

**SIEMENS**

*Ingenuity for life*



In the UK,  
for the UK

Business to Society report

[siemens.co.uk/ingenuityforlife](https://www.siemens.co.uk/ingenuityforlife)

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Societal value is truly at the core of what we do

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# A crucial role to play

“At the core of what we do we take responsibility in communities seriously and huge investment is creating real local value add across the UK,” says Juergen Maier, Chief Executive, Siemens plc



Unless a business fundamentally believes in adding value and being an integral part of the community, it simply won't succeed. Not only is this absolutely the right thing to do, it is also essential in listening to employees who want to be socially responsible through their work and wider activities and attracting others who share those values in taking responsibility in communities seriously.

Big and small businesses must be a force for good to really improve society, but big businesses need to work harder at this given many high-profile examples of not getting it right in the past. This is particularly significant given global events and where we're finding ourselves politically, showing a clear disconnect between business and society. The Brexit debate made that crystal clear to me and recent news has highlighted horror stories from a select few tarnishing the whole business community.

But for most of us, societal value is truly at the core of what we do and I feel strongly that large companies such as ours should be doing more good things, as well as talking more about the brilliant work already being done. I also think we need to counter the notion that profit is bad. Profit is in fact good; greed is not. Profit is essential for businesses to be sustainable and to be responsible. It allows us to drive innovation through investment in research and development, enables investment in corporate responsibility programmes and means healthy pension schemes can support the future lives of employees.

Profit also helps us create direct and indirect jobs – with many smaller companies relying on bigger ones to do the same. Our £160 million investment in Green Port Hull is a perfect example of this – cash generated from profit allowing us to offset the very significant risk of such an investment, enabling us to deliver long-term benefits, creating new jobs and local regeneration.

Huge investment in our rail business over the last decade has also created substantial local value add, with our UK employment rising by thousands in this industry. Having grown our activities through prestigious projects such as Crossrail and the Thameslink Programme plus the acquisition of Invensys Rail to combine two industry champions, we're committed to supplying more trains and technology to make the UK's transport infrastructure truly world class. Our contribution of 50% funding for the National Training Academy for Rail exemplifies our focus on bridging the skills gap and working for the benefit of the UK rail industry as a whole.

Leading Siemens in the UK, I'm exceptionally proud of the brilliant things we do – the innovation we're investing in with universities and start-up companies; creating a future with increased safety, more cost-effective manufacturing and renewable energy generation; supporting charities and aiding those less fortunate; and providing young people joining our industry with a bright future in a sustainable company – just as the company offered me when starting as a graduate trainee 30 years ago.

With Ingenuity for life, our new brand promise to customers, colleagues and society, the 'for life' is totally about our societal contribution. We are making real what matters through positive impact – and the insights in this report demonstrate how that's helping to make an industrially stronger and fairer United Kingdom.

*“Business to Society is a different way of looking at things. It’s about measuring the value we’ve created rather than the money we’ve spent”*

Ian Bowman, Head of Sustainability, Siemens UK and Ireland

# What is Business to Society?

To create lasting value to society we have to look beyond traditional financial reporting

## Measuring our impact

Business to Society is about generating lasting value for the societies in which we operate. It's not just about investing money and building factories and offices; it's about measuring the economical, societal and environmental impact of that investment. This measurement helps us to understand the influence we have in a country: in terms of economic growth and the creation of local jobs; in relation to skills development and further education; as well as regarding innovation, environmental protection, quality of life and the transformation of society as a whole.

Traditionally we'd measure our impact on the UK by only looking at internal measures, such as how much we're spending on education or how many tonnes of greenhouse gases we're emitting but these internal figures don't tell us if we're doing any good or what impact we're having. Business to Society is a different way of looking at things. It's about measuring the value we've created rather than the money we've spent.

Firstly, we look outside the business at a wide variety of data, for example: the

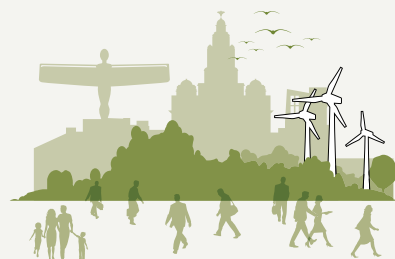
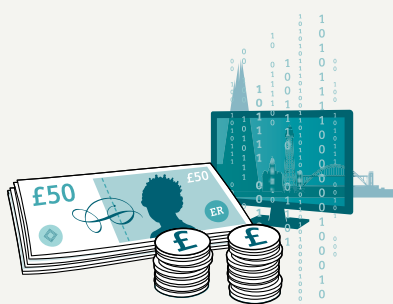
development plans of a country, region or area; the infrastructure plans; the economic and social deprivation indexes; education indexes and requirements etc. This helps us to get an indication of what's important – the societal drivers for improving the economics, health or development of the country. Once we've done this, we map what we're doing as a business and this helps us to determine what influence we have, or have the potential to have, in the future. It also helps us to determine what good things we are doing and where we can do better.

The findings of our Business to Society analysis then help us to address the topics that are important to our customers, suppliers, local authorities, government, communities and stakeholder groups. Business to Society moves us beyond traditional financial reporting and looks to optimise benefits to society and the bottom line. We illustrate our contribution with the help of our Business to Society Value Map (see page 8).

# Business to Society in the UK

Through our research and analysis we have identified six key pillars that provide the framework to measure our contribution to the UK

Every country in which Siemens operates is different and has different societal drivers. The UK is currently leading the charge into the future – working on new ideas to meet individual demands, power our homes and keep our cities in motion, enabling us all to progress, no matter what expanding population and changing resources can throw at us. The challenge is ensuring that we have the industry to achieve this vision, the energy to power it, a skilled and engaged workforce to drive it and the infrastructure to deliver it.



## Driving the economy

The UK is currently the 11th largest manufacturing nation in the world. Manufacturing makes up 11% of UK Gross Value Added and 54% of exports, and currently employs 2.6 million people.<sup>1</sup> Uncertainties relating to Brexit could stagnate growth in all UK regions over the next few years, but it has also focused renewed attention on the need for more investment in the Northern Powerhouse to boost skills, infrastructure and innovation in the longer term.

Business to Society allows us to measure our contribution to the UK economy in three ways: the direct influence of Siemens; the indirect influence of purchasing through the supply chain; the spending power created by the wages of our employees and those supported in the supply chain.

## Developing jobs and skills

Increasing the supply of a skilled engineering workforce is vital for the long-term sustainability of the UK economy. From 2012-2022, engineering companies will need to recruit 2.56 million people, and 1.82 million of these will need engineering skills.<sup>2</sup> This means addressing the gender imbalance and encouraging more women into STEM-related careers.

Through Business to Society we identify the number of jobs supported in the UK, including direct jobs, those supported through the supply chain and by employee spend in the UK economy. This allows us to understand the positive economic benefit of education and training, both for the individual – through increased salaries – and the exchequer – through increased tax and reduced reliance on social benefits.

## Sustaining the environment

The UK government has adopted targets that will require a 57% reduction in greenhouse gas emissions by 2030. The reduction will help the UK on its way to reaching the legally binding target of an 80% reduction in greenhouse gas emissions by 2050.<sup>3</sup>

Environmental emissions to land, air and water have a negative impact on health, the natural environment and the built environment. Rather than just measure the quantities of emissions, Business to Society allows us to understand the financial impact of our effect on the environment.

<sup>1</sup> [themanufacturer.com/uk-manufacturing-statistics](http://themanufacturer.com/uk-manufacturing-statistics)

<sup>2</sup> [engineeringuk.com/Research/Engineering-UK-Report-2016](http://engineeringuk.com/Research/Engineering-UK-Report-2016)

<sup>3</sup> [independent.co.uk/news/uk/politics/climate-change-carbon-emissions-greenhouse-gases-targets-brexit-uk-government-a7111391.html](http://independent.co.uk/news/uk/politics/climate-change-carbon-emissions-greenhouse-gases-targets-brexit-uk-government-a7111391.html)




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## Responsible business

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Public trust in business globally has reached a low level. The Edelman Trust Barometer presented at the World Economic Forum in Davos has shown a steep decline in trust in companies, public officials and governments over recent years. Also, a recent study of under 20s in the UK by Business in the Community showed that 47% expected to be asked to do something unethical by the companies they worked for.

The Business to Society model helps to put an external value on the work that we do to improve the societies we work in. This helps to illustrate that the investment made in areas such as education and community activities by Siemens and our employees creates shared value, benefiting business, employees and society.



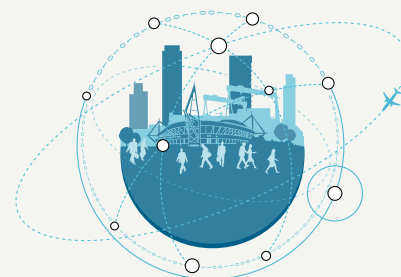

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## Productivity and innovation

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UK productivity has failed to keep pace with our global competitors. In 2015 the government published its 'Productivity Plan', laying out the stark facts that the country is 31% behind the US, 28% behind Germany, 27% behind France and 17% behind the G7 average.<sup>4</sup> Since 2007 the government has committed over £1.8 billion to innovation through Innovate UK, matched by a similar amount in partner and business funding.<sup>5</sup>

Business to Society creates increased transparency on how Siemens' provision and support of high-value jobs and innovation impacts the productivity economics of the UK.




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## Transforming the UK's infrastructure

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The World Economic Forum ranks the quality of Britain's overall infrastructure 24th in the world, down from 19th in 2006, and behind Iceland and America.<sup>6</sup> The government's National Infrastructure Delivery Plan, launched in March 2016, pledges to invest more than £100 billion in infrastructure by 2020-21, together with significant investment by the private sector, to deliver important projects that are vital to growing the economy and improving people's lives.<sup>7</sup>

Infrastructure development has a huge impact on environment, society and communities. Business to Society allows us to financially model the positive and negative impacts of these developments and balance the societal needs and benefits with the bottom line.

<sup>4</sup> [innovateuk.blog.gov.uk/2015/08/06/productivity-and-innovation](http://innovateuk.blog.gov.uk/2015/08/06/productivity-and-innovation)

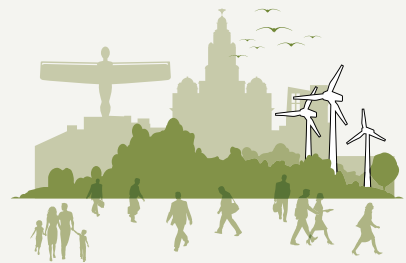
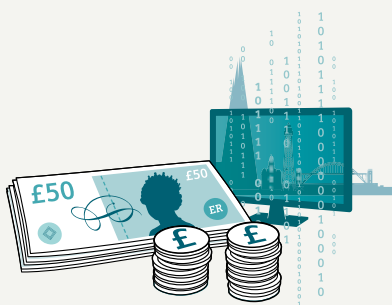
<sup>5</sup> [gov.uk/government/organisations/innovate-uk/about](http://gov.uk/government/organisations/innovate-uk/about)

<sup>6</sup> [economist.com/news/britain/21693936-government-trumpets-its-ambitions-roads-railways-and-airports-fact-infrastructure](http://economist.com/news/britain/21693936-government-trumpets-its-ambitions-roads-railways-and-airports-fact-infrastructure)

<sup>7</sup> [gov.uk/government/news/new-national-infrastructure-delivery-plan-gets-britain-building](http://gov.uk/government/news/new-national-infrastructure-delivery-plan-gets-britain-building)

# Our contribution to the UK economy

How we contribute to the social and economic prosperity of the UK



## Driving the economy

£3.2bn contribution to the UK Gross Value Added (GVA)<sup>8\*</sup>

£1.8bn spent with UK suppliers – keeping local business local<sup>8</sup>

£1.2bn value of goods and services exported from the UK<sup>8</sup>

20% of profit paid in UK tax

Supporting 56,000 UK jobs, with 17,500 in our UK supply chain

## Developing jobs and skills

£28m additional economic value from apprenticeships and £82k net lifetime benefit to each apprentice<sup>9</sup>

£3.2m in additional employment tax from apprenticeships<sup>9</sup>

More than 14,000 UK employees

500 apprentices in training

Top five engineering employer, and top 100 graduate employer

13 UK manufacturing sites employing 6,700 people

Five million children inspired to continue STEM education through the Curiosity Project, creating £11m of direct social benefit

## Sustaining the environment

£4m annual social cost of greenhouse gas emissions by Siemens UK

£40m annual social cost of greenhouse gas emissions in the supply chain

Committed to becoming carbon neutral by 2030

98% of waste generated is recycled

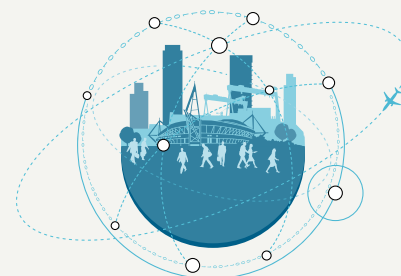
Four million tonnes of CO<sub>2</sub> reduced each year by products made at our Congleton factory

<sup>8</sup> Based on FY13/14 data

<sup>9</sup> Over 45 years for a typical yearly intake of apprentices

\* GVA is the increase in the value of the economy due to the production of our goods and services






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## Responsible business

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400,000 students reached by education projects, with £12m per year generated in economic value to participants

£3m per year benefit to the exchequer resulting from education projects

£3m in donations per year, including cash, volunteering time and gifts in kind

10% of employees donate to charity through payroll giving

£289 per employee invested in community projects

£4,000 per year salary uplift to those pursuing an engineering career

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## Productivity and innovation

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Involved in UK research projects worth £200m

Productive employees: £110k of GVA per person, per year

Funding more than 100 UK research projects, including the landmark smart city project, Triangulum

3,900 patents filed in the UK

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## Transforming the UK's infrastructure

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£300m investment in Thameslink depots at Three Bridges and Hornsey

£310m wind power facility investment by Siemens and Associated British Ports, creating 1,000 jobs in Hull

50% of wind energy in the UK generated by Siemens turbines

Siemens hosts the National Training Academy for Rail in Northampton, offering 1,000 training days per year with 50% of these available to the wider industry

370 trains maintained by Siemens in the UK

# Driving the economy



20%

of profit paid in UK tax

£3.2bn

contribution to UK  
Gross Value Added

17,500

UK supply chain jobs supported

£1.2bn

value of exports



## As a leading global engineering and technology company making products in the UK, we not only create jobs but also support the local supply chain, adding huge value to the UK economy

Siemens has a significant presence in the UK, employing 14,000 people, 5,000 of which are in the manufacturing sector. We're a nationwide company, too. From Aberdeen to Llanberis, Newcastle to Poole, our sites cover the length and breadth of the UK. The impact we have on our communities is vast, from the jobs we create and the investment we make in training and education, to the number of local suppliers we use.

### Local investment

We're not a centralised organisation based in London that operates on a global scale. We're committed to investing both economically and socially in all of the individual UK areas in which we operate. This is shown by the fact that we have a procurement presence at 80% of our sites and spend £1.8 billion with third-party suppliers in the UK, either directly through the UK Siemens organisation itself, or through our procurement organisations from other countries buying in the UK. All of this has a huge influence on the UK economy, supporting 56,000 jobs and generating an estimated £3.2 billion to UK GVA.

*We have a procurement presence at 80% of our sites and spend £1.8 billion with third-party suppliers*

"A good example of this is our investment in our new wind turbine blade production facility at Green Port Hull, in Yorkshire," said Dietmar Harteveld, Director Supply Chain Management at Siemens UK. "We're helping

to revitalise the Hull economy by investing £160 million in the facility and part of that process has involved setting up a local supply chain. Most of what we're doing in Hull has already been done by Siemens in Denmark, so we could have easily taken those suppliers and that expertise and fed them into the Hull site, but we haven't. We have chosen to set up a local supply chain within the UK, directly adding more value to the Hull economy."





### Growing the supply chain

One specific example of this is Buck & Hickman, a UK business and part of Brammer plc, which set up its own separate, service distribution depot near to our Green Port Hull facility having won an extended order to supply factory supplies. Not only does it serve Siemens and our new facility, it's there for other businesses. In its own right, it becomes a generator of potential growth in the East Riding area of Yorkshire.

For the UK economy to succeed we must follow this example and facilitate growth in all areas of the supply chain. Siemens is also in a great position to

leverage UK innovation technology by partnering with local suppliers to improve products. Our Digital Factory in Congleton, for example, has improved product design and reduced costs by reaching out to local suppliers for ideas and expertise. "Several suppliers came up with some really innovative, new ideas and fabrications. In doing this we've ensured the manufacture of UK products into our global supply chain and helped to secure that one plant's future for the next three to five years," said Dietmar.

By driving industry in the UK, be it through our manufacturing or service

infrastructure, or by purchasing from the local supply chain, we create more jobs. This, in turn, increases the amount of tax being paid to the exchequer and increases employees' spending power, meaning a stronger, more resilient economy.

"The UK is rich in intellectual wealth – we have a great industrial heritage, first-class universities and a pioneering spirit. If we team this with Siemens' corporate knowledge and global expertise, we have a really powerful base," added Dietmar. "Are we the best? Not necessarily, but it gives us the opportunity to be the best."



# The UK supply chain

**Buck & Hickman supplies tools and personal protective equipment (PPE) to a range of our sites. James Curtis, Buck & Hickman Commercial Manager, explains why this is a win/win situation for both his company and Siemens.**

“Buck & Hickman was awarded the contract for the supply of tooling and PPE for Siemens UK in August 2010, primarily to provide consumable items that are held in on-site vending machines at Siemens manufacturing sites, enabling authorised Siemens employees to access the machines via swipe cards and buy the products they require.

Since the Invend™ industrial vending machines are deliberately positioned close to point of use, not only do they improve production efficiency, but they can also reduce product consumption by between 25-40%. This is because the Buck & Hickman vending machines can track the demand and frequency of use of each individual user and therefore can accurately monitor stock movements and manage replenishment requirements.

An excellent illustration of this is around the installation of Invend™ vending machines at Siemens Industrial Turbomachinery in Lincoln, which has resulted in a 30% reduction in product consumption over a 12-month period; a significant

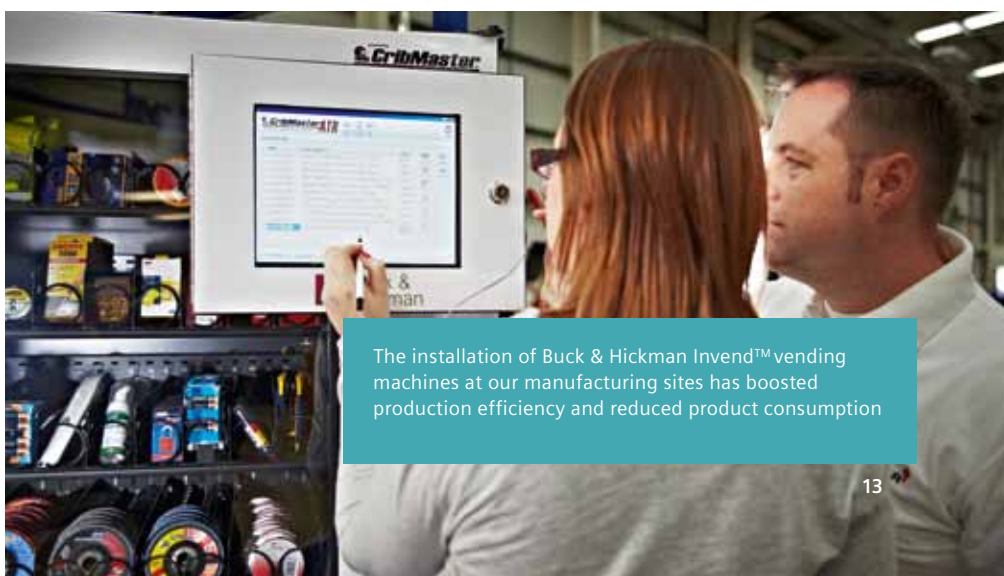
contribution in helping to reduce Siemens’ overhead spend.

Buck & Hickman’s ability to offer a comprehensive vending solution was also instrumental in the award of our contract to supply tools to Siemens’ new wind turbine factory at Green Port Hull, and also forms part of our ongoing continuous improvement development programme with Siemens.

Our Invend™ machines are now undergoing trials at Siemens Magnet Technology in Oxford. We have also installed machines at Siemens’ rail depot in Northampton and Three Bridges in Crawley, with further rollout plans in Manchester and Northam in Southampton.

The installation of Invend™ provides Buck & Hickman with accurate and intelligent data around usage and demand patterns, which in turn enables us to identify potential areas for the cost savings that we are committed to, and will deliver to Siemens.

On a wider level, our continued and widening relationship with Siemens, both nationally and locally, benefits both businesses as we identify and share best practice in cost reduction delivery, and that growth means we are able to employ more people and continue to be part of the supply chain of a global company.”



The installation of Buck & Hickman Invend™ vending machines at our manufacturing sites has boosted production efficiency and reduced product consumption

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# Developing jobs and skills

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Each year the Curiosity Project creates

**£11m**

of direct social benefit



**£28m**

additional economic value from apprenticeships, with 500 in training

**14,000**

UK employees



## Generating a skilled workforce for the future is one of our key priorities as a business. Not only will this drive our business forward in terms of skills and innovation, it will boost the economic prosperity of the areas in which we operate

As a leading engineering and technology services company in the UK, we employ 14,000 people and are reliant on a continuous supply of skilled engineers in order to grow and flourish. The stark reality, however, is that the current engineering workforce is dwindling and much more needs to be done to secure the next generation of skilled workers. People who don't just manufacture products and keep services running, but also work towards mitigating the challenges of climate change, ageing populations, food, energy and clean water.

### *Through our Business to Society model we can measure the benefit of our education and training initiatives*

Without these people, UK productivity will stagnate and the economy will collapse. From 2012-2022, to keep pace with demand, it's forecast that UK engineering companies will need to recruit 2.56 million people, and 1.82 million of these will need engineering skills – an average of 182,000 people per year.

#### **Leading apprenticeship employer**

We are committed to cultivating this workforce and do so through a variety of initiatives across the UK. For example, we are one of the UK's leading apprenticeship employers and have more than 500 apprentices on our apprenticeship programmes. In 2016 alone, we recruited 120 apprentices across our nine business divisions, virtually all of whom will go on to secure roles in the business.

Further fuelling our talent pipeline, we have partnered with the University of Lincoln to launch the Engineering Hub. This gives students and Siemens employees access to state-of-the-art training facilities and opens up the potential for major new R&D projects at the university. Meanwhile, in the energy industry, Siemens has invested £9 million in a training facility at our Energy Service Training Centre in Newcastle. This will enable the training of up to 500 technicians per year.



The National Training Academy for Rail facilities include a virtual reality suite, with an interactive computer-aided design view 'inside' a train



### Training in the rail industry

In the rail industry, working with the government, we matched a £3.5 million investment in the National Training Academy for Rail (NTAR). Created to cater for both Siemens and the wider industry with training needs in traction or rolling stock, NTAR offers students an innovative learning environment and is designed to react to the needs of a fast-changing industry. We also have our Military2Rail programme, supporting the transition of ex-military engineers into railway engineers.

When it comes to inspiring young people in engineering, we have made

a huge investment in engaging with children, parents and teachers through the launch of our Curiosity Project and the Siemens education website (find out more on page 22).

All of these initiatives feed back into improving the UK both economically and socially. With Business to Society we can measure the benefit of our education and training initiatives, both for individuals, through increased salaries, skills and quality of life, and through the exchequer via increased tax and reduced reliance on social services and the NHS. A good example of this is our apprenticeship

programme, which we've calculated adds £28 million in economic value to the UK, and £82,000 net lifetime benefit to each apprentice.



# Engineering the future

**Calum Dowse, 20, from Market Rasen, Lincolnshire, is a Siemens Engineering Apprentice. He has just completed his first year and studies at Lincoln College. Here he explains the impact the apprenticeship has had on his life...**

"I studied for A-levels but didn't know what career path I wanted to follow. I applied for a number of jobs but had no success and by Christmas 2014 I was beginning to feel despondent.

## Becoming an apprentice

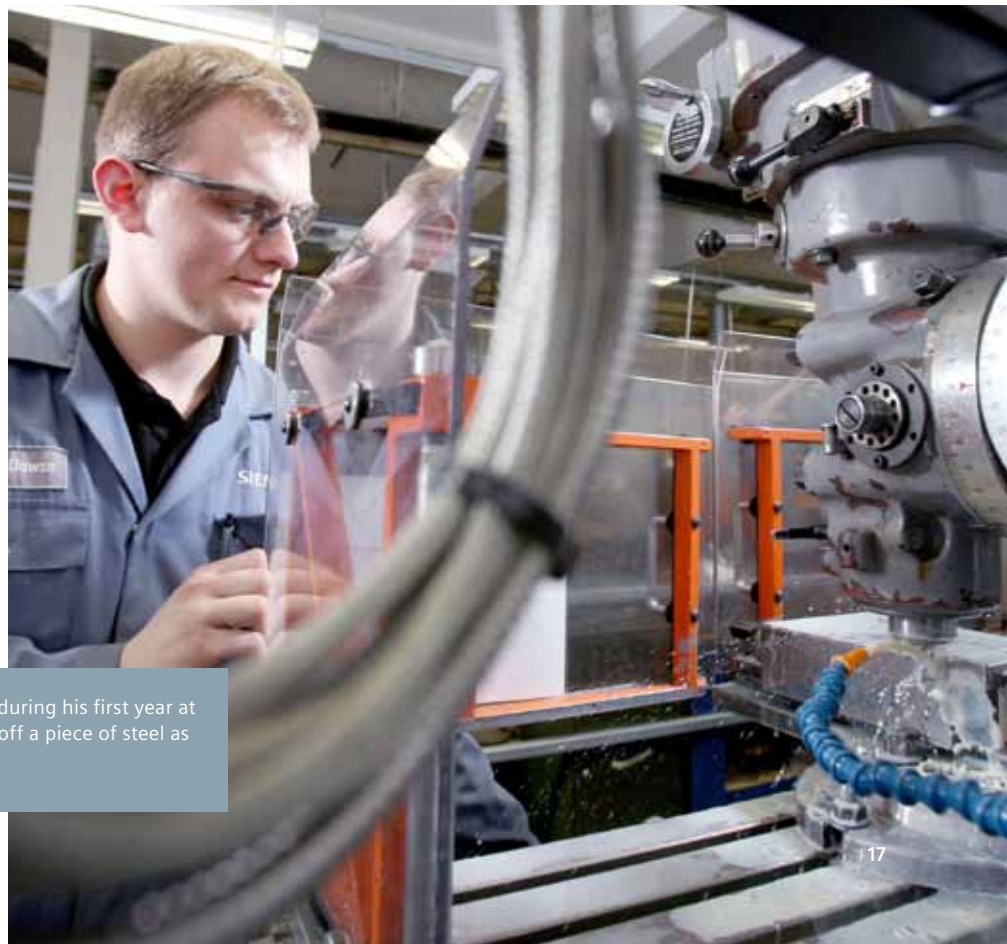
In early 2015, I attended a job fair at the Assembly Rooms in Lincoln where I spoke to a representative at a stand that was promoting apprenticeships. She asked me what subjects I had enjoyed at school and I said maths and science. She then walked me to the Siemens stand and I filled out a form for a pre-employment course. Following an aptitude test, I was then accepted onto the course.

I knew straight away that I had finally found the career for me. After months

of unemployment it was incredible to have a purpose to my day and to be doing something I enjoyed.

I've now completed my first year as a Siemens apprentice at Lincoln College. I attend college daily and learn turning, milling, fitting, computer-aided design, computer numeric control, sheet metal work, technical drawing and mathematics. These skills allow me to work practically, interpret drawings and to work efficiently and safely as a team member. I do frequent written assignments to underpin the practical learning and I'm studying for a BTEC level 3 and an NVQ level 2 in engineering. When it's the college holidays, I have a placement at Siemens.

I'd definitely recommend the Siemens apprenticeship programme to others. You get specialised, skilled training and are fully supported by Siemens every step of the way. You also feel a real pride when people ask you what you do and you can say you are a Siemens apprentice."



Calum has learned many skills during his first year at Lincoln College. Here he faces off a piece of steel as part of one of his projects

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# Sustaining the environment

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**98%**

of waste recycled

**£4m**

annual social cost of greenhouse gas emissions by Siemens UK

**2030**

the date by which we're committed to being carbon neutral



## Many of our products are helping customers to reduce their environmental footprint and combat climate change. We also walk the talk, using energy-efficient solutions and environmental technologies across our UK sites

Minimising our impact on the environment is key to Siemens' future. We view environmental protection holistically, from designing, developing and manufacturing our products, to the reuse, recycling and disposal of them at end of life. We offer our customers innovative products, solutions, and services – from renewable energy and energy efficiency, to intelligent power distribution via smart grids and energy storage.

These energy-efficient solutions and environmental technologies typically have a three-fold advantage: they benefit our customers, who boost their own success through low energy costs and higher productivity; they benefit future generations, whose living and environmental conditions we're preserving and helping improve; and they benefit our own company by enabling us to tap into attractive markets and generate profitable sustainable growth.

### Environmental Portfolio

"Our global Environmental Portfolio looks at how many of our products fit into being more green, more energy efficient or better for the environment than previous generations," explained Ian Bowman, Head of Sustainability at Siemens UK and Ireland. "It's worth about £28.2 billion\* in terms of our turnover, saving some

***"We've pledged to halve our carbon footprint globally by 2020 – that's a substantial commitment"***

487-million tonnes of CO<sub>2</sub> for our customers. More recently, we've pledged to halve our carbon footprint globally by 2020 – that's a substantial commitment. We have also committed to be carbon neutral by 2030 at the latest."

Climate change and global warming are real challenges for Siemens. Greenhouse gases and atmospheric emissions, as well as contributing to climate change, also have an economic effect on society. Business to society calculates the cost due to negative impacts on the built and natural environment, and health: in the UK alone this annual societal cost is £4 million. As a technology supplier we have the opportunity to positively impact the damage caused by emissions, both our own and those generated throughout the supply chain. Within our own operations we have programmes targeting to reduce emissions in all greenhouse gases. Through investment in technology in our offices and factories, engagement of employees and changing work patterns, we are reducing the impact individuals and businesses have on the climate.



\* Based on GBP/EUR exchange rate at 22 August 2016



### Working with partners

We are also conscious that the emissions of our customers and our supply chain are many times larger than our internal emissions. We therefore work closely with our partners to reduce their greenhouse gasses. Equally important are our product development programmes, aimed at reducing the embedded carbon in our products.

Our Congleton factory demonstrates our commitment to developing energy saving products. The site produces approximately 400,000 drives per year and each of these devices saves approximately 900g CO<sub>2</sub> annually. The factory has even installed its own inverter technology into its operations, meaning electric charge can move around the factory more efficiently, making significant electricity savings.

As well as saving energy, producing clean energy is a major part of what Siemens does in the UK. Our Wind Power and Renewables division is a leading supplier of reliable, environmentally friendly and cost-

efficient renewable energy solutions. Driving down the cost of wind power is our key target as we strive to make renewable energy fully competitive with conventional energy sources.

Most recently, we've invested £160 million in wind turbine production and installation facilities at Green Port Hull. The site will generate more than 1,000 jobs in the local area. The first wind farm that will benefit from Hull is Dudgeon, off the Norfolk coast, which it is planned will be able to use the facility and quayside for part of its installation of 67 Siemens 6MW offshore wind turbines.

Aside from producing wind turbines, our renewables service team is responsible for servicing half of the UK's offshore wind farms. The investment in Siemens' Service Energy Centre in Newcastle shows a strong local footprint as the renewables team reviews all areas of service delivery, from parts to tools, logistics to transport. Also, the establishment of the UK's first wind turbine apprenticeship scheme, which is

now offered at three centres around the UK, shows commitment to the development of local expertise in renewable energy.

"When it comes to energy the UK has numerous issues to address. One of these is the closing of the older power generation plants. We need to invest in new facilities, so why not make them CO<sub>2</sub> free, or at least reduce the CO<sub>2</sub> as much as possible as part of the energy mix? This brings together products from three of our divisions," explained Clark MacFarlane, Managing Director of Wind Power & Renewables. "We are pioneering the technologies and techniques that are enabling sustainable sources to form an ever greater part of that future energy mix. As well as an established onshore presence, I think offshore wind is one area that has a great future here in the UK and throughout the world."



Siemens is the contracted turbine manufacturer of Clyde Wind Farm. Working with SSE, we calculated the economic, social and environmental value of building an onshore wind farm

## Clyde Wind Farm

**To be a truly sustainable business, Siemens has to be profitable, but we also have a responsibility to understand the way we affect people's lives, the environment and local communities. In 2015, we worked with Scottish and Southern Energy (SSE) and PricewaterhouseCoopers to understand the impacts of building an onshore wind farm.**

In July 2014 the Scottish government gave consent to an extension that will see an additional 54 turbines installed at Clyde Wind Farm, one of Europe's biggest single-consented onshore wind farms. The Clyde Extension will generate a further 173MW of renewable energy, bringing the total capacity of the wind farm to just over 500MW and providing enough power for approximately 375,000 homes. As the contracted turbine manufacturer, we carried out a report to look at the positive benefits to the economy, jobs

and training of building, installing and servicing the extension, but we also didn't shy away from creating more transparency on negatives such as the environmental cost of building an onshore wind farm.

We estimated in monetary terms the economic, social and environmental direct impacts of Siemens Wind Power (SWP) and the indirect impacts of the SWP supply chain of Clyde Extension wind turbines during their lifetime. Through the analysis of Gross Value Added and employment impacts, the assessment of greenhouse gas emissions and air pollutants, and the human capital of Clyde-trained apprentices, SWP has been able to present the positive value of the Clyde Extension to Europe, and the UK.

"Together with Siemens we've been able to assess the total contribution to the UK and Scottish economies from the construction of Clyde Extension –

£108.2 million and £76.1 million respectively," said Alistair Phillips-Davies, Chief Executive, SSE plc.

"Without this analysis from Siemens, SSE's largest contractor for Clyde Extension, SSE's estimation of this economic contribution would be 20% lower than we now know it actually is. This study demonstrates the impact to the UK economy from onshore wind is way beyond anything anyone in the industry has understood until now.

"To date, no turbine manufacturer has undertaken such a detailed exercise as this analysis by Siemens and until now, project developers like SSE were 'blind' to the impacts beyond the first tier supplier. Sophisticated understanding of the detailed sustainability impacts of development throughout the supply chain is a mark of the growing maturity of onshore wind as an established global industry."

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# Responsible business

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**£3m**

donations per year

**10%**

of employees donate to charity  
through payroll giving

Equivalent

**£12m**

per year to participants  
in Siemens education projects



## From plugging the UK skills gap through our education programme to volunteering our time at local conservation projects, we are committed to being socially and environmentally responsible

Corporate citizenship is integral to business. For Siemens, being a responsible business is about investing in society, through education projects, strategic partnerships with charities and local organisations, fundraising and volunteering. Not only does this benefit our communities, but it also benefits our employees, our business and the UK as a whole.

In the UK it's important we invest in and partner with organisations that align with our vision and values, so we can share our expertise and skills, adding real value to our communities.

### *We participate in science festivals and go into schools to inspire children about the value of studying STEM*

"We need to invest in areas where we can create maximum impact," said Olivia Whitlam, Corporate Citizenship Manager at Siemens. "It's not just about spending money, it's about supporting these projects with our resources, knowledge and equipment and having the opportunity for employees and the business to learn."

#### **Investing in education**

Our biggest investment comes through our education initiatives. The Curiosity Project was launched in 2015 to bring science, technology, engineering and maths (STEM) to life for children, teachers and adults. This three-year programme aims to inspire the next generation of engineers and address the growing skills gap in the UK. We participate in science festivals across the

UK and go into schools to inspire children about the value of studying STEM.

The Curiosity Project runs alongside the Siemens education website, which provides resources for teachers, parents and young people. We're also addressing the gender gap in engineering through our SeeWomen programme, which puts the spotlight on modern STEM female role models. From a business point of view, projects like these are crucial, because without these young people there will be no engineering future in the UK.

#### **Working with charities**

As well as education, we work with a number of charitable organisations. An example of this is our volunteer-led partnership with the Wildlife Trusts. Teams of employees volunteer to help manage the reserves close to our operating sites. We also skills share, offering them business





support and advice. In return, our employees get some great wellbeing benefits and we further support Siemens' environmental credentials.

We also fundraise for mental health charities and, looking to the future, we're exploring how we can work directly with people experiencing mental health issues. Not only will this be beneficial to the people we support, but it will also be good for business – opening up the dialogue about mental health in the workplace and all the positive HR outcomes that leads to.

Key to driving all of this is employee participation. We want to share the knowledge and skills our employees have in a way that's actually valuable,

both for the charities and our employees. At the moment our volunteering is considerable but nowhere near the level we would like it to be. We want 40% of all employees to be volunteering and it's up to us to create the cultural change that allows this to happen.

"Fundraising is great, but increasing interest in STEM subjects has greater societal impact. As a big business operating in the UK we have a moral obligation to do this," added Olivia. "If it affects the communities we work in, it affects our business. A lot of sites we're based at are where the old industries have gone – the powerhouses that drove these areas. There's deprivation and low standards of living and education.

"Yes, Siemens supports new industries and supplies lots of jobs in these areas, but we also have a responsibility to look after and do our best for them. We want them to understand how important these topics are to the business and why. It's not about branding, it's about being genuine and doing something positive to tackle these issues."

Learn about the Curiosity Project at [siemens.co.uk/curiosity](https://www.siemens.co.uk/curiosity)

Visit our Education Portal at [siemens.co.uk/education](https://www.siemens.co.uk/education)



# Inspiring the next generation

**Engaging the next generation in STEM subjects is essential, not just for Siemens but for the future of engineering in the UK. Our partnership with the Manchester Science Festival is one example of our education programme in action.**

Located on the site of the world's first passenger railway station, the Manchester Museum of Science and Industry (MOSI) tells the story of the North West's scientific and industrial past, present and future. Siemens became a founder corporate member of MOSI and sponsor of the Manchester Science Festival in 2009.

Our employees take pride in our association with MOSI. Using the museum's expertise and community links, the festival facilitates STEM engagement with a wide spectrum of society – especially youngsters of both genders and diverse ethnic and social backgrounds. This helps improve the understanding of what STEM is and the range of career opportunities available within it.

"In 2015, the Manchester Science Festival attracted 120,000 visitors from across the region and the UK,"

said Natalie Ireland, Head of Learning and Public Programmes at Manchester Museum of Science and Industry. "The collaboration with Siemens has really helped us to diversify our audience and those interested in getting involved in science. Thirty percent of our audience is under 16 with 15% coming from a black minority or ethnic background, so we're really engaging with a wide variety of people through the festival."

And it's not just visitors to the festival that benefit. Many Siemens employees volunteer at the event, allowing people from different areas of the business to meet and socialise together outside the work environment.

It also gives employees a chance to broaden their skills set, with opportunities to participate in 'Science Busking with Siemens' and workshops, improving confidence and soft skills. Last year, as well as management time devoted to the festival, we contributed 77 hours' paid volunteering with all employees reporting benefits to their job-related skills, increase in personal effectiveness and a positive change in attitude.



The Manchester Science Festival gives an opportunity for us to engage with young people and get them inspired by science and engineering

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# Productivity and innovation

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Productive employees:

**£110k**

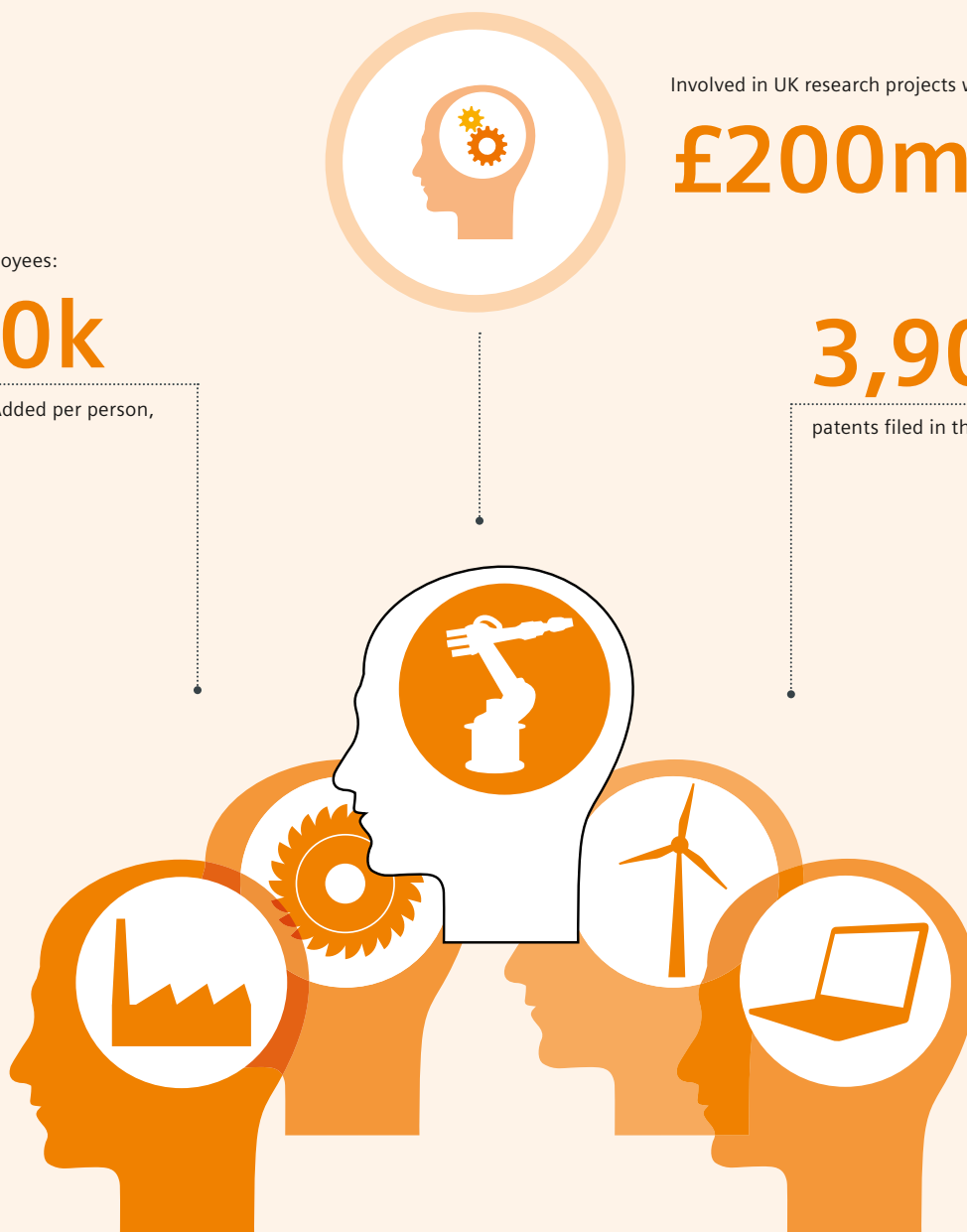
of Gross Value Added per person,  
per year

Involvement in UK research projects worth

**£200m**

**3,900**

patents filed in the UK



## We're committed to driving innovation, through investment in research and development (R&D) and partnering with some of the UK's leading universities and research facilities

One of the hallmarks of Siemens is a long and rich history of innovation. With our passion for technology, we set standards and create sustainable value – for our customers, for society and for every individual. It's this culture of innovation and ingenuity that is helping to drive the UK into the future, through digital solutions in manufacturing, the creation of intelligent infrastructure and the generation of a sustainable energy supply.

### *We set standards and create sustainable value – for our customers, for society and for every individual*

Key to all this is ensuring that the UK is at the cutting edge of emerging technologies. That's why we've been working hard over the past 10 years to invest in strategic partnerships with universities and research facilities across the UK. As a business we would like to capitalise on the rich intellectual capital available on our doorstep, which will enable Siemens to make state-of-the-art, smarter, more intelligent products and services to sell globally. Not only is this great for Siemens from a commercial perspective, but it's also beneficial to the UK, bringing investment into research, infrastructure and knowledge sharing that helps to develop skills of academics, graduates, apprentices and technicians locally.



#### Linking with universities

Recent partnerships with UK universities have included the development of an Engineering Hub at the University of Lincoln, which is currently being extended to include a new physics, maths and computing science department as well as the creation of a smart grid laboratory and Centre for Energy Systems Integration at Newcastle University to investigate how to optimise the UK's energy network.

Through Innovate UK-funded programmes, Siemens also has a number of demonstrator test-bed projects around the UK. Some



examples of this are a new urban infrastructure project in Nottingham evaluating smart buildings and an advanced vehicles information network in Coventry, paving the way for autonomous transport and smart road systems. We are also driving groundbreaking innovation with Airbus towards the electrification of aviation, which will revolutionise future air travel. Siemens PLM Software meanwhile is helping a breadth of companies around the world to generate complex designs at reduced costs through simulation. A recent example of this is our collaboration with Land Rover BAR

to create a state-of-the-art catamaran for the America's Cup. All of these innovations help to sustain the UK's position as a global leader in R&D.

#### Centres of research

Supporting the UK's position as an R&D leader also increases the likelihood of future Siemens businesses being located close to centres of research. For example, Siemens Magnet Technology, our award-winning plant that creates magnets for MRI scanners, is close to the University of Oxford, experts in superconductivity research. Also, the development of inverters and

switch gear at the University of Manchester has contributed to facilities in the surrounding region.

"There are so many potential opportunities for future growth," said Professor Paul Beasley, Head of R&D UK at Siemens. "It's not just Siemens who benefits from any investment in R&D. There will be opportunities for knowledge sharing, new business creation in the supply chain and customer base generating more revenue and tax for the UK economy."

# Creating smart cities

**Siemens is at the forefront of R&D in the UK, particularly when it comes to technological innovation. One example of this is our involvement in transforming the Manchester Corridor using state-of-the-art energy systems.**

The Triangulum project will transform designated urban districts into smart quarters in three 'lighthouse cities' – Manchester, Eindhoven (Netherlands) and Stavanger (Norway). Supported by the European Commission's 'Smart Cities and Communities' Horizon 2020, the implementation is led by Germany's Fraunhofer Institute for Industrial Engineering (IAO).

Siemens has been selected as technology partner for the Manchester Corridor project, which will focus on an area of 245 hectares and house some 72,000 students from two of the UK's largest universities.

Triangulum will trial future technologies in the Manchester Corridor and increase learning and deployment of real solutions to smart urban development. Such test projects, pioneered by Siemens, will demonstrate the benefits associated with intelligent, decentralised energy systems, providing reduced carbon emissions, flattening peak demand,

reducing stakeholders energy bills, increasing the levels of renewable energy, and providing greater levels of security of supply for consumers.

Going forward, Manchester and other such cities will be focused on supporting the UK target of reducing greenhouse gas (GHG) emissions by 80% by 2050. The city will be advanced on its transition to a low-carbon future as a sustainable city, with fully devolved power from government and operating as a municipality. It will be using associated operational revenues to invest in new low-carbon infrastructure, while attracting investment and alleviating fuel poverty. There will be significant improvements in urban mobility and a considerable step towards a changeover to renewable energies.

Siemens is focused on supporting the decarbonisation of the UK economy and the transition to a low carbon economy. We believe that decentralised energy systems will be a key part of any smart city and create value for the city as a civic entity, but also its inhabitants and businesses. The Triangulum project is an excellent opportunity to pilot cutting-edge decentralised energy management systems and develop considerable learning.

The Manchester Corridor will trial future technologies and increase learning and deployment of real solutions to smart urban development



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# Transforming the UK's infrastructure

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**50%**

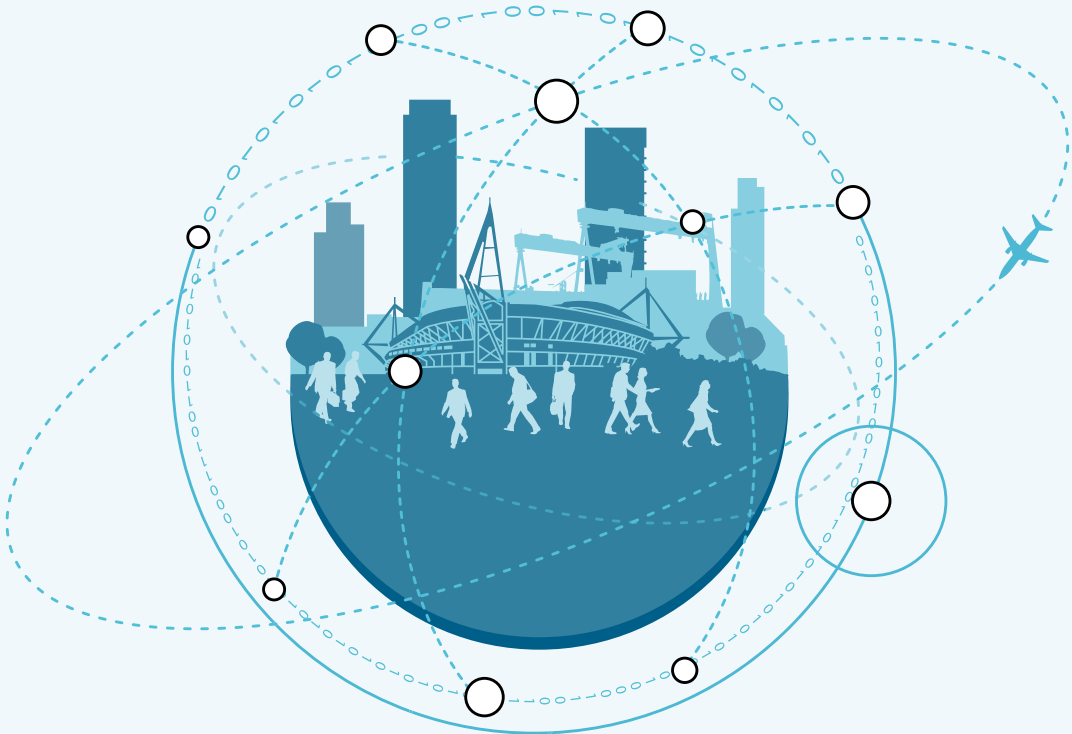
of UK wind energy is generated by Siemens turbines

**£310m**

wind power facility investment

**£300m**

investment in Thameslink depots



## Infrastructure is the backbone of cities and entire economies. We're helping the UK transform its infrastructure with our investment in intelligent mobility solutions and clean energy

Infrastructure is the beating heart of any society – transport systems that get us where we need to go, buildings that keep us safe, warm and secure, and a reliable, clean energy supply to power everything and anything we need.

The growing demand for mobility within existing transportation infrastructure is just one of the many challenges facing today's cities. In this age of rapid change, intelligent strategies are required and efficient use and control of mobility solutions is vital. Travel experience for passengers must also be enhanced in order to improve experience and increase use.

### Intelligent infrastructure

At Siemens we build intelligent infrastructures that don't just react but anticipate, monitoring systems that reduce train down time to increase availability, dynamic control systems that optimise traffic flow and throughput, and electronic information and payment systems that improve passenger experience.

## At Siemens we build intelligent infrastructures that don't just react but anticipate

"We're already acting to move the truly digital railway from being a concept to a reality, said Pete Duggan, Chief Engineer, Siemens Rail Automation. Our significant breadth of portfolio means we can offer a one-stop shop for the introduction and integration of innovative technologies and solutions. "This allows seamless, efficient operations, benefiting both passengers and operators," he added.

That's what we're doing with Network Rail for the Thameslink Programme – the starting point of the journey to a full digital railway. We are delivering a vertically integrated system – producing trains, train control and signalling, as well as manufacturing the parts to create these – that will allow safety, reliability and capacity to be increased. The European Train Control System with Automatic Train Operation will be at the core of this and the digital railway, increasing capacity and energy efficiency.

Beyond London, our state-of-the-art Velaro e320 Eurostar train is improving European rail travel, currently travelling at a maximum speed of 186km/h and carrying up to 900 passengers. While at Immingham Port we partnered with Network Rail in a £100 million project to upgrade the rail infrastructure, future-proofing it for the next 30 years. With 25% of the UK's rail freight entering the country via Immingham Port, replacing the 100-year-old signalling enables more services to run and helps boost economic growth in the region.

The economic and societal benefits our rail projects bring to the UK are vast. For example, providing more trains in and out





of cities with better connectivity and greater reliability, increases the number of people with access to well-paid jobs in our major cities, as well as the need for more housing to be built. What's more, the systems behind a digital railway will work together to reduce the carbon footprint through intelligent traffic management, optimised speeds and efficient energy consumption.

And it's not just railways we're transforming. We're also using cutting-edge technologies to improve traffic on UK roads and ease congestion in towns and cities. In Coventry, for example, we're working with Coventry County Council to radically change the way in which commuters travel into the city. Using a mobile phone app, commuters will be able to plan their daily commute and be incentivised to travel at the most sustainable times. Not only will this aid commuters but it will also establish a living lab test

environment to attract manufacturers and suppliers to use Coventry as a hub for connected and automated vehicle research.

#### Creating clean power

The other key part of the infrastructure puzzle is energy and creating clean power. Fifty per cent of the wind power in the UK, from both onshore and offshore, is created using Siemens ingenuity, engineering and technology. In 2015 that was enough electricity to power 8.25 million homes – nearly one third of British households.

Creating cleaner energy for all of us is both a public demand and an essential part of our ambition. This means investing in people and technology to meet ever-rising energy demands, while staying on course to meet CO<sub>2</sub> reduction targets – from investment, research and development at top UK universities, to building a new blade

factory in Hull, employing 1,000 local people to harness local conditions to power the nation and beyond. From the London Array and Gwynt y Môr, the world's two largest offshore wind farms, to the upcoming onshore site at Pen y Cymoedd, Siemens turbines power our homes, our economy and our cleaner future.

All of this investment is good news for the UK. We're providing skilled and long-term jobs for British workers – both directly and through the extended supply chain. We're training future engineering talent within the UK in both digital and mechatronics to provide skills and jobs. We're designing further innovations in turbine technology and creating them locally for use in our customers' wind farms.





Chloe Horton is just one of the many people who is benefiting from Siemens' operations in Green Port Hull. Our investment in the area will create jobs for 1,000 people

## Regenerating Hull

**Chloe Horton was working in Congleton when she applied for a Siemens European Apprenticeship. Three years and a degree in mechatronics later, she has the skills needed to bring a wind turbine rotor blade from concept to execution.**

It's not only Chloe who's going to benefit. She's bringing her expertise back to Alexandra Dock, Hull, where Siemens has invested £160 million in a

***“For our UK customers, it's important that these products are locally sourced”***

world-class blade factory and offshore installation and service facilities. Siemens will create jobs for 1,000 local people. Most of these will be within the blade factory and hundreds of additional jobs are being created during construction and throughout the extended supply chain.

The state-of-the-art blade factory builds on lessons Siemens learnt from its factories internationally. As a result, the Hull factory will sit on a single site, which will make the construction process even more lean.

“I've had great opportunities to improve myself with Siemens,” said Chloe. “I'm so excited to be part of this new project in Hull – I don't think many people get the opportunity to be involved in something like this, from

the very beginning. Working in renewables and wind energy is something to be proud of. I'm part of a huge project team that's transferring the knowledge, the skills and the technology to the UK for the new blade factory.

“For our UK customers, it's important that these products are locally sourced. This project is a huge investment for Hull, not only from a job perspective, but for us it's a case of we can do this – we can do this ourselves and we can support our communities. It's sustainability for the UK – wind power creating energy for a greener future. We're local engineers showing the world how it's done; that's ingenuity for life.”

# We are invested

As a result of Ingenuity for life, businesses become stronger and more productive and quality of life improves for society as a whole

Our promise is to deliver Ingenuity for life. By looking at the impact our business has on society, we can measure the value created and identify how we will continue this through further innovation and investment.

We fundamentally believe that demonstrating commitment to the communities in which we work is core to the success of our business. It's at the heart of what drives us and our people. The case studies and stories we have gathered clearly demonstrate the tangible benefits that can be delivered by businesses to society.

Siemens is completely focused on making the UK a better place to live and work. We add value to communities together with our customers, suppliers and stakeholders.

This report is the start of the conversation regarding our journey together. What's vital going forward is to continue this dialogue at every opportunity. Let's work together to make a stronger UK.

Find out more about Ingenuity for life at [siemens.co.uk/ingenuityforlife](https://www.siemens.co.uk/ingenuityforlife)

Learn about the Curiosity Project at [siemens.co.uk/curiosity](https://www.siemens.co.uk/curiosity)

Visit our Education Portal at [siemens.co.uk/education](https://www.siemens.co.uk/education)

*“I feel strongly that large companies such as ours should be doing more good things, plus talking more about the brilliant work already being done. We are making real what matters through positive impact, helping to make an industrially stronger and fairer United Kingdom”*

Juergen Maier, Chief Executive, Siemens plc

