



HM Government

Industrial Strategy

Securing jobs and a
stronger economy

Industrial strategy

Government and industry in partnership

Progress Report



April 2014

Industrial strategy at a glance

Industrial strategy is about the **whole of government** working in **partnership with industry** to set out and deliver **long-term** plans to secure jobs and growth.

Five themes:

Sector partnerships: Providing support for all sectors to help increase global competitiveness, support innovation and maximise export potential.



Technologies: Supporting the development and commercialisation of technologies where the UK has the research expertise and business capability to become a world leader.



Skills: Working to deliver the skills that employers need, giving businesses more say over how government funding for skills is spent.



Access to finance: Helping businesses get the finance they need to invest in people and equipment and to grow.



Procurement: Developing UK supply chains and creating a simpler and more transparent public sector procurement system.



Foreword



We have learned from past experiences that we need a new approach to how government and industry work together: a modern industrial strategy where government neither leaves business to its own devices nor tells it how to operate but works in partnership. We have together identified the challenges to, and potential for, growth across the UK economy and set medium and long-term goals. Because we have agreed these jointly, government has more confidence that they are achievable and industry has the confidence to invest for the long-term.

During the first year of industrial strategy, Government and industry set out these long term ambitions across five themes: skills, technologies, access to finance, procurement and sector partnerships. By August 2013 we had published eleven sector strategies, setting out long-term ambitions to ensure that the UK is in the best possible position to compete in the global race. We are also working in partnership with a wide range of other sectors and sharing information to identify upcoming challenges such as skills gaps and opportunities like major infrastructure projects.

Over the past year Government has allocated more than £2 billion to industrial strategy objectives, a clear indicator of commitment in a period of fiscal constraint. In addition to investing time to set the strategic direction, industry has put its money where its mouth is, by match-funding the majority of this investment. This is an important departure from the old ways of working and demonstrates confidence in the approach.

In some instances the true impact of industrial strategy may not be seen for a decade or more but we are delighted at how much progress has been made already. In particular:

- Aerospace Technology Institute operational using £2 billion joint funding commitment by government and industry between 2013 and 2020, for research and development of the technologies needed for quieter, more energy efficient and environmentally friendly planes.
- Advanced Propulsion Centre established with up to £75 million available initially from Government for pilot projects to develop a new generation of low carbon powertrain technologies, kick-starting a £1 billion joint investment by Government and industry over 10 years. The APC's first projects were announced on 23 April 2014.

- £70 million Agri-Tech Catalyst launched to support industry-led ‘proof of concept’ development of near-market agricultural innovations. In the first phase, announced on 28 March 2014, eleven projects across the UK benefitted from £2.8 million from Government, alongside £1.4 million from industry.
- Ambition to support £1 billion of education exports by 2015 met. This is contributing to an overall target to increase the value of all UK exports to £1 trillion by 2020.
- Dedicated funding at £100 million per year to support projects to grow skills in key sectors and technologies, through co-funding with employers.
- Seven catapult centres now open for business, with £1.5 billion of public and private funding over their first five years, helping businesses bring innovative ideas to commercial reality.
- The British Business Bank launched in interim form. Its programmes made £660 million of finance available to Small and Medium sized enterprises (SMEs) in 2013 – a 73% year-on-year increase from 2012.

We have been pleased to see evidence of increased private sector investment plans in the UK: a recent survey of EEF members reported one in six UK-based manufacturers had brought back production in house in the past three years; Airbus, Rolls-Royce, GKN and key supply chain companies have increased their aerospace investment plans for the UK; and in the last two years over £2 billion of industry and private sector investment in UK life sciences has been announced.

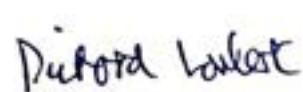
This progress report sets out in more detail the major achievements across the five themes and explains the priorities for the year to come and beyond. Given the importance of partnership, we wanted business leaders to have the opportunity to set out their appraisals of what has worked well and where there is more to do. There are countless other businesses of all sizes and sectors who have invested their time, energy and resources in making this new approach to industrial strategy get off to a solid start. This is the best endorsement for what is a genuinely new way of working and will be the key to the continuing success of industrial strategy. There is much more to do over the coming years but we have an excellent foundation on which to build.



Vince Cable
Co-Chair
(Government)
Industrial Strategy
Council



Sir Richard Lambert
Co-Chair
(Industry)
Industrial Strategy
Council





The UK's industrial strategy remains a crucial tool to rebalance the economy and promote long-term, sustainable growth. Businesses have responded enthusiastically to the challenge laid out by government, and the sector councils are now making progress implementing the plans set out over the last year.

This early momentum must not be lost. Opportunities remain across the board to build the skills base to support our key industries, to improve our innovation performance and to capture more value from UK supply chains. Taking them will require commitment from government beyond any single Whitehall department as well as cross-party political support for the industrial strategy agenda. Much has been accomplished in the last year but we have barely scratched the surface of what is achievable in the next 30 if the structures now in place are allowed to develop.

Businesses remain confident that the partnership approach with government will deliver results, and I look forward to seeing further progress over the next 18 months and beyond.

A handwritten signature in dark ink that reads "John Cridland". The script is cursive and fluid.

John Cridland
CBI Director-General



Before the financial crash it was fashionable to argue that the future of industry could be left to market forces. Times have changed. Ordinary people want a recovery that is balanced, sustainable and fair. And many businesses know that demand will only pick up if living standards rise.

Today, the key components of any intelligent industrial strategy – investment in innovation and skills, getting finance flowing so that companies can grow, using government procurement to help boost business success and secure, well-paid jobs – are supported right across the political spectrum, as well as by companies and unions.

But major long term challenges remain. Britain's research and development activity is way behind that of dynamic Asia. Catapult centres have made a good start, but need funding certainty. We need more companies to hire more apprentices. And, critically, the voice of workers and their unions must be heard alongside that of employers and shareholders.

We look forward to working to address these challenges in the months and years to come.

A handwritten signature in dark ink that reads "Frances O'Grady". The script is cursive and fluid.

Frances O'Grady,
Secretary General
Trades Union Congress



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Overview of working with sectors



Industrial strategy is providing support for all sectors of the economy to help increase global competitiveness, support innovation and maximise export potential.

Different sectors of the economy require varying degrees of government support and collaboration. At one end of the spectrum, much of the economy flourishes on its own. Here government efforts at all levels are best focused on making the UK an attractive place to do business through its policies on taxation, regulation and free and efficient markets, for example the recently established Competition and Markets Authority and the one-in, two-out rule for regulations committed to by the UK Government. Such horizontal policies have traditionally formed the bedrock of UK industrial strategy. However, a sector-based approach also has an important policy role as a tool within industrial strategy both to deliver more tailored support and to gain insights into how to design and deliver horizontal policies more effectively.

Looking through a sector lens has allowed us to identify eleven sectors that will benefit from a long-term strategic partnership and where this can make the most difference to the economy. These are sectors which are either already large contributors to the economy and/or where analysis shows there is likely to be significant increasing domestic and global demand that the UK has the potential to exploit, and where

Government involvement can have the greatest impact. Many of these are also enabling sectors which support growth across a large part of the economy or which generate significant pull through of key goods and services elsewhere. These strategies are being pushed forward by sector councils, each co-chaired by industry leaders and ministers from across government. These councils are at different stages of development and do not follow a standard model but are united by the principles of long-term partnership.

There are many more sectors which are benefitting from the industrial strategy approach, which is characterised by taking a more strategic view to develop long-term partnerships between industry and the whole of government. In some cases this is through joint strategies and forums co-chaired by industry and government, as with the Defence Growth Partnership and its strategy¹ launched last year. In others it is more light-touch: empowering sectors to work together to produce their own strategies; working with them to deliver on the opportunities and remove the barriers they have identified through regulation, support and coordination.

The following section of this report provides an appraisal from each of the chairs of the eleven sector councils and an overview of a number of the strong government-industry collaborations with other sectors.

¹ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/237314/bis-13-1154-defence-growth-partnership.pdf



Aerospace



A year ago the Aerospace Growth Partnership (AGP) published our strategic vision for UK aerospace – an ambitious plan to keep our industry at the forefront of the global market. It also

explained the progress made over the preceding two years, since the AGP was formed in 2011, and a forward plan of action. I'm pleased now to be able to report on the considerable progress we have made on implementation.

However, before getting into the detail on that, I want to pay tribute to all those who have contributed to the work of the AGP so far. It's been a pleasure working alongside my co-chair Michael Fallon, Minister for Business & Energy, who has made sure that our work has progressed at pace. We've had tremendous support from over 80 senior industrialists, representing companies of all sizes, backed by a superb team of full-time industry secondees. I also want to pay tribute to the BIS sector team, who have deep knowledge and experience of the aerospace industry and have contributed fully to all our work, providing excellent advice and ideas. We have also had strong support from the devolved administrations of Scotland, Wales and Northern Ireland, with the latter recently publishing a 'NI Partnering for Growth' document which provides a regional focus to the work of the AGP. This really has been a true partnership between industry and Government,

the like of which I have not experienced previously in my long career in aerospace.

So what have we achieved so far? Well, from an industry perspective, our work on the AGP and the strategy has successfully brought UK businesses much closer together, and we are seeing increased collaboration across supply chains, and stronger links forged between industry and academia. It's also clear, from my conversations with other CEOs around the world, that the AGP and industrial strategy is changing the way companies think about the UK as an environment for investment. A number of companies have already placed R&D projects here that would otherwise have been done overseas, and we are seeing new investment, which will sustain and create high-value jobs.

Our creation of an Aerospace Technology Institute (ATI) is a key part of that exciting new environment for investment. It will become fully operational shortly, with its HQ at Cranfield. In the meantime, managed through an interim industry-led group, we have made excellent progress in getting under way new collaborative R&D projects – spanning aerodynamics, propulsion, aerostructures and advanced systems – delivered through the Technology Strategy Board (TSB), using the first allocation of the £2 billion commitment from government and industry. £60 million ATI investment in seven projects was announced on 25 February 2014, involving ten different global companies, nine universities and five SMEs. Further announcements will follow shortly, including those coming from an open competition run by the TSB last autumn.

In addition, ATI funding is being used to strengthen critical bits of UK infrastructure: the Chancellor recently announced £38 million of investment in a new aerospace facility at the Manufacturing Technology Centre at Ansty; and £13 million of joint public and private funding has been committed to upgrade wind tunnels to support key aerospace projects.

We've made significant progress in tackling supply chain competitiveness issues. Last year we launched a £40 million National Aerospace Technology Exploitation Programme, backed with £23 million won through the Advanced Manufacturing Supply Chain Initiative. This helps small and medium sized businesses innovate technology, by working with higher tier companies, so that they can win increased business anywhere in the world. We are about to announce the first batch of successful projects, and the next round of bidding opportunities.

Work is under way to raise the capability of supply chain companies to increase their prospects of winning future work with Primes/ Tier 1s on future aerospace programmes. The 'Sharing in Growth' scheme is providing concentrated training and development programmes tailored to the assessed needs of a number of small and medium sized businesses and targeted at world class standards of performance. It is complementary to well established foundation programmes such as SC21 (Supply Chains for the 21st Century). We will look to see how we can build on this work. Our Supply Chain Finance Forum, involving banks and other finance providers, has engaged with over 500 SMEs to get a better understanding of some of the challenges they face. We will continue to work together to ensure that companies have the access to finance they need to achieve growth.

On skills, we created an additional 500 Masters level postgraduate places for aerospace, with joint funding by industry and government. The scheme awarded its first 100 bursaries last

year. It was great to see 14% of these going to women as part of our commitment of addressing under-representation in our engineering jobs. We plan to award a further 200 bursaries this year.

The Farnborough Air Show week, commencing 14 July, will be a real highlight in this year's calendar. It's a tremendous opportunity to ensure the UK wins the largest share possible of work that will come from the 29,000 new large passenger aircraft and 40,000 helicopters – worth over \$4.5 trillion – needed over the next 18 years. As part of the AGP's skills activity, we will also be holding a Futures Day at the Show which will involve over 10,000 young people participating in a range of exciting activities to promote the sector as a career choice.

So in summary, the past 12 months since we launched the Strategy have been a remarkable period, with many positive highlights which I have touched on above. But it's just the start. By the time of the Air Show in July, I will be in a position to report more progress in what has been a superb collaboration between industry and government. Long may it continue.



Marcus Bryson
Co-Chair
Aerospace Growth Partnership

Agricultural Technologies



We stand on the brink of an agricultural revolution. Climate change, consumer demands and the need to feed a growing population with dwindling resources are driving a re-think of the

way we work. We are in no doubt that this presents an outstanding opportunity for the UK in the race for better, more efficient and more sustainable agricultural production. With our strengths across the sector, from world class R&D to an internationally competitive food and drink industry, the UK is in a unique position to take a global lead in this revolution and to contribute to food and nutrition security in developing countries.

Agri-tech underpins our food and drink manufacturing sector, which is the UK's largest manufacturing sector, worth £25 billion. The entire agri-food supply chain – from farm to table – is worth £96 billion. *A UK Strategy for Agricultural Technologies* defines this new industrial sector for the first time.

The Strategy, published on 22 July 2013, is being driven forward by a newly-established Leadership Council, which brings together government departments, farming and industry representatives as well as the agricultural science community and research funders.

The Leadership Council is actively implementing the actions defined in the Strategy which realise our vision of enabling the UK to regain its world leading role in the race for better, more efficient

and more sustainable agricultural production. We have seen some early achievements already making an impact and have much to be proud of.

I have been delighted to see the Strategy has already catalysed new collaborations within the sector and there is a lively, open dialogue happening with academics and government about what the sector needs and how collaboration and joint investment can deliver, particularly for the formation of world class Centres for Agricultural Innovation.

The plans for the Centres for Agricultural Innovation, co-funded with industry, are really starting to take shape and I look forward to these supporting the wide scale adoption of innovation and technology, and developing skills and capability in the food and farming supply chain. Our first centre, for which the call for outline proposals is about to open, will be the Agri-Informatics and Metrics of Sustainability Centre. This is a fast moving field offering massive opportunity in the agricultural revolution and this global hub of excellence will place the UK at the forefront of this field. The Leadership Council, following consultation with business and researchers across the community, is making excellent progress towards the establishment of further centres to open in 2015.

In October 2013, we opened a £70 million Catalyst, to support businesses and academics to develop near-market solutions to agri-tech challenges. We announced its first projects in March 2014. These eleven projects received £2.8 million from Government alongside

£1.4 million from industry, and have potential for significant impact on the sector. But this is only the start, the second round of Catalyst funding closes in June 2014 and further rounds will follow.

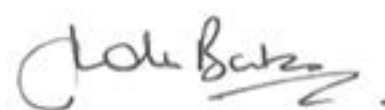
The newly formed Agri-Tech Investment Organisation, a unit within UKTI, is boosting inward investment, and the Agri-Tech Business Ambassador, James Townshend, is supporting a significant increase in exports of agricultural technologies. Earlier this year he visited Burma to understand the business opportunities and explore prospects for collaboration in establishing research and education links. Visits to the US, Argentina and China will exploit potential trade and investment opportunities further.

It is still early days and yet I've seen excellent progress built on the benefits of a clear statement from Government to the industry that the UK is open for business on agri-tech. We understand that as a result a number of multi-national companies are seriously considering the opportunities for new investment here in the UK and the UKTI team has helped secure a potential large Chinese investment through the China British Business Council.

Looking ahead, I see tackling the barriers to the uptake of new technologies and encouraging agri-tech as a technical discipline as two of the more significant, and long term, challenges that we need to address for the UK to seize the full potential available here.

We continue to seek to understand how skills, knowledge transfer and access to finance can support uptake of innovation and agri-technologies. Since its launch in November 2013, the Leadership Council has been working with the Agri-Skills forum to support the implementation of their strategy.

I want to ensure that all members of the agri-tech community know about the support, opportunities and funding available from the Strategy. The agri-tech sector has a number of large and successful players and yet it is in many ways highly fragmented with a large number of small businesses in this cross-sector community. We must ensure we engage in the broadest sense, not just with the science community, but with SMEs, farmers and consumers too.



Judith Batchelar
Co-Chair
Agri-Tech Leadership Council

Automotive



2013 was a great year for the UK's automotive sector. The year ahead promises even more.

Despite continuing economic woes that have stifled the automotive market and

manufacturing elsewhere in Europe, vehicle manufacturers in the UK have bucked the trend. Over 10,000 new jobs were created, and more than £2.5 billion in new investment was announced. Manufacturing output returned to pre-recession levels, with over 1.6 million vehicles and 2.5 million engines produced.

As a global trading nation, our increasing reach into international markets such as China and USA has played a key part. Exports rose by 17%. We can be proud that, here in the UK, we have some of the most productive and innovative vehicle design and manufacturing plants in the world.

It is a fantastic story. But it is not the whole story. There are also key challenges for the sector, and further opportunities to be grasped. I will single out three here.

The success of our vehicle manufacturers has not been paralleled by supply chain growth and investment. We have many world class suppliers, but others must raise their game – and we must attract more of them – if UK-based companies are to take a slice of the estimated £3 billion of additional business each year that remains to be won.

Many companies struggle to find the skilled engineers and technicians that they need. With the return to growth across the sector, it is a problem that has become more urgent and pronounced. We need more young people to feel the same excitement that I did as a child at the prospects of a career in automotive, and to recognise the jobs and career paths that are available. It is vital we have the right recruitment, training and development structures in place, and support companies to continuously up-skill their people.

The third key area is technology. We are joined in a global race to develop more intelligent, lower carbon and highly efficient mobility solutions for the 21st century. There will be winners and there will be losers, for both companies and nations. We must build upon our existing strengths and position the UK as an undisputed world leader, not a follower in the new technologies.

It is against this backdrop that, in July last year, the UK Automotive Council worked with Government to publish: *Driving success – a strategy for growth and sustainability in the UK automotive sector*.

Extending the spirit of constructive collaboration exemplified by the Automotive Council itself, the Strategy marks a further landmark in cross-industry leadership and in working with Government. It sets out a shared view of the key challenges and opportunities and an action plan to address these.

The Automotive Council is now focused on delivering the Strategy. It is a Strategy for the long term, but we are making excellent progress. In particular:

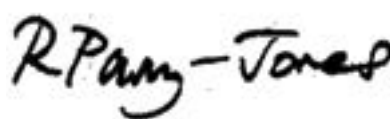
- The £1 billion Advanced Propulsion Centre is a reality: the Chairman and CEO of APC UK Ltd are in position; the winners of the first R&D competition are starting their projects in April 2014 and a new challenge is being launched; and the competition to host the permanent location of the APC is well underway to be decided by the summer. Key decision makers in the automotive sector worldwide are sitting up and taking notice of the long-term public and private commitments to invest that the Centre represents.
- The Automotive Investment Organisation is now fully operational under the leadership of ex-Ford Chairman Joe Greenwell, with an extensive programme targeting new inward investment in the UK supply chain. We will see the fruits of this early work build through the course of this year, as the AIO's efforts increasingly turn promising leads into new investment successes.

This is a good start, but it is just that. In the year ahead there is much more we must achieve in addressing the issues I have set out. Key areas include:

- Redoubling our efforts to boost supply chain growth and investment, and to help more companies of all sizes achieve the world class performance that will enable them to win new business.
- Advancing with vigour our action plan to create a "skills pipeline", through improved information and advice for young people, more and better apprenticeships, high quality graduate and post-graduate training, and responsive vocational training to help companies to up-skill.

- Through the Council's new Business Environment & Skills Group, tackling the key competitiveness, policy and macro-economic issues that will cement the UK as the best place in the world to do automotive business.

On a final note, as part of our Strategy we must stay attuned to new issues and opportunities that may emerge, and that may now be on the far reaches or beyond our horizon. Our Strategy must remain a living document.



Professor Richard Parry-Jones, CBE
Co-Chair
Automotive Council UK

Construction



On 2 July last year *Construction 2025 – an industrial strategy for construction* was published. At the same time, the Construction Leadership Council was established.

The Strategy sets out some bold aspirations for the industry for 2025 – a 33% reduction in initial and whole life costs of construction, a 50% reduction in the overall time from inception to completion for construction projects, a 50% reduction in greenhouse gas emissions in the built environment and a 50% reduction in the trade gap between total exports and total imports for construction products and materials. Let me be absolutely clear that these are challenging and stretching ambitions.

It is these ambitions that the Construction Leadership Council has come together to deliver. This is a new and exciting venture.

From my perspective, the Construction Leadership Council and its Delivery Group bring the whole industry much closer together. It provides the key forum for the industry to identify and deliver priority actions which will help achieve the transformation we are seeking. Importantly, it also brings the industry much closer together with a range of key Government Departments – the Department for Business Innovation and Skills, HM Treasury – Infrastructure UK, Cabinet Office – Efficiency and Reform Group, Department for Energy and Climate Change and the Department for Communities and Local Government are all

playing an active role alongside key industry players. As well as key bodies like the Technology Strategy Board, the Engineering and Physical Sciences Research Council and the Construction Industry Training Board.

How then are we tackling the challenge of these stretching ambitions?

Well, it all starts with having a clear understanding of the future pipeline of work. This is especially important for construction firms right through the supply chain, where work is generally project based and short term, which makes longer term decision making more of a challenge.

We are making good progress. The Government published its most recent version of its construction and infrastructure pipeline on 5 December 2013. We are seeking to build on this by developing private sector pipelines too. Earlier this year, Manchester Chamber of Commerce published its pipeline which looked at the question from a local / regional perspective. This is important as many construction firms are regionally based.

Construction was hard hit by the downturn. This has been particularly felt by the very many small businesses working in the industry. As the economy starts to improve, it is even more important that industry creates the conditions for its supply chain to thrive. If we do not do that, then those important businesses in our supply chains will be unable to invest in their own skills or innovate their products and services. And if they are unable to do that, we will not achieve our ambitions.

The Leadership Council is rising to the challenge of tackling payment issues in the industry. This is not an easy nut to crack but we have been well supported by the Institute of Credit Management. I am delighted to say that the Construction Supply Chain Payment Charter has been agreed by the Council. The Charter commits signatories to a maximum of 45-day payment periods, ramping down to 30 days by 2018. This is a significant step forward for the supply chain and work will now commence on the development of monitoring arrangements for the commitments made by the signatories to the Charter.

As the economy continues to recover, skills challenges are becoming more acute. While this is generally the case across the board the issue is currently particularly acute in the house building sector. In the past, it was typically the case that house builders would compete for skills. Through the Leadership Council we are undertaking an exercise to get them to collaborate. We have taken the first step and settled on two priorities. The first is collective activity to promote the image of the house building industry and to promote its attractiveness as a career option for young people. The second is a specific piece of work about identifying people who left the industry during the recession and attracting them back.

There are tremendous opportunities for the industry in green and sustainable construction. And again here we are making good progress. In November last year, the Green Construction Board and HMT – Infrastructure UK published the Infrastructure Carbon Plan.

These are early days for the Construction Leadership Council. We are starting to tackle a number of key issues, looking at short-term priorities while keeping a clear focus on where we would like our industry to be in 2025. With the support we continue to receive from across industry and across Government, I am sure we can make real strides towards a modern

industry delivering twice as quickly, offering a third better whole life value, producing half as many emissions and halving the sector's trade gap.

A handwritten signature in black ink, appearing to read 'D Higgins', followed by a long horizontal line extending to the right.

Sir David Higgins
Co-Chair
Construction Leadership Council

Information Economy



The UK tech sector contributes 8% to UK GVA and employs 1.2 million people.² Rapid innovation in core technologies, networks and services is driving fundamental change across every sector of

the economy and a significant amount of that innovation is being pioneered here in the UK.

From the design of electronic systems and the development of 5G wireless technologies to the exploitation of data and the internet of things – the UK has a rich ecosystem of companies large and small, new and established, who are pioneering innovation and excellence.

However, given the size of the global opportunity we need to aim higher and go further, faster. So a key aim of the Information Economy Council (IEC), building on the *Information Economy Strategy* published in June 2013, is to help the sector achieve greater scale and strengthen its long-term global competitiveness.

In its first year the Council has worked to understand the requirements for growth, as well as the existing landscape of policies and initiatives.

Three conclusions have emerged:

- First it is clear the UK has great potential. We have a rich base of established

companies and a thriving tech start-up scene. The tech sector in London grew by 16.6% between 2009 and 2012, and we have many strong clusters throughout the country.

- Secondly there is a lot of activity focused on the sector – from rural broadband to export support. The private sector is actively engaged, whether in mentoring start-ups or providing volunteers to run Code Clubs.³
- Thirdly, much of this activity is fragmented, some is subscale, and there is a need for greater coherence.

The Council is focused on three areas: skills; future technologies and infrastructure; and the business environment and confidence.

Skills

- Skills shortages are a common denominator across the sector. Many companies report difficulties in filling vacancies and are concerned about the future supply of skills.
- We have developed an Industrial Partnership for skills in the information economy that will lead to 100,000 more young people being likely to pursue technology careers by 2018. Subject to contract, employers and government will invest in the region of £85 million in the Partnership.
- However the IEC Skills Working Group is also developing other measures to improve the pipeline and flow of people into the

² In 2012

³ See Code Club for volunteer stories <http://blog.codeclub.org.uk/2014/01/06/volunteer-story-chris-hayhurst/>

sector, including exploring the potential use of Massive Open Online Courses (MOOCs).

Future technologies and infrastructure (FTI)

- The FTI Working Group has focused on understanding requirements and activities in the areas of cyber security, big data and data analytics, infrastructure and smart cities to identify gaps and recommend actions.
- There is a lot of good work being done in these areas but there are gaps and areas where initiatives are not joined up. The IEC is working with the Cyber Growth Partnership, the Smart Cities Forum, the Connected Digital Economy Catapult and the Digital Communications Infrastructure Strategy to address these issues and drive coherence and effectiveness.

Business Environment and Confidence (BEC)

- The BEC working group is focused on three issues: better understanding the size and capabilities of the UK sector; identifying actions that would help more companies to scale more quickly; and ensuring trust and confidence in a rapidly changing digital world.
- Effective strategic decisions depend upon having good data. The IEC is not confident that official statistics are keeping up with the pace of change in the sector. We are keen to develop a more accurate and timely way to define and measure the sector.
- Many great companies have originated in the UK but not enough have reached a globally competitive scale. The IEC wants to change that so that more companies reach scale more quickly and will make recommendations on this issue in the summer.

- Finally, if there is a single issue that impacts the future of all companies in the sector it is data. Data is the fuel of the information economy. Used effectively it enables us to understand the world around us and transform the way we do things. Maintaining the trust and confidence of businesses, consumers and citizens is a fundamental requirement. Ensuring we have a regulatory framework that instils trust and confidence whilst enabling the productive and effective use of data will be a key focus for the IEC this year.

The UK's future prosperity depends upon it being a leading information economy. This is a global race and it is one the UK can win through a combination of scientific excellence, creativity and commercial innovation.



Victor Chavez
Co-Chair
Information Economy Council

International Education



Education exports play a crucial role in the delivery of the UK's ambitious industrial strategy – as co-chair of the International Education Council I am pleased to be able to report on notable

successes by members of the Council and more broadly across the sector.

Globally, education is the second largest sector after healthcare. The UK education system is renowned worldwide: we have world class universities, our vocational education and professional qualifications are admired around the globe, and our research base is highly productive. British schools overseas attract students from all over the world and our English language training capabilities are in high demand. British companies are leading the way

in educational technology, products and services. The combination of these strengths meant that education exports were worth around £18 billion to the UK in 2012.

Published in July 2013, the *International Education Strategy: global growth and prosperity* set out for the first time how Government in partnership with the whole education sector will build on our broad strengths to grow the economy and our position in the global marketplace. Since then, the following progress has been made on our strategy objectives:

- Providing a warm welcome to international students who enrich our campuses and our communities culturally, intellectually and economically. There is no limit to the number of legitimate international students who can come here and we are doing everything we can to communicate this message widely

UK Education technology connecting the world

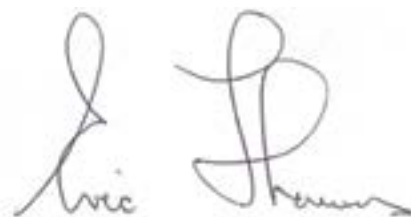
Jisc is a charity which supplies ICT services to the UK's higher education, further education and research sectors including the Janet computer infrastructure which connects UK universities, FE Colleges, Research Councils, Specialist Colleges and Adult and Community Learning providers. In 2013 Jisc initiated a programme of activities to facilitate the UK education sector's business in the global markets of interest. The Janet Global Connect service, an early result of this programme, now provides cost effective high bandwidth connectivity for the Universities of Southampton and Newcastle in Malaysia. Discussions are now underway with other universities who require connectivity to existing or planned branch campuses on a global basis. Jisc has also established a Strategic Alliance with CERNET, the Higher Education network in China, which reduces the cost and increases the quality of connectivity to UK-China Transnational Education partnerships; similar partnerships are being explored in other countries around the world.

and consistently. That's why we have refreshed the Education UK recruitment service to provide prospective students with more comprehensive information about study opportunities in the UK. Also overseas, for example in India, we are using the 'Education is GREAT' campaign to promote UK education.

- For those students who prefer to study in their own country, we must further develop our transnational education (TNE) capacities. The UK Higher Education International Unit and the Quality Assurance Agency for Higher Education have published a consultation on strengthening the quality assurance for UK TNE. This is a very welcome step and the response will help us to ensure that the products we offer continue to be world class.
- We also aim to lead the world in education technology. The UK hosts the global education technology conference, Bett, which showcases the very latest and leading technology for learning. Bett 2014, the 30th Bett was the largest ever. Whilst this is an international event, UK exhibitors are the vast majority and range from a constant stream of innovative start-ups to brands established internationally, confirming the UK's wide ranging offers at all levels of education. The scale and success of this event confirms the global interest and importance of technology to contemporary learning. That's why the Technology Strategy Board is actively developing a programme of support for education technology which will mean we are nurturing the education technology leaders of the future. FutureLearn is already a leader in the world of Massive Open Online Courses (MOOCs). Born out of the Open University, FutureLearn has 29 partner organisations including universities in Australia and New Zealand. Over 200,000 people, from over 190 countries, signed up for its courses in the first eight weeks.

- As part of our plans to build new relationships with emerging powers, the Budget in March 2014 confirmed that funding for Chevening scholarships to the UK will be tripled in 2015.
- Finally, the theme of building the UK brand in order to seize new opportunities is greatly aided by the creation of the 'UKTI Education' team. The team works to raise awareness amongst the UK education and training sector of high value opportunities, and to put together high quality UK consortia which can respond to opportunities and win business. In 2013/14 the team helped UK education organisations to win contracts to the tune of £400 million. Earlier this month UKTI Education announced UK success in the Saudi Colleges of Excellence programme worth £850 million. This means the team has already met its ambition to support £1 billion of contracts by 2015.

Looking ahead, there will be a wide range of work encompassing all aspects of our education system that support the implementation of our strategy. The main priorities for the remainder of 2014 are to continue to grow our education exports (which is being so ably led by UKTI Education), ensuring we provide a warm welcome to international students (particularly focusing on ensuring they have a high quality learning experience whilst they are in the UK) and implementing the new £375 million Newton Fund for collaborative research and innovation with emerging powers.



Sir Eric Thomas
Co-Chair
International Education Council

Life Sciences



The UK life sciences industry is high-tech, research-intensive, innovative and highly diverse, spanning bio-pharmaceuticals, diagnostics, devices and medical technology engineering. Our companies play a key role in sustaining high value-jobs, and are vital to the delivery of modern high quality healthcare to patients across the UK and beyond. We have one of the strongest and most productive life sciences sectors in the world generating turnover of over £50 billion, with approximately 5,000 companies employing an estimated 176,000 people in the UK.

The *Strategy for UK Life Sciences* sent a strong signal to investors, business leaders and the life sciences sector that the UK is open for business, that the NHS presents unique opportunities for translational research and clinical trials, and that we have a skills base and financial climate that is good for R&D and manufacturing. In the last two years, £2 billion of industry and private sector investment in the UK has been announced. Government has committed £1 billion through the Research Councils and £2 billion through the National Institute of Health Research (NIHR).

Achievements and Challenges

There has been good progress in addressing the challenges faced by smaller, research intensive companies in accessing funding, and to develop an infrastructure which connects academics, industry, investors, clinicians and the NHS.

The £180 million Biomedical Catalyst has been incredibly popular in providing public funding alongside private investment to support small businesses and academia to progress ideas for innovative medicines and technologies from discovery through to commercialisation. To date £146.3 million has been awarded to 186 projects from the Biomedical Catalyst, leveraging over £77 million of additional private sector funding.

The Cell Therapy Catapult in London is a unique UK wide centre of excellence providing infrastructure, expertise and services to businesses and academia to develop cell therapies for a wide range of human diseases.

There has been steady progress in reducing R&D costs for businesses investing in UK.

A Clinical Practice Research Datalink service has been introduced, which along with the Health and Social Care Information Centre brings together anonymised NHS clinical datasets to further medical research. We now need to improve the quality and accessibility of this data.

A 70 day benchmark for the recruitment of the first patient onto clinical trials has been introduced into new NIHR contracts with NHS

service providers. The next step is to put suitable metrics in place to track performance against these benchmarks.

The UK remains at the forefront globally in many areas of Life Sciences. However, we must reinvigorate the Innovation Health and Wealth agenda and improve the adoption and diffusion of innovation within the NHS if we are to achieve our twin goals of improving patient care and making the NHS an engine for growth.

The NHS must ensure that patients gain routine access to the latest clinically and cost effective medicines. The new Pharmaceutical Price Regulation Scheme (2014-19) provides the opportunity to accelerate the pace of change in this area and to improve the UK's global standing in the use of these new treatments.

The complex and many financial, operational and performance incentives throughout the NHS need to be aligned and should be supported by a pro-innovation procurement approach for medical devices.

Fit-for-purpose medical device technology evaluation methods need to be co-developed and implemented, including 'commissioning through evaluation'.

Academic Health Science Networks must support the NHS and industry to succeed, by helping to remove barriers to the spread of innovation and by facilitating better regional joint working and decision making.

The implementation of a workable Early Access to Medicines scheme will facilitate patient access to medicines where there is high unmet need.

With the Government recognising the huge potential of our sectors, we are already working together to identify and capitalise new opportunities for UK life sciences and to take the lead globally. For example, the *Medicines Manufacturing Industry Partnership* provides an excellent model for achieving more in other areas such as the UK R&D landscape, and access to finance and strengthening supply chains for companies in the medical devices and diagnostics sectors.

There has never been more global competition for life sciences investment. We want to ensure the UK remains one of the locations of choice for pioneering life sciences R&D and manufacturing, so that we continue to be a key contributor to sustained economic growth and health improvements. This can only be done with strong leadership, collective ownership and clear lines of accountability from each organisation involved. We stand ready to work in partnership with Government to achieve this.

Pascal Soriot

Pascal Soriot
Co-Chair
MISG

Harry Keenan

Harry Keenan
Co-Chair
MMTSG

proteus
DIGITAL HEALTH



In the face of fierce competition California based **Proteus Digital Health™** has chosen to bring transformative digital health technology, global operations and manufacturing to the UK. The partnership was facilitated by NHS England and the UKTI Life Science Investment Organisation (LSIO). Proteus Digital Health™ is creating a new category of products – called digital medicines. These “smart pills” contain a tiny edible sensor that communicates with a patch to deliver vital information about an individual's medication-taking behaviour and how their body is responding to therapy.

Nuclear



A nuclear renaissance is occurring in the UK. This includes a generation of new nuclear power plants, providing low carbon energy, as well as R&D, design, construction and operation,

decommissioning and waste management.

A successful new build programme is pivotal to seizing the economic benefits from this renaissance, domestically and globally. Hinkley Point C project – the first new build in the UK for 20 years – is a critical milestone for the industry, not just the new build programme. UK manufacturing must rapidly capitalise on the opportunities. Big opportunities also exist for business in the existing nuclear fleet, and in decommissioning. The Nuclear Decommissioning Authority (NDA) spends £1.6 billion per annum on its supply chain – £10.4 billion since 2005 – with plans for 18% of that by value to go to SMEs.

Underpinning this is cross-party political consensus and a positive environment of public opinion and stakeholder support. That must be maintained. But significant challenges remain, particularly EU state aid clearance for Hinkley and securing community support for a geological disposal facility. That will also depend on the successful delivery of new plants to time and budget, and continued improvement in operational efficiency of existing generation.

Responsibility for delivering a new nuclear programme falls to industry itself. With the right facilitative actions by government now in place, industry is preparing to meet the challenge.

The momentum behind nuclear new build focuses attention on business and job opportunities. UK industry needs to meet the requirements of supplying the nuclear market both in new build and in decommissioning by developing capacity in facilities and skills. The opportunities in domestic and export markets are huge.

Nuclear cost competitiveness compared with other low carbon technologies is essential for maintaining public support and financial commitment from investors. The challenge for other low carbon technologies is to reduce costs towards the level of nuclear generation, for nuclear power the challenge in the short to medium term is to avoid cost escalation.

The Nuclear Industrial Council (NIC) has been operating for a year. It has built a common approach across industry and government to the challenges and priorities for the sector, drawing on a significant contribution of management time from industry and building on existing initiatives. For this to work well, government and industry will need to be open and honest about future challenges, and allow time for meaningful consultations so that we continue to share a common vision.

Some good initiatives are underway already. The Programme Management Board is assessing the readiness of UK manufacturers to exploit market opportunities. And for SMEs

there is the new nuclear supply chain SME partnership, targeted at the new build market, which builds on the NDA's existing SME programme. Government is helping industry improve its competitiveness through, for example, the Nuclear Advanced Manufacturing Research Centre and the Manufacturing Advisory Service. Skills development is being supported through initiatives like Give2Gain, an employer-led scheme (mainly SMEs) coordinated through the National Skills Academy for Nuclear which will improve workforce skills and help drive up productivity and growth through apprenticeships, work placements and improving science, technology engineering and mathematics (STEM) skills. A national nuclear college will be developed in consultation with industry to meet business needs, building on existing excellence in this area.

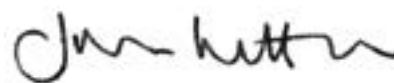
Different activities underway must be closely aligned to ensure the UK nuclear industry, working with the research community, takes advantage of the UK's outstanding strengths in science, technology and innovation, helping deliver real economic benefit for the UK. That underlines the importance of effective links between industry and researchers, including the development of new technologies, such as Small Modular Reactors. The new Nuclear Innovation and Research Advisory Board will play a key role in connecting R&D experts and industry technologists to provide a coherent and authoritative view about future research priorities.

Recognising the importance of successful delivery, of maximising the economic opportunities from the nuclear renaissance and of maintaining public support, I believe there are three priorities for the NIC:

- Demonstrating and supporting the capability to deliver new build, operation and support of the existing fleet and successful decommissioning.

- Building the necessary capacity and skills to meet the requirements of a growing nuclear programme in the context of huge demands from other areas of energy and infrastructure.
- Delivering projects to time and within budget, and improving the competitiveness of nuclear.

A considerable effort is being made on all three, and that will need to continue to achieve near and long-term benefits in the UK and in export markets.



Lord Hutton
Co-Chair
Nuclear Industrial Council

Offshore Wind



We have seen a year of significant change and growth in the offshore wind industry. The UK remains the world leader in offshore wind deployment and the most attractive location in the world for offshore wind investment.⁴ 2013 saw the two largest offshore wind farms in the world becoming fully operational at London Array and Greater Gabbard in the Thames Estuary.

This growth is creating jobs in the UK. Employment in the UK offshore wind industry more than doubled between 2011 and 2013 and there are now more than 6,000 people directly employed in the industry, with a similar number of indirect jobs in the wider supply chain.⁵

Local areas around the country are reaping the benefits of new investment to enable construction and operation of offshore wind farms – such as at Belfast Harbour in Northern Ireland, on the north coast of Wales and the east coast of England. And we have UK companies winning business to produce key components such as cables, substations and foundations for the turbines. Examples include JDR Cables in Hartlepool providing array cables

and Burntisland Fabrications in Fife supplying foundations for the industry.

Looking forward, there is potential for offshore wind to contribute much more to the UK economy. Investment in turbine manufacture in the UK, and growth in the wider and deeper supply chain, will bring significant economic benefits. Just last month Siemens and Associated British Ports announced major investments in offshore wind turbine production and installation facilities in the Hull area which will create 1,000 new jobs directly.

The Offshore Wind Industry Council is enabling government and industry to work together in partnership on the issues that matter to the industry. The Council brings together developers, the supply chain, UK Government, devolved administrations and The Crown Estate to collectively identify and implement solutions. The Council is working on three fronts: removing barriers to offshore wind in the UK; reducing costs; and building a competitive UK-based industry. The *Offshore Wind Industrial Strategy*⁶ provides the framework for the Council's work to build a competitive UK-based industry. The Council is supported by the Offshore Wind Programme Board, which is delivering concrete actions to support these aims.⁷

During 2013, the central issue for the Council was Electricity Market Reform, recognising that it is vital for the success of the industry that the new support framework for low carbon

4 Ernst & Young (Feb 2014), *Renewable Energy Country Attractiveness Indices*

5 RenewableUK/energy&utilityskills (September 2013), *Working for a Green Britain & Northern Ireland 2013-23*

6 HM Government (August 2013), *Offshore Wind Industrial Strategy: Business and Government Action*

7 *Offshore Wind Programme Board Annual Report* (Feb 2014)

In a major boost for the offshore wind industry in the UK, Siemens and Associated British Ports are jointly investing £310 million in offshore wind turbine production and installation facilities in the Hull area. The investment is spread across two sites: a construction, assembly and service facility at Green Port Hull and a blade manufacturing facility in nearby Paull, East Riding. These will create up to 1,000 jobs directly, with additional jobs during construction and in the supply chain. Local Councils, the Local Enterprise Partnership, DECC, BIS and UKTI worked closely to attract these investments, which are fantastic news for the Humber and underline how attractive the UK is for overseas investors.

electricity provides the certainty needed to underpin long-term investment. December 2013 was a significant milestone, with the Energy Act passed and the Electricity Market Reform Delivery Plan published, along with the strike prices and contract terms on offer for development of new offshore wind farms.

In parallel with its input to Electricity Market Reform, the Council has been working towards its aim of building a competitive UK-based industry. Whilst the UK has a strong track record in some parts of the offshore wind supply chain,⁸ such as project development, installation and operation & maintenance activities, the challenge is to enable the UK to win a greater share of the manufacturing contracts. The Council is determined to support the growth of a strong UK-based industry and welcomed a number of new initiatives launched during 2013:

- The Offshore Wind Investment Organisation, based in UKTI, is working to attract inward investment into the UK supply chain and to support developers on their supply chain plans.
- The Manufacturing Advisory Service *GROW:Offshore Wind* programme is supporting companies in England who want to get into the offshore wind supply chain, with similar support on offer in the rest of the UK.
- The Offshore Renewable Energy Catapult centre in Glasgow will help companies bring new technologies to market.

- New offshore wind *Share Fair* events, facilitated by the trade association RenewableUK, alongside an industry project timelines publication and other activities, are helping to make procurement requirements and timelines more visible to the supply chain.

In 2014, we expect to see outputs from the initiatives launched last year and continued action from developers and the supply chain to enable competitive UK companies to win business. Following Government consultation and engagement with the industry, we are anticipating regulations under Electricity Market Reform that will see developers preparing supply chain plans showing how their projects support the long term economic growth of the supply chain, in particular how they foster innovation and competition and support the development of skills.

2014 is set to be a defining year for the offshore wind industry in the UK. As the outgoing and incoming industry Chairs of the Offshore Wind Industry Council, we are clear that the Council will play its part in making it a successful one.



Keith Anderson
Outgoing Co-Chair
Offshore Wind
Industry Council



Benj Sykes
Incoming Co-Chair
Offshore Wind
Industry Council

⁸ Report for BIS by BVG Associates (Feb 2014), *UK Offshore Wind Supply Chain: Capabilities and Opportunities*

Oil and Gas



The Oil and Gas sector remains important to our economy. We employ 450,000 people and contribute £6 billion in production taxes. UK's oil and gas reserves will be needed to meet up to 70% of

the UK's energy requirements into the 2040s. That oil is harder to reach in increasingly harsh environments. Making a success of these challenges provides a platform for exporting our business expertise globally. This is the background to our sector strategy and I am pleased to report some of the progress we are making.

For the first time in the history of our sector we are building a profile of the businesses in our sector: the newly completed offshore supply chain mapping analysis will help us target areas of growth and I am excited by the prospect of using this work to focus technology developments, business finance and skills requirements on these opportunities.

Our sector is full of world leading business expertise and our strategy identified the need to better promote these businesses to the operators. In January 2014 Government and Oil & Gas UK jointly published a Fabricator's Directory setting out the capabilities of UK yards. This is helping to promote our fabricator businesses both at home and abroad and further work will follow to achieve this aim.

Our strategy has been given new impetus by Sir Ian Wood's recommendations for further

development of the UK continental shelf (UKCS) and I look forward to seeing his recommendations brought to life.

The success of this depends in part on making strides in technology development to enable extraction of remaining hydrocarbons in the UKCS. A new Technology Strategy Group will identify market need for new types of technology and will help enable the supply chain to deliver the right solutions. Government has supported the creation of the new Neptune Centre in Newcastle bringing a new focus for subsea expertise. In Scotland a new Oil and Gas Innovation Centre has been established. These form part of a network of existing centres of expertise which we will be working to better coordinate and integrate going forward.

Dialogue continues between Fabricators and Operators on the role and application of Performance Bonds to underwrite contracts in the supply chain. This is helping to clarify the business needs of suppliers and operators. The new Business Bank is considering whether there is a role for them going forward.

Our sector skills body OPITO has established a Transition Training Programme to retrain ex-military personnel. Thirty three people have successfully completed the scheme and found employment. 260 personnel attended Oil and Gas industry awareness sessions with a further 200 expected to attend by the end of April 2014. Ex-servicemen and ex-service women are proving a real success when deployed across our sector. We look forward to working with government to develop the skills and supply chain necessary to benefit from the UK's

oil and gas reserves, both offshore and onshore, as announced at Budget 2014.

Our sector is a huge exporter and the UKTI “High Value Opportunities Programme” has at its heart oil and gas projects around the world. These deliver over half of UKTI’s value targets and much of that value is achieved by operators championing the UK supply chain overseas. The Export Advisory group, under the chairmanship of Trevor Garlick from BP, is playing a key role in driving this forward.

A closer working relationship is being forged with both the offshore wind sector and with the onshore industry. Opportunities will emerge through shale gas exploitation for businesses in the UK which have traditionally served the offshore sector. Going forward our strategy will grow to encompass and include this new market potential.

Decommissioning will provide an opportunity for UK businesses to export world leading expertise. Of course we want to see maximum extraction before decommissioning commences. This year we have developed a new Governance and strategy framework and Oil & Gas UK will execute this decommissioning strategy through 2014.

We continue to work through the Treasury’s Oil and Gas Fiscal Forum to maintain stability across fiscal measures and encourage investment in the UKCS. The Decommissioning Relief Deeds and Brown Field Allowances have both been delivered but we are disappointed with the recent Bareboat Chartering proposals from HMRC which threaten to undermine this essential dialogue. Recent consultation has resulted in several changes but we are still concerned that the proposed measure will impact adversely on exploration activity which is key to the future of the sector.

The first year has seen the successful delivery of most of the identified actions. Our task now is to focus that strategy on supporting further sector growth. The Council is building on the existing themes using data from supply chain and skills analysis. More work will be needed to develop the technology strategy, focus investments and network expertise to meet the technical challenges facing the North Sea environment.

A handwritten signature in black ink, reading "Gordon Ballard". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Gordon Ballard
Co-Chair
Oil and Gas Industry Council

Professional and Business Services



The Professional and Business Services (PBS) sector is the UK's largest economic sector, contributing 12% of UK employment and 11% of Gross Value Added (GVA).

It includes legal

services, accountancy, consultancy, architectural and engineering services, advertising and marketing, employment services and more. Exports of high-value services are a key UK strength, with PBS contributing over a third of our total trade surplus in services. Indeed, the sector's exports exceeded £50 billion for the first time in 2012-13. A successful PBS sector is clearly fundamental to the UK's growth prospects, with latest figures showing annualised GVA growth in PBS of nearly 7% in 2012-2013.

This performance is testament to the sector's resilience in the face of the economic challenges of recent years. The professionalism, innovation and diversity of UK PBS are second-to-none.

The sector strategy for PBS – *Growth is Our Business* – was published last July. It represents a new era of partnership between industry and Government; working together to ensure that the UK's internationally recognised excellence in PBS is maintained and enhanced. The strategy sets out actions in areas vital for UK PBS: the business environment, skills and trade.

A key priority is a new trade strategy for PBS. Despite the sector's export performance, it has not explicitly been a priority for UK trade promotion but this is now changing. The challenge is to make the most of this new focus on PBS exports by promoting what our sector has to offer in key target markets. This includes planning UKTI trade missions to Canada and Latin America, as well as my visit with UKTI promoting UK PBS in India later this year.

The London Professional Apprenticeship (LPA)

The LPA is a new way of learning for London that will create the next generation of networked business people. It enhances PBS Apprenticeships by providing additional support, including business networking, mentoring and London-specific training to help recruits succeed in the Capital. Occupations supported by the LPA include: accounting, bookkeeping, business administration, HR, project management, management consulting, legal administration, payroll, tax and audit services.

The success of the sector is dependent on our ability to recruit highly skilled and motivated individuals from all walks of life. With 600,000 jobs expected to be created in the sector by 2020, widening access to skills is critical. We have established a PBS Skills Taskforce to lead our work on this. It is already yielding results, with the launch of an innovative London Professional Apprenticeship scheme that brings together 250 newly-recruited PBS apprentices in the Olympic growth boroughs.

The PBS sector already engages more 'higher level' (post A level) apprentices than any other sector. Building on this, our strategy includes an ambitious commitment to treble the number of higher level PBS apprenticeship starts to 10,000 per annum by 2018. Our Skills Taskforce is therefore seeking out opportunities to extend employer-led apprenticeships to new parts of the sector and to promote them as an important pathway into fulfilling PBS careers.

PBS firms have a diverse clientele in the UK and abroad and require a skilled workforce that is also diverse. Creative businesses find they need diverse staff in order to innovate and 'spark' new ideas in a fast changing environment. It is essential that candidates of the right calibre are able to reach us, regardless of their background. In addition to new apprenticeships, we require a genuine cultural change which improves people's perceptions of alternative routes into the sector.

The UK's business environment is fundamental to our competitive position and to attracting inward investment. The recent performance of the sector, and the economy as a whole, illustrates that efforts to improve the environment for business are paying off. PBS firms are working in partnership with Government to deliver programmes to support growth, including Growth Accelerators and a new £30 million Growth Voucher scheme, which will boost access to professional advice for the smallest firms.

The PBS sector is client-focused, and works for businesses and individuals across the UK economy. The PBS Council is therefore well placed to offer insights on the performance of the economy and to advise on making the UK's business environment even better. We are keen to ensure that the views of businesses, especially SMEs, are reflected in implementing our PBS strategy. Our outreach programme, in which I have been personally involved, is therefore engaging with businesses across the country. We will continue working with the wider sector and Government to help ensure that economic recovery is secured.



Sir Michael Snyder
Co-Chair
PBS Council

Working in Partnership with All Sectors



Industrial strategy is for all sectors. There is no one model for government engagement with industry. The sector partnerships described in the preceding pages all differ according to the needs of the particular sector. Similarly, government interaction with other sectors is also tailored and driven by the needs and growth potential of each sector, as well as the value of government intervention – including engagement with the Devolved Administrations which, where appropriate, have been involved in and consulted on the focus and delivery of these industry-led activities, such as rail, electronics and chemicals. Some examples of this flexible approach across a range of sectors are set out below. This is not intended to be exhaustive – many more sectors benefit from close ties with central government, agencies and the devolved administrations, or simply from the business-friendly environment government is creating.

- **Chemicals:** Whether in household products, in food or medicines, or in advanced materials, fuels and process technologies, supporting the UK chemicals sector is fundamental to our economy and quality of life. In 2012, the UK chemicals sector generated annual sales of nearly £31 billion, accounting for 11% of all manufacturing exports by value, and employed over 111,000 people directly.

The sector generated £8.6 billion in Gross Value Added (GVA) in 2012, and contributed a total of £591 million in R&D investment. As well as being an important sector in its own right, the chemicals sector also

underpins growth across manufacturing industries, providing inputs in sectors such as aerospace, automotive, energy generation and supply, and life sciences.

In order to drive strong, innovative and industry-led growth, the sector has come together to form the Chemistry Growth Partnership (CGP). This sector council for chemicals and chemicals-using companies is co-chaired by Michael Fallon, Minister of State for Business and Energy, and Neil Carson, Chief Executive of Johnson Matthey. At its inaugural meeting in October 2013, the CGP launched its growth strategy, *Chemistry at Work: A Strategy for Delivering Chemistry-fuelled Growth of the UK Economy*.

This strategy sets out an ambitious target of 50% growth in sector GVA by 2030. To help deliver this, the CGP is undertaking collaborative work streams on three priority areas – securing competitive UK energy and feedstock supplies; accelerating innovation; and rebuilding UK chemistry supply chains. Going forward, the CGP will address further key issues such as skills, exports and local growth, and continue to work in partnership with Scottish Enterprise throughout the implementation of its chemicals sector strategy.

"In coming together as the Chemistry Growth Partnership, the UK chemicals industry can ensure that we continue to grow, to innovate and to export, and in doing so, to underpin the UK's manufacturing base. I welcome the opportunity that the Partnership has given industry to work closely with government, in order to set out a long-term vision for the sector and act together to address the barriers to growth."

Neil Carson, Co-Chair,
Chemistry Growth Partnership

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- **Composites:** Polymer Matrix (carbon fibre) composite materials represent an important building block in the aerospace industrial strategy, given their crucial role in lightweighting aircraft which are now largely made from composites, rather than steel.

The National Composites Centre (NCC) opened in 2011 focused largely on aerospace, and Government has funded an expansion of the NCC, expected to open in Q3 2014. The expansion will allow the NCC to open its facilities to a wider range of sectors which expect to benefit from the use of carbon fibre composites, specifically automotive, renewables, construction, oil and gas, and rail.

Additionally the Government has supported the formation of the Composites Leadership Forum (CLF), a new cross-sector industry body, and is working with the CLF on the update of a National Composites Strategy, again expected in Q3 2014.

This activity will enable the 1,500 disparate composites companies to innovate, grow and develop to meet growing market

demand, both in established sectors such as aerospace and also in sectors with significant composites potential which have been identified by the CLF.

"It is a very exciting time for the UK composite industrial sector, as the global composite industry is expanding rapidly there is significant opportunity for us to grow. In order to capture the considerable forecast growth for the UK it is essential that industry works closely with government to develop a national strategy that will ensure we have the technology, skills and supply chain competence to be a global player. Government support is essential to ensure that the UK's traditional industrial sectors are positioned to grasp the market opportunities that using composites can bring."

Alison Starr, Chair,
Composite Leadership Forum

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- **Creative Industries:** 2014 is an exciting year for UK creative industries. Government analysis shows the sector punches above its weight for the economy, generating £8 million an hour, contributing £71.4 billion GVA and providing 1.68 million jobs (or 2.2 million if we count creative jobs in other sectors) in 2012. But there is much potential for growth. An ambitious new strategy, coming soon, will outline industry's vision for the sector by 2020 and actions for industry and government to achieve it.

This builds on the strong momentum across the sector and the work of the Creative Industries Council, co-chaired by Nicola Mendelsohn and the DCMS and BIS Secretaries of State. We welcome corporation tax reliefs to support UK production of films, high-end TV and animation; computer science in the national curriculum; investment in broadband and mobile – digital infrastructure is vital for our sector; and public and employer investment in creative and technology skills, including more apprenticeships and work placements.

The creative industries are diverse and thriving and each makes an important contribution. £1 of advertising spend generates £6 for the economy; architects are winning international business and the UK leads in educating architects, attracting students from across the world. The arts in England created GVA of £5.9 billion in 2011; crafts industries employ over 100,000 people. The UK has the second largest design sector in the world – UK businesses across all sectors spend £33.5 billion annually on design and orders of over £100 million are placed during London Fashion Week each season.

In 2012, British films earned a worldwide gross of \$5.3 billion or 15% of global box office; our games industry is the largest in Europe. IT, software and computer services increased employment by 15% between 2011 and 2012, to over half a million jobs. The UK is the largest global exporter of music and television after the United States. Publishing is worth £10 billion GVA annually, with 40% of revenues coming from exports. For more highlights, see our website showcasing UK creative industries internationally – www.thecreativeindustries.co.uk

“Impressive individually, even more so together, our creative industries sector is world leading and has an important role in driving the growth of the UK economy.”

Nicola Mendelsohn, Co-Chair,
Creative Industries Council

- **Electronics:** Although not always visible, electronic systems already underpin many of the world’s economic activities, from control systems for automobiles to sensor technologies for assisted living, and our reliance on electronics will only grow further.

The Government is committed to supporting the UK electronics industry which has the opportunity to develop its strong position to become a world leader across a broader range of electronics technologies. The Electronic Systems Council (ESCO), which met for the first time in October 2013, is driving this work forward and is co-chaired by Warren East, ex-CEO of ARM, and Michael Fallon, Minister of State for Business and Energy.

The blueprint for this engagement is the *Electronic Systems: Challenges and Opportunities* report that was launched in June 2013. Priorities for the sector include: addressing the sector’s skills challenges; taking a leading role in the area of Industrial Automation through the Industry 4.0 initiative; accelerating growth in other UK sectors through the use of UK electronic systems in their supply chains; and capitalising on the potential growth opportunities offered by the Internet of Things.

The strategy highlighted that, by working together to deliver these priorities, the UK electronic systems sector could create a further 150,000 jobs in the sector (bringing the total to 1 million) and grow its annual contribution to the UK economy by 50% to a total of £120 billion (equivalent to 7.1% of GDP) by 2020.

“The UK already leads the world in electronics technologies, yet is very fragmented with many innovative small businesses punching above their weight. This unifying approach in partnership with government will help to create a sector with greater critical mass driving more of our leadership technologies to achieve commercial success on a global stage.”

Warren East, Co-Chair,
Electronic Systems Council

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- **Food and Drink:** It surprises many people to learn that the UK’s largest manufacturing sector is in fact food and drink. Yet it contributed £24.1 billion to Gross Value Added (GVA) in 2012 and employs 0.4 million people. It is an essential part of a supply chain (from farmers through to wholesalers and on to retailers and caterers) which contributed £97.1 billion to GVA in 2012 and employs 3.6 million people.

Government shares the sector’s ambition of 20% growth by 2020. Through the Agri-Tech Strategy we are working with industry to ensure the sector has access to the quality raw materials it needs to continue to innovate and grow.

The total value of food and drink exports in 2013 was £18.9 billion, with Scotch Whisky representing about a quarter of this. We are working with industry to increase exports through our joint ‘Export Action Plan’. This is overseen and challenged by a government-industry ‘Export Forum’. In 2013 alone we opened 112 markets for animals and animal products. Industry has already begun to capitalise on this, increasing exports to non-EU markets by £179 million to £1.347 billion.

The food and drink sector may be unique in the range of different skills it requires at all levels. It has chosen to be at the forefront of apprenticeship reforms through the Government’s Trailblazers programme. To directly target a key skills shortage, the Food and Drink Federation (FDF), Sheffield Hallam University and the National Skills Academy for Food and Drink have developed the UK’s first food engineering degree with co-investment from the Government’s Employer Investment Fund. It has also developed with industry partners a Centre of Excellence for Food Engineering, supported by a £6.9 million from the Higher Education Funding Council for England (HEFCE) Catalyst Fund.

“Food and drink are a vibrant part of the economy, delivering huge benefit to the UK as well as great tasting, safe, nutritious and affordable food to consumers. It’s also key to the UK’s – and future global – food security. Building on our strengths as a sector, and ensuring that we stay world class in innovation, will require companies to work together in non- and pre-competitive areas but also the strategic vision and leadership from government to partner the industry to create the right conditions for it to flourish. We have made a start in key areas such as exports and I look forward to developing the partnership further in other areas, in order to deliver our shared vision for growth of 20% by 2020.”

Melanie Leech, Director General of the Food and Drink Federation (FDF)

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- **Rail:** The rail sector contributes £7 billion a year to the UK economy, employs over 85,000 people and is enjoying an investment boom on the back of a decade-long 50% growth in passenger journeys. Significant future growth in freight and passenger traffic is also expected, potentially doubling by 2030, enhanced by strategic investments such as HS2, Crossrail, Thameslink, London Underground upgrades and the nationwide electrification programme.

But the UK supply chain is fragmented: over 3,500 suppliers with a patchy track record of meeting large companies’ domestic and international requirements. Even though the

products can be best in class, the UK only exports about 7% of rail revenues compared to 37% for France and 47% for Germany.

Following a series of industry roundtables, the Secretary of State for Transport, Patrick McLoughlin, and Secretary of State for Business, Innovation and Skills, Vince Cable, jointly announced in November 2013 that a new group would be created to strengthen the British rail industry at home and abroad, initially named the Rail Industry Supply Chain Forum, it is now the Rail Supply Group.

The aim is to co-ordinate industry and government action across the whole of the UK to create a stronger rail sector, which can make a greater contribution to the Government priorities of promoting economic growth, sustainable development and regional cohesion.

“With unprecedented investment into the rail industry, the UK has an opportunity to create not just thousands of jobs in the supply chain but careers that will span generations. The Rail Supply Group will do its bit to pull together the Sector. Helping to make sure that British industry develops capabilities and ambitions not only for Europe’s largest infrastructure projects – such as Crossrail and HS2 – but for rail infrastructure activities around the world. This is really now a strategic sector”

Terence Watson, Co-Chair,
Rail Supply Group

- **Retail:** Retail turnover is around £320 billion per year in the UK and despite the economic climate the sector has continued to show growth. Retail employs 3 million people (1/10 of the workforce) across 180,000 businesses, operating in every postcode in the country. It also underpins local economies, and is a key partner in delivering government policy in a number of areas.

A revised partnership strategy *A Strategy for Future Retail* was published on 23 October 2013 and was welcomed strongly by industry. Early deliverables achieved include new strategic relationships between government and sector bodies on both local economic growth and skills, progress on retail specific regulations in the Prime Minister's business taskforce report on cutting EU Red Tape and holding an event for retailers and commercial property representatives on the market impacts of the ageing population.

We have also put in place a high level, industry-led action group to provide greater collaboration and coordination on Digital High Street initiatives by retailers, the technology industry and "place management" bodies, alongside a new £8 million Technology Strategy Board competition for reimagining the high street.

Overview of cross-cutting themes



The sectoral approach is one of the five themes of industrial strategy. The other four themes – technologies, skills, access to finance and procurement – are of cross-cutting relevance. As outlined in previous chapters, in some instances these are being addressed by sector-specific interventions. Many of the challenges and opportunities posed by these themes though are applicable across many or all sectors and can be addressed more effectively by a broader approach.

For example, engineering and hi-tech computing skills are vital to cutting-edge firms across the board; the potential applications of the many emerging technologies in which the UK is a leader are not delineated along sectoral lines; and raising finance and winning both government and private sector contracts are key concerns for most small businesses.

Industry is already taking steps to tackle these in some areas but there is clearly a role for government in drawing together and tackling concerns where there may be systemic issues. There is no single private sector partner which could represent the range of interests within any of these themes. For that reason, the following sections are authored by government.

Government cannot and should not act alone, however. It remains vital that these cross-sectoral priorities are approached in partnership. Business and government are working together to identify market failures, design the most appropriate interventions and to commit joint funding or other resources towards their success. We must ensure that we continue and broaden this collaboration across the long-term horizon of industrial strategy.

Technologies



Innovation and exploitation of technologies have been, and will continue to be, key drivers of UK growth and economic prosperity, accounting for up to 70% of economic growth in the long term. They help us to address key challenges facing society such as enhancing health and welfare, ensuring clean and sustainable energy, providing food security and responding to demographic change. Pushing forward the boundaries of knowledge and development and exploitation of new technologies is central to industrial strategy.

When metrics are used to rank countries for the quality of their scientific output, the UK stands out as the most productive scientific community. With just over 3% of the world's spending on research and development (R&D), the UK produces over 6% of the world's research articles and 16% of the world's most highly cited papers. Our universities, which include four of the top ten in the world, are a key source of knowledge generation. Research Councils invest annually around £3 billion, sustaining a diversity of funding approaches, fostering international collaborations, and providing access to the best facilities and infrastructure. This has led to the development of advances such as DNA sequencing, computer chips and stem cell biology that have already had significant benefits for society and the economy. Our researchers continue to make ground-breaking discoveries – but there remains more to do to turn these great ideas into commercial success. We must bridge the so-called “valley of death” between the lab and the marketplace and reverse the trend of

declining investment by business in R&D in the UK.

Government is starting to address this through a network of elite Catapult centres to commercialise new and emerging technologies in areas where there are large global market opportunities and a critical mass of UK capability to take advantage. In particular, we are investing in Eight Great Technologies which each have wide-ranging applications stretching beyond any single industrial sector, and are capable of creating long-term sustainable growth.

Strengthening the links between research and industry through Catapults

We are investing strategically to strengthen the links between researchers and industry in technology areas where the UK has key capability. We have established a network of Catapult centres through the Technology Strategy Board (TSB) that is helping companies to commercialise new technology-based products and services.

A Catapult is a physical centre where businesses, scientists and engineers work side-by-side on late stage R&D, transforming high potential ideas into new products and services. Catapults have a major role in helping industry reduce the risk and uncertainties of using new technologies by providing the facilities to demonstrate new applications on a larger scale than the lab and show that they can be scaled up for production. Catapults also

High Value Manufacturing Catapult: helping Rolls-Royce manufacture in the UK



Rolls-Royce's new fan and turbine disc facility in Washington Tyne & Wear has recently commenced production. This facility uses manufacturing techniques developed at the Advanced Manufacturing Research Centre (AMRC) in Rotherham, part of the High Value Manufacturing Catapult. The facility has the capacity to manufacture over 2,000 fan and turbine discs a year. They provide the power for a wide range of aircraft including the Boeing 787 Dreamliner, the Airbus A380 and the Eurofighter Typhoon.

help develop the supply chains necessary for commercial exploitation.

In March 2012 the TSB announced the key technology areas to be focused on by the first seven Catapults: High Value Manufacturing, Cell Therapy, Offshore Renewable Energy, Satellite Applications, Connected Digital Economy, Future Cities and Transport System. By the end of last year, they had all been opened. A further two Catapults in Energy Systems and Precision Medicine are under development and due to open in 2015.

While Catapults are not sector-focused, the nature of the technologies and challenges they address are more relevant to some sectors than

others. For this reason a number of Catapults are at the heart of sectoral partnerships, for example: the Cell Therapy Catapult is key to driving future life sciences innovation and the Life Sciences Strategy; the Offshore Renewable Energy Catapult is closely aligned to the Offshore Wind Strategy; and the Future Cities and Connected Digital Economy Catapults are crucial for the development of technology in the Information Economy Strategy.

A key feature of the technologies strand of industrial strategy is substantial investment in emerging technologies that have: an extraordinary breadth of application across industries and sectors; huge potential to

Eight Great Technologies

1. The big data revolution and energy-efficient computing 
2. Satellites and commercial applications of space 
3. Robotics and autonomous systems 
4. Life sciences, genomics and synthetic biology 
5. Regenerative medicine 
6. Agri-science 
7. Advanced materials and nano-technology 
8. Energy and its storage 

transform existing products; and create new products and services and new markets. We are investing £600 million in Eight Great Technologies to speed up the commercialisation of leading edge research.

This investment is helping to accelerate the commercialisation of the Eight Great Technologies through providing new R&D facilities to develop and test new technologies and enabling leading edge research. For example, support includes £35 million for centres of excellence in robotics and autonomous systems to be created in and around universities, innovation centres, science parks and enterprise sites to bring together the research base and industry. £45 million is being invested in new facilities and equipment for advanced materials research in areas of UK strength, such as advanced composites, high-performance alloys, low-energy electronics and telecommunications which will benefit a

wide range of our manufacturing sectors. The capabilities of Catapults complement the Eight Great Technologies, particularly in areas such as Cell Therapy and Satellite Applications. Budget 2014 provided £74 million further investment in Catapults to enhance capability related to the Eight Great Technologies, specifically the manufacturing of cell therapies and support for applications and manufacture of graphene.

We are strengthening the links between the Eight Great Technologies and industry by working with the leadership groups for these technologies to address major levers for their development, such as regulatory issues, further public and private investment, and skills needs.

The Space Leadership Council

The Space Leadership Council, the most senior forum for space in the UK, comprises industry, academia and government representatives, and is chaired by the Minister for Universities and Science and the President of the UKspace Trade Association. It published the UK's first National Space Technology Strategy, which Government supported with £10 million funding. The UK Space Agency used this funding to start a National Space Technology Programme supporting a range of space research projects. Included in these were research into low-cost space radar sensors and next generation geostationary satellite platform systems. These two projects are now being pulled through to commercial markets as they will be fitted to Surrey Satellite Technology Limited's NovaSAR space radar satellite and Airbus Defence and Space's next generation telecommunications satellite platform. The value to the UK of these products is likely to exceed £2 billion by 2030.

"The Space Leadership Council brings together government, industry and academia to drive the strategy to grow the UK's share of the expected £400 billion global space-enabled market to 10% by 2030. The UK's space strategy has already reaped dividends for UK businesses which have benefitted from Government investment in R&D and UK-based innovation. As a result, the industry continues to grow strongly and create high value jobs. The Leadership Council aims to further strengthen the UK's position in the global space market by supporting growing UK based companies and making the UK the best place for inward investment."

Andy Green, Co-chair Space Leadership Council and President UKspace

UK in the Big Data revolution

The Square Kilometre Array (SKA) is a project to build the world's largest radio telescope in Australia and South Africa. It is now in a project engineering phase. The telescope will have a total collecting area of approximately one square kilometre, and it will have data rates that will exceed the world's current internet traffic by a factor of twenty, requiring step changes in computing power and new algorithms and software.

UK "Big Data" investment announced in 2013 will help the UK develop energy efficient computing and provide the Big Data processing and storage capacity that is required by massive data-producing research facilities such as the SKA. The UK is taking a major role in the SKA project, hosting the global headquarters of the project in its current phase, and leading two international design consortia responsible for data processing and signal and data transport.

The large investment in SKA recently announced by David Willetts will mean good opportunities for UK industry in the construction of the telescope (2018-2023) and in supplying its data-processing and software needs.



Supporting small businesses with high growth potential to exploit technologies

Larger businesses tend to have the budget to invest in research and development and in some cases actively support smaller businesses in their supply chain to develop innovative solutions which can help both companies to grow. Some universities also have incubators to support existing or new small business

spin-outs to commercialise their discoveries. However, innovative small businesses too often still struggle to attract the financial and other backing they need to scale their products.

We have a coordinated package of support, delivered primarily through the Technology Strategy Board, which is helping early-stage businesses to bring their ideas more rapidly to market and to deliver growth.

These include smart grants to bridge funding gaps in businesses' innovation processes; collaborative R&D funding for innovative projects involving partnerships between businesses, and between businesses and academia; and Launchpads which support the development of geographical clusters of high-tech companies, and strengthen existing clusters. For example, with help from the Technology Strategy Board, a small British company – Future Transport Systems of Newcastle – led a consortium to look at the scaling up of electric vehicles from trials to mass market, and effective recharging. Over 540,000 miles were driven during the project, delivering an unprecedented testing programme

for electric vehicles and raising public awareness. The Department for Transport forecasts that sales of electric vehicles and plug-in hybrid vehicles in the UK could reach 1.5 million by 2030, and the consortium's project has acted as a trailblazer prior to wider scale adoption.

We are working closely with UK businesses to ensure that they have the best possible opportunities to develop innovative ideas into commercial solutions. With the support of Research Councils and the Technology Strategy Board, businesses across the UK are achieving success and creating growth through innovation. This needs a long-term approach and we need to be alert for new technologies

Business collaboration to promote innovation

Larger businesses are playing an important role in fostering the innovative potential of small businesses. For example Gripple (a Sheffield-based £35 million-turnover employee-owned company) has pledged through The Business Exchange⁹ that *“Any company or individual in the Yorkshire and Humber area with an idea in green energy, food production, construction and logistics can contact us and we will spend some time with them evaluating the ideas and advising them on the next steps.”*

A firm that has already benefited from this approach and Gripple's expertise is Conxa – a micro firm, which designs specialist tools for the construction industry. The company was set up by two self-employed tradesmen in the building industry in order to turn a simple concept into reality: to design a drill with an extruded plastic sleeve that would enable someone to drill through a cavity wall, leave the extrusion in place and then easily pass any number of cables and wires through it.

It was only with the help of Gripple and its *'Incub'* incubator that they were able to turn this idea into an actual product that is soon to be launched. Gripple is committed to fostering sustainable businesses in South Yorkshire and for Conxa, this has translated into a wealth of advice and practical help: from patent applications to marketing, from funding to design.



Paul Smith and Dave Bostock of Conxa:

“We wouldn't have had a business if it wasn't for Gripple”.

⁹ <http://greatbusinessexchange.co.uk/>

and innovative applications which have the potential to deliver growth. Industry and the research community will be the first to identify where these opportunities lie. It is vital therefore that we work in partnership to ensure the UK is not only leading the field in existing technologies but that it is in the best possible position to exploit the next great idea as soon as it emerges.

We will publish a Science and Innovation Strategy in autumn 2014 that will draw on a thorough consultation to set out the future shape and scale of the UK's science and innovation system.

Supporting Technology Exploitation in the NHS

The Small Business Research Initiative (SBRI) is helping small businesses to turn their ideas into new products and services and find a route to market through competing for Government contracts.

Polyphotonix is a company developing organic lighting products and technologies and would not normally consider themselves to be developing medical products. However, in collaboration with University of Liverpool Ophthalmology Department, the company has identified a treatment for two classes of eye disease which cause blindness in later life or for diabetics. This treatment halts degeneration and thus can save the sight of patients. It could replace current therapies, which require the direct injection of drugs into the eye, with a non-invasive light therapy. The technology is being developed with the help of an SBRI contract from an NHS Long Term Conditions competition.

Age-related macular degeneration is the biggest cause of poor sight and blindness for the over 60s in the UK, and the potential cost savings to the NHS of implementing this technology could be substantial.

Skills



Skills are essential to all businesses to enable them to thrive

In a modern economy, the capacity of businesses to innovate and grow is critically dependent on the knowledge and skills of their workforces and on how effectively that expertise is deployed. Other countries, from the most established to developing economies, invest heavily in education. There is a particular risk to the UK's ability to compete in high value sectors and to exploit new technologies if we do not keep pace.

Successful development of our skills base requires a strong and stable partnership over the long term between government,¹⁰ businesses and individuals. This involves:

- **Government**, investing in initial education, supporting adults who cannot invest in themselves; supporting businesses and individuals in purchasing training; ensuring that all vocational education meets challenging standards and evolves alongside changing needs; and investing in institutional capacity.
- **Businesses**, treating workforces as an asset to develop rather than a cost to control; investing in training; designing standards and curriculums and exercising leadership over educational institutions; and providing work experience and other opportunities for young people.

- **Individuals**, taking personal responsibility for succeeding in a complex and changing labour market; and being prepared to invest in their own futures.

This radical vision will not be easy to achieve. It means raising school age achievement to increase the proportion of young adults able to cope with rigorous programmes of academic or technical study. It means changing the way we treat apprenticeships so that they are increasingly taken as an option *after* education to A-level equivalent, with pathways that support academic progression to full bachelors and masters degree level. It means increasing 'sub-degree' occupational options for young people. Government has laid the foundations with our reform package but there is much left to do to make this vision a reality.

An ambitious package of reforms have laid the foundations for change

Support pre-19

New reforms will drive up performance by focusing on standards and ensuring that curricula and qualifications are fit-for-purpose. They will stimulate diversity in the provider base and free schools from local political control to enable school leaders to focus on meeting learner needs. Over the long term this strategy will yield a flow of better educated and more resilient young people into adult education and the workplace.

¹⁰ Skills policy is a devolved responsibility in Scotland, Wales and Northern Ireland. The UK Government will continue to work with the devolved administrations, employers and employer organisations to ensure a UK-wide approach.

Reinventing apprenticeships

Apprenticeships are the cornerstone of vocational education. The challenge is for government and businesses to work together to ensure that apprenticeships embody uniformly high standards of quality and that funding is shared in a fair and effective way between the taxpayer and the employer.

Raising standards

We accepted Doug Richard's recommendations that apprenticeship standards should be clearer and created and enforced by employers. We launched "trailblazers" to establish new standards for key areas of the economy. The first 11 new standards were published in March 2014 and will underpin apprenticeship programmes in those areas from September. A second phase of trailblazers in 29 sectors was launched at the beginning of March 2014. These new employer-generated standards will cover all new apprenticeship starts by 2017. The success of this reform is dependent on the engagement of employers to ensure that the new standards reflect the needs of the contemporary workplace.

We are extending the apprenticeship model to higher levels, so there are opportunities to learn in the workplace at degree level and beyond. The 2014 Budget announced new support for employer investment in apprenticeships up to postgraduate level. Young people will benefit from diverse routes into highly skilled employment with the opportunity to pick up work experience from day one. Business will have access to a wider range of talent as traditional academic routes are not the only way to nurture the abilities of young people. This will provide apprentices with the technical skills that employers need and vocationally based pathways to higher learning.

'Employer-led funding'

We accepted Doug Richard's other key recommendation that employers should buy training for their apprentices with government's contribution paid directly to the employer. This will replace a system where government acted as a proxy purchaser by paying training costs directly to a college or private provider. Employers are far better placed to decide on the quality and value of a training offer than government.

The Budget also provided £85 million in 2014-15 and 2015-16 to extend the additional Apprenticeship Grant for Employers scheme. This will fund over 100,000 additional incentive payments for small employers to take on young apprentices.

Partnership to address new challenges

In new industries or technologies it will be important to ensure that the UK builds the right skills base before jobs become available. We are providing dedicated funding at £100 million per year to support projects to grow skills in key sectors and technologies through co-funding with employers. All funding will be co-invested with employers.

Developing National Colleges

We are developing a new generation of national colleges with business to provide specialist skills for key technical sectors. We have already invested £18 million in a new Manufacturing Training Centre in Coventry to develop cutting-edge skills in advanced engineering, and are creating a new High-Speed Rail college to provide the very best training in rail engineering, environmental science and construction. These new colleges are industry-led, ensuring training is directly tied to the needs of employers in strategic, high-value industries. We will work with businesses to support further initiatives for the nuclear industry, coding, and other key areas.

Improving STEM skills

Science, technology, engineering and mathematical (STEM) skills are vital to growth across many sectors of the economy. The Perkins Review of Engineering Skills, published last November, was a call to action to engineering employers, the profession and educators, to join with each other and with government to ensure the long-term supply of engineering skills. In response, the Government announced a range of new initiatives to develop the pipeline in engineering. These include £200 million capital investment in STEM teaching facilities for high cost subjects such as engineering and £250,000 of seed funding to enable *Tomorrow's Engineers* to accelerate the nationwide rollout of its employer engagement programme to encourage children in school to consider engineering careers. We are committed to working with business to address issues of diversity in the STEM workforce in the interests of equality and to unlock growth. The Royal Society has published a major data study on the diversity of the science workforce and the Royal Academy of Engineering has developed a diversity concordat signed by over 90% of registered engineers.

Training at more basic levels

There will be a continuing need to address the needs of young people who have left schools with inadequate levels of attainment. In the past, too much provision for low-skilled adults has been classroom-based and geared towards paper qualifications of low value. The new traineeships programme focuses on the basic English and maths that are essential across all areas of employment; creating understanding of what it means to be in the workplace (turning up, being smart, working in teams, listening to instructions); and providing real work experience. Like all vocational education, traineeships will have value only if businesses are directly involved in delivering it.

Significant challenges lie ahead for both government and business

If the UK is to compete on the basis of our people it is important to focus not only on skills provision for young people but on how to use existing workforces more effectively. We know that there are long-standing challenges to address including low worker productivity and low levels of business investment. Providing new opportunities for those already in the workforce will become even more important as working lives lengthen and markets and technologies change at increasing pace.

Our shared vision is of a workforce that allows us to compete in key sectors and exploit new technologies. This will only be achieved if businesses exploit new opportunities by investing in and leading the system. In terms of funding, business will need to contribute financially to the cost of apprenticeships and business and government will need to agree a simple mechanism to allow this to happen. Business will also play a crucial role in the development of national colleges, both in identifying the sectors where these should exist but also in terms of playing an active role in their governance and financing.

The key challenge for businesses and government is to utilise and develop the skills of our people to create shared success. This will require long-term and concerted effort and commitment from employers, government and individuals.

Access to Finance



Government is committed to making the UK one of the best places to start, finance and grow a business. Recent figures from the Federation of Small Businesses show that revenue and profits increased amongst small businesses in the last quarter of 2013, while the net balance of SMEs reporting that they wanted to increase investment and employment also rose. In order to invest and grow, many businesses require external finance.

At present £100 billion is lent by banks to SMEs each year, however many small firms still face major issues accessing finance. These include:

- A bank lending market that is highly concentrated, leading to less competition
- Long standing structural market imperfections, where it is expensive for investors or lenders to assess the creditworthiness of smaller firms, and so less credit than optimal is extended;
- A lack of understanding and awareness of alternative finance options by firms

We are committed to a more competitive banking sector which will increase choice for business and put more pressure on the banks to improve their services, reducing costs for business customers.

The British Business Bank is being created to deliver a more diverse and competitive finance market for smaller businesses, with more finance options and providers to choose from. It will also better inform smaller firms on the options available.

British Business Bank



The British Business Bank is being established as a state-backed economic development bank to ensure that finance markets for SMEs work effectively, allowing them to prosper, grow and build UK economic activity.

The business model is one that works with and through the market – and importantly, doesn't distort it. Increasing the choice of products and providers can help businesses to access the finance they need through their lifecycle and across sectors.

This means British Business Bank programmes do not only focus on bank lending, but also on alternative forms of finance such as start-up finance, venture capital and non-bank lending, for example through peer-to-peer crowd-funding platforms, or asset finance providers.

British Business Bank programmes are already supporting a large number of businesses who can use funds to invest and grow. The highlights of recent progress are:

- £660 million of lending and investment supported in 2013, up 73% vs 2012. More than half of this through alternative finance providers.
- 25,000 businesses benefiting from £1.5 billion of outstanding lending and investment at the end of 2013.

- over £800 million of lending capacity committed via a range of alternative finance provider models such as debt funds, peer-to-peer crowd-funding lenders, and supply chain finance platforms.
- 15 Enterprise Capital Funds with total investment capacity of over £500 million. These are commercially-focused funds that bring together private and public money to make equity investments in high growth businesses.
- Wholesale Guarantees pilot launched. This aims to increase the commercial attractiveness of SME lending by using a government-backed portfolio guarantee, in exchange for a fee, to reduce the amount of capital that banks need to hold against new SME lending.

Priorities for the British Business Bank over the next five years include:

- Unlock up to £10 billion of financing for viable, early-stage or growth-oriented businesses by using its resources to leverage up funding commitments and through applying guarantees.
- Play a significant role in developing a more diverse competitive landscape in business finance markets by supporting a range of new and emerging alternative finance provider models.

Case Study

British Business Bank

Business Finance Partnership (BFP) case study – Beechbrook Capital / SimplyBiz (West Yorks.)



SimplyBiz provides high quality and comprehensive compliance, training and business support to over 5,000 financial advisers across the UK.

To support its growth plans, SimplyBiz needed a flexible loan to help fund its agreed acquisition of 80% of Staffcare, enabling it to expand its range of products and services – and within a demanding transaction timetable. Beechbrook Capital, one of the seven successful bidders for British Business Bank's BFP funding, tailored a loan to meet SimplyBiz's requirements within two weeks of meeting the management team.

SimplyBiz Finance Director, Sarah Turvey, commented: *"We are delighted that this British Business Bank initiative is helping us to achieve our business growth objectives through its support of alternative lenders like Beechbrook. It is important that ambitious businesses like ours are able to access the growth finance we need from alternative lenders who understand our business and get the right finance package in place in a timely way."*

Improving Competition

In 2011, the Independent Commission on Banking found that the Big Four banks controlled 85% of small business banking services. This lack of competition in the banking sector has meant businesses have sometimes been forced either to accept unfavourable terms or not to receive finance at all. The lack of awareness among the small business community of alternative options and regulatory restrictions have inhibited the expansion of other providers. In parallel with the British Business Bank programmes outlined above, we are taking the following measures to increase the options for business:

- **Current Account Switching Service**
 - The ‘7 day switch’ CASS was launched in September 2013. The service makes it easier for small businesses and individuals to switch their bank current account provider enabling businesses to access the best terms. In Q4 2013, there was a 17% year-on-year rise in account switches.
- **Challenger Banks** – The Financial Conduct Authority (FCA) and Prudential Regulatory Authority, have been given stronger statutory responsibilities on competition, implementing a streamlined authorisation process for new banks and changing the liquidity requirements on new banks to make it easier for ‘challengers’ to enter the market and increasing finance options for business.
- **Market Study** – In March 2014, the Office of Fair Trading (OFT) issued an update on their review of competition in SME banking, which noted that there may be competition issues in the sector. The new Competition and Markets Authority which is taking over the OFT’s functions announced that it will take forward a programme of work on retail banking as a priority, and will decide in autumn 2014 whether a Market Investigation Reference is required.

- **Referrals** – Around 40% of businesses which are rejected by their bank for finance give up. We want to open the opportunities for accessing finance available to them, through challenger banks and other providers. We will shortly be publishing a new consultation on whether to legislate to help match SMEs who are turned down for a loan with alternative lenders in order to broaden the sources of finance available to small businesses.
- **Innovative funding options** – we are making it more attractive for investors to choose to invest in potentially more risky businesses. The FCA has announced changes to regulations on peer-to-peer and peer-to-business platforms, giving businesses and investors greater security. We offer generous tax reliefs through initiatives like the Seed Enterprise Investment Scheme (SEIS). Since it was introduced in 2012 the SEIS scheme has helped more than 1,100 small companies raise over £82 million of early stage equity investment. Both SEIS and Enterprise Investment Schemes (EIS) have supported the growth of innovative funding options. Equity crowd-funding platforms for example are allowing investors to utilise these schemes in their investments.

Improving resilience and promoting responsibility

For businesses to thrive in the long term, it is important that the UK has a stable and responsible banking sector. The UK previously lacked sufficient recovery and resolution mechanisms for banks, and successive conduct and mis-selling issues had substantially damaged public trust in financial services. We have introduced reforms to make the sector more resilient and are working with the banking sector to promote responsibility.

- **Banking Reform** – Following the Banking Reform Act 2013, Government is establishing a banking ‘ring-fence’ which will see high street banking separated from more risky investment banking. This will make the banking sector more resilient to future shocks and protect the deposits of businesses within the ring-fence.
- **Responsibility** – The Banking Reform Act 2013 has implemented recommendations of the Parliamentary Commission on Banking Standards to give stronger powers to the financial regulators to tackle misconduct by senior managers in the banking industry. These include a new criminal offence of reckless misconduct. Furthermore, Sir Richard Lambert is working with UK banks to create a new standards body for the industry.
- **Appeals Process** – The British Bankers’ Association (BBA) has committed to doing more to raise awareness amongst business customers of the banks’ appeals processes. These allow business customers to challenge a lending decision if they think that their bank has unfairly turned them down.

In combination with other government actions our approach is improving the financial environment and creating the right conditions for business investment.

In order to create further growth and improve the competitiveness of UK companies it is integral to the industrial strategy that we increase and diversify the sources of funding available to businesses. Government is addressing the issues being faced by business by creating a more transparent, resilient and competitive funding environment.

Procurement



The opportunity

Government can play a major role in maximising the benefit to the UK economy of every pound spent of public money through our own procurement practice. The potential gains are enormous as businesses have the opportunity to bid for £230 billion of public sector contracts per year. Similarly, by working to develop their supply chains, businesses can improve capabilities and capacity over the long term, delivering a win-win for businesses of all sizes and the UK economy as a whole. Smarter procurement can therefore secure value for money, encourage innovation and strengthen business capability.

The challenge

Historically, government has not always used its buying power as effectively as possible to support business. Complex procurement practices and unnecessary bureaucracy have deterred many businesses, particularly SMEs, from supplying to government.

UK supply chains have also become progressively weak and ‘hollowed out’. Capacity and capabilities have been lost with critical links in the chain disappearing from the UK altogether. Domestic supply chains can be fragile even in sectors where the UK is competitive.

Progress

We have taken major steps to address the challenge at hand and ensure business gets the most out of procurement opportunities, whilst still securing value for money:

- **Transparency of procurement pipelines** – In December 2013, we published updated procurement pipelines covering central government and local authorities, which span 19 sectors. The potential contract opportunities are worth over £177 billion.
- **Opening up public procurement** – We have accepted Lord Young’s proposed reforms to open up public sector procurement to SMEs and streamline procurement for the whole public sector. These will be introduced later this year.
- **Encouraging innovation** – In Budget 2013, we committed to substantially expand the Small Business Research Initiative (SBRI) among six key departments. The value of contracts through this route will increase from £40 million in 2012-13 to over £200 million in 2014-15.
- **Supporting supply chains** – We are working with business to assess the strategic capabilities required in the supply chain. We have published reports on Tunnelling, Building Information Modelling (BIM) and Renal Care.

We want an open door policy with business to develop further strategic relationships with current and future providers.

Transparency of procurement pipelines

In November 2011, we introduced procurement pipelines outlining upcoming public projects to give firms the confidence and time to invest in the relevant skills, labour and capabilities to win potential future contracts and ultimately grow. The last update in December 2013 set out £177 billion of potential opportunities for business. A new pipeline covering the science, technology and research sectors has been added, increasing the diversity of business opportunity and including projects for unmanned submarines and gene synthesis.

By creating a more level playing field for UK-based businesses, the pipelines can open the door to small firms and to new ideas for promoting competitiveness, thereby providing maximum value for taxpayers.

Opening up public procurement

In addition to making good progress towards the aspiration that 25% of central government spend by value should go to SMEs by 2015, we have accepted Lord Young's proposed procurement reforms, which will provide simpler and more direct access for small businesses to public procurement. Improvements to processes are needed across the whole public sector.

We will use legislation in 2014 to:

- Simplify process by abolishing Pre-Qualification Questionnaires (PQQs) for below threshold contracts.
- Mandate the use of a standard core PQQ for above threshold contracts.
- Make contract opportunities easier to find by making them all accessible on a single online portal.

- Ensure small firms are treated fairly by mandating prompt payment terms throughout a public procurement supply chain.

To ensure that small businesses, including social enterprises, benefit from these reforms we will:

- Require all public bodies to report their procurement spend and prompt payment performance with small businesses.
- Enable suppliers to judge public bodies on their procurement credentials and enable public bodies to rate their suppliers through a new rating service called 'Spotlight', so that small businesses who win contracts can start to build up their reputations.
- Continue to develop Solutions Exchange, a service which enables public sector organisations to go to the market for ideas and solutions to problems before a formal procurement, providing a route for SMEs to pitch innovative proposals to government.
- We have already strengthened the "Mystery Shopper"¹¹ service, which now not only investigates reports of unfair treatment, but also spot-checks public bodies to make sure that their procurement is small business friendly.

Encouraging innovation

Innovative SMEs frequently face challenging funding gaps as they seek to develop new and innovative products. The Small Business Research Initiative (SBRI) programme helps to bridge that gap by providing 100% research and development funding, supporting small businesses to develop potential innovative solutions for the public sector.

11 <https://www.gov.uk/doing-business-with-government-a-guide-for-smes#mystery-shopper-scheme>

Companies can be given up to £1 million to develop their ideas and can then sell their developed product or service commercially. Government benefits from access to new solutions and businesses have a funded route to market for their ideas, retaining ownership of the intellectual property. To date, 182 SBRI competitions across more than 40 Departments and public bodies have awarded over 1,500 contracts worth £170 million.

SBRI contracts have been instrumental in helping companies to develop products, attract further private investment, and expand. For example, Daylight Business Solutions developed a high-tech material for glazing that stabilises and reduces solar energy transmission through buildings as part of a SBRI competition to reduce carbon emissions. Since testing and demonstration in government departments, Daylight Business Services has gone on to install its product in council offices, school buildings, and hospitals in the UK and

is exploring export opportunities in Malaysia and Japan.

Budget 2013 announced Government's intention to expand SBRI among key government departments so that the value of contracts through this route will increase from £40 million in 2012-13 to over £200 million in 2014-15.

Addressing strategic supply chain capabilities

Supply chains are essential for the creation of strong, sustainable and balanced growth, underpin the competitiveness of our high value manufacturing sectors and create jobs across the country. Now is the right time to reinvest in our supply chains as economic, technological and business trends lead manufacturers to look again at sourcing more UK content. Through industrial strategy we are working with industry to strengthen and build UK supply chains to realise these opportunities.

Case Study

Through the Business Exchange, John Lewis launched a unique partnership, "PitchUp", with StartUp Britain. The scheme gives British start-ups the opportunity to pitch their products to John Lewis buyers, for the chance to be stocked in John Lewis stores.

PitchUp ensures John Lewis can provide customers with the latest products from the country's newest entrepreneurs. Products now stocked as a result of the initiative include Toddlebike, a toddler's first bike, and Oily Rag waterproof garden cushions and tablecloths.

*"When I heard about PitchUp, I thought: *that is the absolute opportunity for me. If I can get in front of John Lewis, such a key retailer in the UK, that we could do something in partnership...** The development of my business in the six months that I've been with John Lewis has been phenomenal. The benefit has been in terms of exposure, in terms of all the help and training I've received and in terms of feeling as though I'm part of a bigger team" – **Jo Hockley, Founder of Toddlebike.**

"John Lewis and Oily Rag have the same demographic of people and I thought that's a perfect place for my products to be in...The main benefit to my business is that it has enabled me to produce my own prints and my own fabrics. By having a higher turnover of my product, it has enabled me to have a bit more cash flow to invest in designing products" – **Julia Hunter, Founder of Oily Rag Ltd.**

We are pursuing two broad objectives in this respect. First we are working with industry, including through the industrial strategy sector councils, to map current supplier capabilities and quantify the opportunity to source more UK content across a broad range of sectors. Where this mapping finds gaps in supply chain capabilities, sectors will encourage domestic suppliers to expand to fill them.

Second, we are working to strengthen existing supply chains by supporting primes to adopt a collaborative and long-term approach to their suppliers. We are helping suppliers build the capabilities they need to access new opportunities, with UKTI helping them to export. Sector councils and other leadership groups are also taking the lead in developing their own initiatives.

The Advanced Manufacturing Supply Chain Initiative (AMSCI) underpins these policy objectives, through funding for capital investment, skills and innovation, to help UK supply chains achieve world-class standards and encourage major new suppliers to locate in the UK. In England, The Manufacturing Advisory Service works alongside this with dedicated funding for supply chains, while the Regional Growth Fund (RGF), a £3.2 billion fund to create economic growth and sustainable employment, provides support both to projects from supply chain companies and to programmes aimed at the supply chain.

Other issues of cross-sectoral significance



There are other areas of government policy which permeate the sectoral approach and the cross-cutting themes of industrial strategy and which are core to their success. These include: helping small businesses to grow; encouraging exports and inward investment; working with businesses and other partners at local level; and ensuring sustainability.

Small businesses are the bedrock of the economy, around half of UK jobs are provided by small firms. Around a fifth of them tell us they have ambitions to expand. That is why industrial strategy, along with the Government's *Small Business: GREAT Ambition*, is tackling the barriers to this growth. Individual sector councils are addressing sector-specific concerns and Lord Young, the Prime Minister's enterprise advisor, is engaging with them to further improve the offer. The cross-cutting strands of industrial strategy tackle issues felt most acutely by small businesses, for example, improvements in the flow of finance from banks and from further up the supply chain will be of particular benefit to smaller firms.

There are many good examples of collaboration at a local level delivering industrial strategy objectives. Local Enterprise Partnerships (LEPs) are aligning their work with both the sectors and the cross-cutting themes, and this will come together over the next few months as Growth Deals are negotiated with all 39 LEPs, allocating up to £6 billion of a £12 billion Local Growth Fund over the next six years, and agreeing freedoms and flexibilities in return for

local commitments. These will build on the City Deals which have now been agreed with eight Core Cities and with 16 additional cities in England – for example the Oxford and Oxfordshire City Deal which has a strong focus on innovation and on life sciences. Building on local growth initiatives being taken forward by Devolved Administrations, the Government believes aspects of City Deals could be useful tools to drive local growth and investment in cities outside England. As a first step the Government is negotiating a City Deal with the Glasgow city region, which is due for completion in summer 2014. As highlighted in the offshore wind chapter, the Hull and East Riding of Yorkshire Councils, with strong support from the Humber LEP Chair, were key to securing the recent £310 million investment by Siemens and Associated British Ports.

Export of products and services is an essential part of driving sustainable economic growth, and is integral to all sectors and themes in industrial strategy. UK Trade & Investment (UKTI) is on track to provide export support for more than 40,000 companies, and worked with business and other stakeholders to enable £16 billion of international contracts for UK companies over the last 12 months. *Britain Open for Business: The next phase*¹² sets out how we are working to maintain the UK as the most favoured location in Europe for inward investment, and how we are continuing to target high value international opportunities to deliver the Government's export target of £1 trillion by 2020. This includes, for example,

¹² <https://www.gov.uk/government/publications/britain-open-for-business-the-next-phase>

the role of Business Ambassadors, key business and academic leaders appointed by the Prime Minister to promote the UK as the international trade and inward investment partner of choice.

Sustainable manufacturing represents an opportunity for the UK to build a competitive advantage and protect the supply chain against potential future volatility in resource availability and price. We have asked the Green Economy Council to review the sustainability aspects of industrial strategy, understanding the sector-specific challenges and opportunities, and report back by the end of the year.

CeBIT 2014: UK technology shines

In March 2014, as official partner country of the world's largest technology trade fair, the Prime Minister opened CeBIT alongside the German Chancellor Angela Merkel. Vodafone and Sophos were among 130 UK companies/institutions represented.

Announcements included a further £45 million investment in The Internet of Things, bringing Government investment in this area to £73 million and the *UKTI Innovation Gateway* – a new one-stop-shop for securing science and innovation investment from large international funds and corporate companies. It is tasked with unlocking £1 billion of investment and creating 500 new UK jobs over two years.



German patient, Claudia Breidbach, demonstrates Touch Bionics' latest prosthetic aid, the i-limb revolution, which can be reset by the patient using an app on an i-phone rather than having to return to the clinic. Touch Bionics is a Scottish SME, designing and manufacturing prosthetic aids for people with upper limb deficiencies.

Department for Business, Innovation and Skills. <https://www.gov.uk/government/organisations/department-for-business-innovation-skills>

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