General, said:

Chambers of Commerce have been working actively with government to develop the Industrial Strategy, and we are pleased that the concerns and ideas of business communities across the country have been listened to.

Businesses will welcome the sense of mission that infuses the Industrial Strategy, as well as its assessment of the challenges and opportunities that the UK faces, particularly as both businesses and government look to forge a new path beyond the European Union.

We have been clear that harnessing the potential of our cities, towns and counties is crucial to make our country more competitive and prosperous, and so chamber business communities will cheer the focus on places to boost productivity in local economies.

Over the coming months, it is crucial that the government listens to the full range of business voices when developing local and sector-based deals, so that firms of all sizes and sectors can buy into the Strategy for years to come.

Lord Adonis, Chairman of the National Infrastructure Commission, said:

A key part of securing long-term economic growth and increased productivity will be to invest in our infrastructure network – so I welcome that today's Industrial Strategy has this at its heart.

It is significant that the strategy has a clear focus on developing new low-carbon technologies, but also that the first sector deals are in construction as we deliver major projects like HS2, and artificial intelligence technology which could transform how we operate and maintain our infrastructure.

These will be key considerations as we work to deliver the country's first-ever National Infrastructure Assessment to tackle the 3 Cs of congestion, capacity and carbon for the country's long-term economic benefit.

Mike Thompson, Chief Executive of the ABPI, said:

The government's Industrial Strategy is significantly important in providing a long-term strategic roadmap for UK business. As we navigate the challenges of leaving the European Union, it is important we continue to make the domestic landscape as attractive as possible.

We now look forward to further detail on the sector deals between the pharmaceutical industry and government on the back of Sir John Bell's impressive Life Sciences Industrial Strategy. These deals are just the first steps but will be instrumental in securing the future strength of the UK life sciences industry, helping the UK economy prosper and allowing NHS patients to get better and faster access to world-class medicines discovered and developed here in Britain.

Press release: Industrial Strategy set to get Wales' economy firing on all cylinders

Ministers for the UK Government in Wales will today mark the publication of the Industrial Strategy White Paper on visits to businesses in South, North and Mid Wales (27 November).

- Secretary of State for Wales Alun Cairns will visit the Airbus Campus in Newport – home to highly skilled engineering and research personnel, which provides Highly Secure Communications Solutions to a world leading Cyber Security portfolio.
- Guto Bebb will visit Brenig Construction in Colwyn Bay which delivers project management and construction services for civil engineering and building contracts throughout the whole of North Wales and beyond
- Lord Bourne will visit the Centre for Alternative Technology in

Machynlleth – an education centre demonstrating practical solutions for sustainability and all aspects of green living.

The Industrial Strategy sets out how the UK Government is building a Britain fit for the future – how it will help businesses create better, higher-paying jobs across the country with investment in the skills, industries and infrastructure of the future.

Ministers will visit businesses across Wales to outline how business and academic sectors and civic society can reap the rewards of a strategy that will play to the nation's strengths.

Secretary of State for Wales Alun Cairns will launch the Industrial Strategy White Paper in Wales at Airbus' Newport Campus.

Here he will see first-hand the critical work the company does in the field of cyber security and how the company can benefit from one of the Grand Challenges laid down by the strategy today.

Alun Cairns said:

The Industrial Strategy sets out a compelling vision for the future of the UK economy and a new approach to preparing for the opportunities and challenges of the coming decades.

One of the Grand Challenges put forward in this strategy is to put the UK at the forefront of the Artificial Intelligence (AI) and data revolution.

To support rapid adoption of AI technologies at scale, the UK Government wants to work with priority business sectors, including cyber security – an area where the Airbus Campus in Newport excels in. I am grateful to them for the opportunity to see this in action today and to see how they can rise to the challenge of the Industrial Strategy.

Guto Bebb will meet with senior executives at construction company, Brenig in Colwyn Bay where he will underline the UK Government's commitments to supporting the growth of the North Wales economy through the strategy.

UK Government Minister Guto Bebb said:

The Industrial Strategy recognises that no two places in the UK are the same with each place having its own unique identity and strengths.

Between Deeside, Wrexham, Manchester and Merseyside we have one of the strongest manufacturing channels in the UK. North Wales also has an energy sector making a huge contribution to a low carbon

future, and an aerospace sector which is admired the world over.

Our backing for growth deals and cross border working in this strategy will provide further opportunity to make the most of the region's connections to the Northern Powerhouse.

Lord Bourne will be visiting the Centre for Alternative Technology in Machynlleth to highlight how Wales can make a real contribution to the UK Government's clean growth plan of the strategy.

UK Government Minister Lord Bourne said;

The move to cleaner economic growth– through low carbon technologies and the efficient use of resources – is one of the greatest industrial opportunities of our time.

The Centre for Alternative Technology's work in highlighting environmental issues and solutions over the past 43 years has inspired thousands of people to care more about and to do more to help the natural world, I look forward to seeing how the work they do can play key role in researching the technologies and innovations we need to create a clean growth future.

Press release: Major pharma leader MSD first to endorse government's Industrial Strategy as it announces major investment in the UK

- Government announces it has secured a major strategic investment into UK by MSD ahead of this morning's publication of its flagship Industrial Strategy
- Landmark investment comes as a huge vote of confidence in the government's approach to industrial strategy, with the global healthcare company committing to open a new world-class hub in the UK
- Industrial Strategy will outline the government's plan to address the UK's underlying productivity challenge, with a focus on 5 key foundations: ideas, people, infrastructure, business environment, places

The Business Secretary has confirmed today (27 November) that world-leading life sciences company MSD is set to make a major investment into the UK economy with the opening of a new state-of-the-art UK hub, helping ensure

innovative research into future treatments for patients and pioneering medicines are completed in Britain.

The news comes as the government is set to unveil its flagship [Industrial Strategy](#) later this morning, with a long-term plan for how Britain can build on its economic strengths, address its productivity challenge, positively embrace technological change, and support businesses and its workers.

The Sector Deal agreement comes as a major endorsement of the government's Industrial Strategy vision and has been secured through the upcoming Life Sciences Sector Deal, one of 4 such deals that government is set to confirm later today and announce in the weeks ahead.

Alongside the Life Sciences Sector Deal, government will confirm it has agreed deals with construction, artificial intelligence and automotive. Each deal represents a new strategic and long-term partnership with government, backed by private sector co-investment.

Business Secretary Greg Clark said:

We are at one of the most important, exciting and challenging times there has ever been in the history of the world's commerce and industry.

Powered by new technology, new industries are being created, existing ones changing and the way we live our lives – as workers, citizens and consumers – transformed.

We are an open, flexible economy, built on trade and engagement with the world. We have a competitive business environment with a deserved reputation for being a dependable and confident place to do business, thanks to our high standards, respected institutions and a reliable rule of law.

We are renowned for innovation and discovery, with some of the best universities and research institutions in the world producing some of the most inventive people on earth.

We have commercial and industrial sectors – from advanced manufacturing to financial services; from life sciences to the creative industries – which are competitive with the best in the world.

In this Industrial Strategy we set out how we will maintain and enhance these and other strengths and deploy them to our advantage.

But any serious strategy should address the weaknesses that stop us achieving our potential, as well as our strengths, and this Industrial Strategy does that.

Britain's productivity performance has not been good enough, and is holding back our earning power as a country.

So this Industrial Strategy deliberately strengthens the 5 foundations of productivity: ideas, people, infrastructure, business environment and places.

By acting together as a nation, and in a sustained way, to improve the underperforming conditions for productivity we can drive up our earning power.

MSD UK hub

The investment announced by MSD, known as Merck and co. in North America, will support a new world-leading life sciences discovery research facility in the UK, supporting a total of 950 jobs in high-skilled and high-value research roles.

Investments by a number of pharmaceutical companies into the UK will form a key part of the Sector Deal, a central Industrial Strategy measure, set to be signed in the coming weeks by the life sciences sector and government.

Announcing the investment, Business Secretary Greg Clark said:

Our life sciences sector is one of the UK's fastest developing industries, with a turnover in excess of £64 billion, employing 233,000 across the UK.

MSD's commitment today, and the wider Sector Deal investment we have secured, proves the process outlined in the Industrial Strategy can give companies the confidence and direction they need to invest in the UK. It will ensure Britain continues to be at the forefront of innovation and represents a huge vote of confidence in our Industrial Strategy.

Health Secretary Jeremy Hunt said:

I want patients to continue to be at the front of the queue for the best treatments available. The NHS has a proud history of spearheading medical innovation and today's investment in our strong and growing life sciences sector will see patients in the UK continue to benefit from world-leading research and pioneering medicines.

MSD's Research Laboratories president Dr. Roger M. Perlmutter said of the investment:

Strong discovery capabilities and the pursuit of scientific excellence are foundational to MSD's mission to save and improve lives around the world.

A new UK location will enable us to build on our proud legacy of invention and be an important contributor to the vibrant and rapidly growing UK life sciences community, while providing access for more collaborations within the European life science ecosystem.

MSD Managing Director in the UK and Ireland, Louise Houson said:

We believe the UK to be a unique bioscience centre of excellence and this investment presents a major opportunity for us to work in collaboration with the UK government to build on the forward thinking and ambitious Industrial Strategy white paper being published by the government today.

Chair of the Life Science Industrial Strategy Advisory Board, Sir John Bell said:

Today's investment provides strong evidence that a coherent industrial strategy can have a real, tangible impact on economic activity in sectors that we need to strengthen and grow. It will drive this sector forward and simultaneously attract other investments into the UK.

Investments by world-renowned companies like MSD and QIAGEN demonstrate that the UK's science base is truly world-leading and an exceptional national strength.

It is clear that the UK can, through a collaborative partnership between government, industry, academia, charities and the NHS, deliver the next wave of innovation that will benefit patients, transform the health care system, and generate economic growth and improved productivity.

The Sector Deal, confirmed in the white paper later today, will drive investment in the UK's world-leading research infrastructure and boost productivity in the sector. It will be formally announced in the coming weeks, including a brand new partnership between leading diagnostics company, QIAGEN, and Health Innovation Manchester, that has the intention to develop a genomics and diagnostics campus in the city.

This new campus will generate new skilled jobs and attract companies from across the world to the north west, while the company has confirmed it is going to expand its current operations in Manchester, with the potential to create 800 skilled jobs.

CEO of QIAGEN, Peer M. Schatz said:

We are very excited about this partnership with Health Innovation

Manchester, and the essential engagement of the University of Manchester, the NHS Trust and the UK government. Our success together can advance science and improve the lives of patients in the local region as well as worldwide.

Innovation at the heart of Industrial Strategy

Today's investment builds on the [announcement made by the Prime Minister last week](#) that the government ambition is to deliver a step change in the level of investment in research and development (R&D), rising from 1.7% to 2.4% of GDP by 2027. This could mean around £80 billion of additional investment in advanced technology in the next decade, helping to transform whole sectors, create new industries, and support innovation across the country.

The uplift will help transform the UK economy and drive a long-term change in the use of R&D by industry, ensuring that the next generation of innovative technologies that create high-skilled jobs, revolutionise productivity and improve living standards, are produced in Britain. Government will be working with industry and academia to deliver this goal.

Grand Challenges

The white paper follows extensive engagement by government with industry, academia and business bodies who submitted almost 2,000 responses to the [green paper consultation](#) earlier in 2017.

In the strategy, the government identifies 4 Grand Challenges; global trends that will shape our rapidly changing future and which the UK must embrace and lead to ensure we harness all the economic and social opportunities they bring. The first 4 are:

- artificial intelligence (AI): the rise of AI is changing the world we live in, the UK has to be at the forefront of this data-driven revolution and grasp the opportunities it presents through the AI Sector Deal
- clean growth: the global shift to [clean growth](#) presents huge opportunities for innovation that government and industry must take advantage of by backing the development, manufacture and use of low carbon technologies
- ageing society: to effectively meet the needs of an ageing population, the UK must harness innovations in medical care, technology and services
- future mobility: from driverless cars to drone-delivered goods, the way we move people, goods and services is evolving rapidly and the UK needs to be a world leader in shaping what the future of mobility looks like

Each Grand Challenge represents an open invitation to business, academia and civil society to work and engage with the government to innovate, develop new technologies and develop strategies to seize these global opportunities.