CBI
THE VOICE OF BUSINESS

PULLING TOGETHER

STRENGTHENING THE UK'S SUPPLY CHAINS

In association with

A.T. Kearney

CONTENTS

Foreword

Katja Hall
CBI deputy director-general

Charles Davis
Partner – A.T. Kearney

There is a sense of optimism around British manufacturing these days. According to the CBI's own Industrial Trends Survey, confidence in the sector is rising at its fastest rate since the seventies, order books are filling up and investment intentions increasing. The industrial strategy that businesses had been yearning for is also taking hold, and with it the expectation of a consistent policy framework and stronger partnership between businesses and government.

Advanced manufacturing in sectors like automotive, aerospace and life sciences are continuing to excel, businesses are investing with renewed optimism in energy generation technology, and our world class research base continues to spawn ideas at the cutting edge of manufacturing innovation.

Business sentiment is strong, but to convert this optimism into visible growth we need to ensure the foundations of our industrial base are up to the challenge: we need stronger supply chains to realise a true resurgence in manufacturing that filters down to firms of all sizes and touches all regions of the UK. Without a plan to raise the capacity of our supply chains the industrial recovery will be stunted.

To realise this opportunity we must pick our battles. We need to compete to win supply chain activity as companies across the world re-evaluate their supply chains in the wake of the financial crisis and other major global events. We can do so based on a business environment that fosters innovation, higher quality and a better service for customers, rather than a futile race to the bottom on cost. This is not to say we can afford to fall behind the curve on energy, logistics or labour costs – far from it. But while we can hope to match our peers on cost, we should aim to beat them on value.

It will require greater ambition, and it is time to put our money where our mouth is. Government must take the tough choices to prioritise investment in innovation and skills matched by long-term investment from businesses themselves. We can no longer afford to be regarded as middle of the pack in the areas crucial to generating supply chain activity. And politicians across the spectrum need to understand and encourage collaboration between companies throughout supply chains – overly simplistic 'big-business-bad, small-business-good' rhetoric only undermines this goal.

With the right strategy the UK can build its supply chain capacity and be seen as the destination of choice for advanced manufacturing. The potential is there, the appetite is there. It's time to raise our game.

Executive summary

The UK's industrial strategy programme has highlighted the need to strengthen supply chains underpinning key sectors of our economy. Businesses recognise that stronger and more collaborative supply chains will make the UK economy more resilient, increase the value we derive from our products, and attract inward investment. In an increasingly global economy, competition for business investment is fierce. The UK's industrial base can be enhanced however, with the right strategy for supply chain growth built on ***innovation****,* ***quality*** *and* ***service****.*

Specific sectors, from oil & gas to automotive and aerospace, have made good progress mapping their supply chains, identifying strengths and weaknesses, and prioritising areas for development. This report does not seek to duplicate the important work being done at a sector level but instead takes a cross-industry view, taking stock of what has happened to UK supply chains as a whole in recent decades and identifying how common challenges may be addressed.

A balanced UK economy needs stronger supply chains

Businesses want to improve the supply chains they are a part of – 78% of companies view this as important or very important to their future growth.[1] From their perspective, a stronger domestic supply chain helps to guarantee security of supply, makes it easier to advance technology through collaborative innovation, and enables a faster response to changing market conditions and customer needs. As a result, both sectors and individual companies are looking to increase the proportion of products and services sourced from the UK.

Building stronger UK supply chains will help rebalance the economy by boosting growth in the manufacturing sector, a key hub for supply chain activity. This will not only help to improve the UK economy's overall productivity, but also foster growth across all the UK's regions, particularly those outside the greater south east. It would improve the balance of trade, and ensure that the UK gains maximum value from the presence and success of the larger or higher-profile companies that form 'anchor points' of manufacturing activity across the UK. These companies are so important to local economies and can nurture mutually beneficial relationships with their local suppliers. Stronger supply chains will also benefit people, as well as businesses, because the diversity of activities they support create a more evenly distributed range of jobs across all skills levels compared with other sectors.

To gain these benefits UK supply chains will have to realise a comeback, having been hollowed out in recent decades as our wider industrial base diminished. However, with employment in the manufacturing sector now stabilising and investment intentions strong, there are signs that with the right strategy for supply chains a rebound could be achieved.

Innovation and service: the routes to a supply chains comeback

Firms are increasingly reappraising their supply chains in the wake of changing global dynamics. While cost considerations were the critical driver of supply chain location decisions in the past, driving a trend to offshore production, there is a growing recognition that other factors – such as the ability to innovate, increase quality and reduce product lead times – can be just as or even more important.

This is not to say that cost is no longer a consideration. The UK can and must ensure costs – including energy and logistics – remain in line with other western economies. This is particularly important as the hidden costs of offshoring become apparent to firms, and high wage inflation in emerging economies tip marginal decisions in favour of local production. But while we must be cost competitive, the UK cannot and should not aim to be the lowest cost economy on the planet.

£30bn

A focused strategy to boost innovation and service driven supply chains could be worth as much as £30bn by 2025, and create over 500,000 jobs

What the UK can and should aim to be, however, is the destination of choice for supply chains driven by innovation, quality and service. What is more, both our strong ideas environment – underpinned by world-class research institutions and protection of IP – and our reputation for quality provide the foundation upon which such an ambition can be based.

With a focused strategy to create an environment in which supply chains primarily driven by innovation and service can thrive, the benefits to UK plc could be substantial. Our analysis has indicated that boosting growth in manufacturing subsectors substantially driven by these factors could boost the economy by as much as £30bn by 2025, creating over 500,000 jobs.

Six challenges to overcome to realise the comeback

Our research and consultation with businesses has revealed 6 areas that require attention if UK supply chains are to compete on the basis of quality innovation and service, and reinvigorate our industrial sectors.

First, both the public and private sectors must **invest more in R&D** to prevent us falling further behind our international competitors. The UK is currently underinvesting by a widening margin relative to many other western economies – France's investment in R&D outstrips the UK's by nearly 40%. We must raise the level of our R&D investment to at least match that of our rivals, and focus more attention on commercialisation of our ideas so that we can derive the returns we should from our world-class research base.

40%

France's investment in R&D outstrips the UK's by nearly 40%.

Second, the high value manufacturing we are looking to encourage requires more specialised skills than our education and training system is currently able to provide. The UK in general, and its supply chains in particular, are confronted by a **growing skills crisis**, with increasing numbers of businesses reporting difficulties in recruiting STEM-skilled graduates and technicians. While all businesses must contend with these shortages, it is often lower-profile and smaller ones that struggle to compete for the limited resource or set up their own training programmes. Allied to this, smaller firms in supply chains can face a shortage of management expertise in addition to technical skills.

Third, we need a **more flexible and dynamic environment** for a world in which supply chains need to respond quickly to changes in demand and offer greater customisation. On some measures such as the quality of our research base, corporation tax and the openness of our economy, we perform relatively well. But on others related to setting up or growing a business – getting electricity, registering property and dealing with construction permits – we need to do better.

Fourth, greater attention is needed to ensure the UK retains capabilities in producing the **critical materials** that underpin our industrial supply chains. Our foundation industries – such as plastics, metals and chemicals – suffered more acutely during the financial crisis than the wider manufacturing sector and businesses report difficulties in sourcing a number of key materials for their products. We must not only ensure we have capabilities in materials currently used in production but also ensure the UK capitalises on new and innovative materials technologies that will be used in productive supply chains of the future.

Fifth, we will not produce more innovative supply chains without investment, and businesses themselves must **take a longer-term view** to prioritise this. Our manufacturing firms are not investing as much in critical technological and process improvements, such as automation and robotics, as their counterparts in other countries.

And sixth, companies and public bodies need to buy in to the **importance of value, not just cost**. The public sector must make better use of procurement to shape markets and stimulate supply chain growth. Too often, a lack of understanding of how money cycles through the economy and delivers value, or fear of falling foul of EU procurement rules leads the public sector to make decisions based primarily on narrow definition of 'value for money' rather than the value generated to the UK through, for example, expanding the tax base.

Making it happen: actions for government and industry

To build an innovation ecosystem to match the UK's world-leading strengths in research:

- Government must commit to increasing overall government spending on R&D in the longer-term with an aim of reaching a combined public and private R&D spend of 3% of GDP, double Innovate UK (formerly the Technology Strategy Board) funding by the end of the next Parliament and 'supercharge' the R&D tax credit to incentivise the domestic commercialisation and manufacture of our ideas
- Industry must play its part by recognising innovation as a vital driver of future revenue growth, and develop or expand collaborative supply chain innovation schemes

To address the urgency of the skills crisis:

- Government must incentivise *both* the uptake of STEM-based degrees *and* the uptake of STEM-related jobs for these graduates and ensure skills funding is better aligned with the UK's industrial strategy. More immediately it must reform immigration rules, including raising the Tier 2 skilled visa cap.
- Industry must expand business-led skills training schemes and supplier mentoring programmes to develop their, and their suppliers', competitiveness. Anchor companies should develop 'clearing house' schemes to redirect promising applicants to their suppliers

To attract more businesses to fill gaps in our supply chains:

- Government should monitor and address current 'red flags' against the UK's business environment as part of its industrial strategy programme
- Industry and government together should establish an integrated approach to attracting FDI, with industry helping to 'warm up' potential investors and all layers of government joining up to present a coherent offer to them

To protect and enhance the UK's capability to produce critical materials:

- Government and industry should establish a UK 'materials strategy' along similar lines as the sector strategies already in existence and collaborate on the development of roadmaps for transformative materials technologies

To support long term investment from industry:

- Government should continue to improve access to patient capital for medium sized companies and encourage collaborative investment in R&D through the tax system
- Companies should engage with their suppliers as long-term strategic assets including committing to fair and transparent payment terms

To embed strategic procurement to develop supply chains:

- Government must ensure all public bodies make full use of the scope to recognise social value allowed for in both the Social Value Act and new EU procurement rules, and raise awareness of the Small Business Research Initiative
- Industry should continue to improve their understanding of the full cost of offshoring decisions and challenge false perceptions that UK suppliers offer poor value for money

A balanced UK economy needs stronger supply chains

The UK's industrial strategy programme has revealed significant opportunities for growth driven by stronger supply chains, and an appetite from businesses to see this potential realised. Getting this right will help rebalance the economy, delivering economic growth and a diverse range of jobs across the UK's regions.

Strengthening supply chains is a top priority for businesses

There is considerable appetite among businesses to improve the UK's supply chains, as part of a coherent industrial strategy. A 2013 CBI survey found that 78% of firms view supply chain development as important or very important to the long-term growth of their sector, and many of the industry councils set up in recent years have prioritised work to map their supply chains and pinpoint specific areas of opportunity within them.[2]

Many factors have prompted this focus on UK supply chains:

- Risk: driven by events such as the Japanese Tsunami of 2011 and the recent financial crisis, companies have become more aware of the risks posed by lengthy supply chains and are looking to enhance security of supply
- Innovation: as innovation needs grow in both products and technology, companies are looking to exploit the benefits of locating their supply chains near innovation centres
- Lead times: customer demands for shorter lead times and ever more customised products are placing a premium on market proximity

This has resulted in an increased desire to use more locally sourced inputs in the production of goods, which in turn has contributed to a growing interest in reshoring at least some production back to domestic markets. An EU-wide reshoring survey carried out by the CBI this year found that a third of respondents had already reshored to Europe, and of these 50% cited supply chain resilience as a key factor in their decision to do so.[3]

The potential benefits for sectors looking to proactively develop their supply chains are substantial. It has been estimated that UK suppliers in the offshore wind industry, for instance, could secure around 60% of global investment into the sector over the period to 2030, potentially supporting 41,000 jobs; suppliers in the UK automotive industry could stand to secure an extra £3 billion worth of contracts in the next few years; and suppliers in both the aerospace and civil nuclear sectors could also potentially benefit from contracts worth tens of billions as the production of civil aircraft ramps up and the UK's new civil nuclear programme gets underway.[4]

The strategies put in place at a sector level for achieving these goals rightly look to prioritise where action is taken. Businesses recognise that there are elements of supply chains that are likely to remain outside of the UK, but where the UK has the potential to compete, plans have been developed to strengthen our ability to do so.

CASE STUDY

Jaguar Land Rover's vision for its UK supply chain

Jaguar Land Rover has set itself a challenging vision for its UK supply chain – "A globally competitive, high performance supply chain, capable of supporting growth in the advanced manufacturing sector and in turn, enabling JLR to meet its own strategic ambitions."

The link between the expansion of JLR's global footprint and a globally competitive local UK supply chain is vital as over 90% of JLR's research and development, and the majority of its production facilities, remain firmly anchored within the United Kingdom. Though parts will be sourced locally to new JLR facilities established overseas, JLR's international and UK manufacturing growth offers the UK supply chain a major opportunity to grow as well.

The motivation behind this is multi-faceted and includes, but is not limited to: Intellectual Property security; minimisation of supply chain geopolitical risk; rapid response to market demand changes; and simple full landed cost competitive advantage.

As an example of this, Borg Warner, a US owned global automotive supplier, will provide JLR's new Ingenium engines with leading turbocharging technologies from its Bradford facility. Supported by the Regional Growth Fund and with future development linked through the University of Huddersfield, these UK sourced engines will be used in the UK-built and all-new incremental Jaguar medium segment XE model.

Strong supply chains provide the building blocks for a balanced economy...

The resilience and overall health of an economy is influenced by the balance and diversity of the industries that power it: more diverse economies are able to show greater resilience to volatile performance in individual sectors. Healthy supply chains should be a key driver of this balance and diversity in the UK – enhancing growth and productivity, improving the UK's balance of trade performance, boosting the economic performance of regions outside of the greater south east and providing a range of jobs for people of all skill levels.

...by enhancing growth and productivity

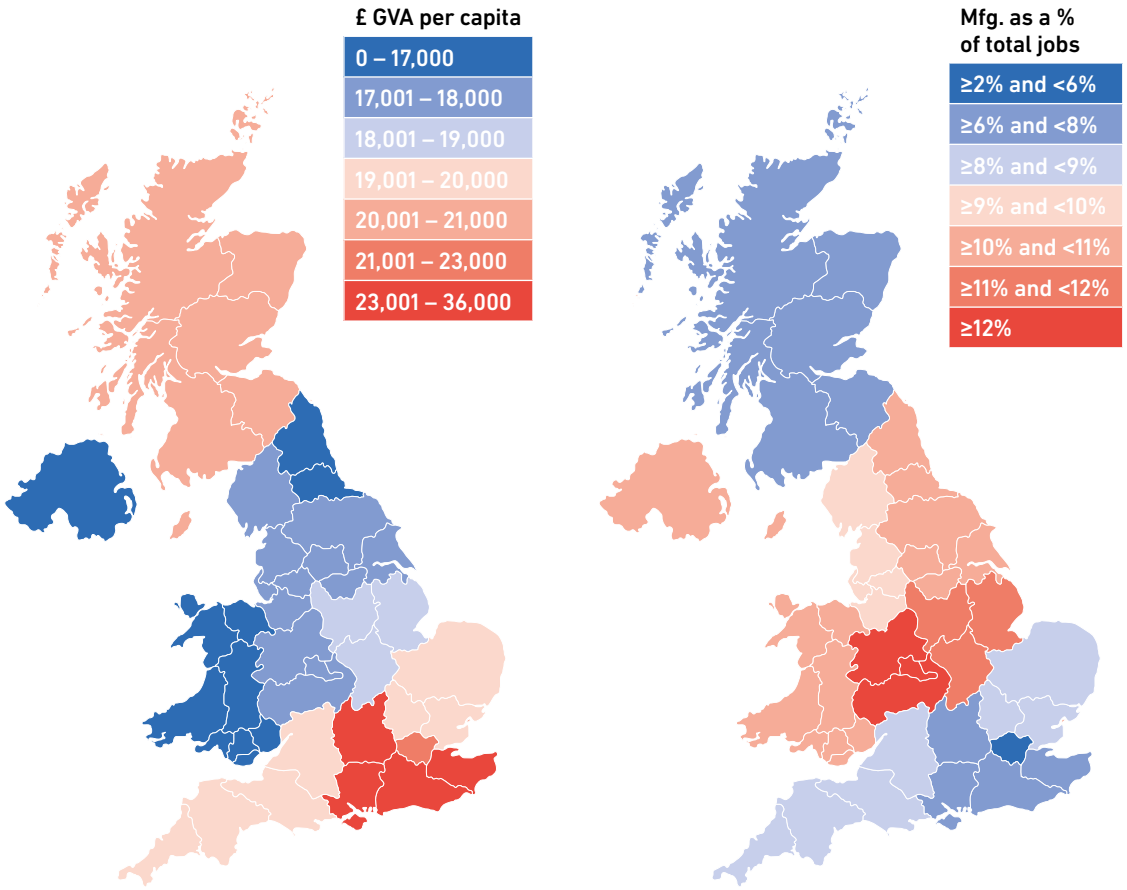
Stronger domestic supply chains will contribute to higher growth and productivity by boosting the performance of the manufacturing sector, which has an above average GVA per worker – employing around 8% of the UK's total workforce, it accounts for over 10% of GVA.[5] The sector also typically sees greater year-on-year productivity increases than the economy as a whole.[6]

... by reducing imports and boosting exports

An expanded industrial sector would make an important contribution to improving the UK's balance of trade. We have consistently run a deficit since 1998, and although this has edged down in recent years, in Q2 2014 it still amounted to £6.9bn or 1.3% of GDP. Driving this deficit has been a high trade deficit in goods, standing at £9.4 billion in June 2014.[7]

Strengthening UK supply chains could make a significant impact here. Boosting domestic supply chain capacity would make the UK less reliant on imports and boost the potential for exports. Manufacturers already make a disproportionately strong contribution to UK exports: though just over 10% of the UK's total economy by output, manufacturing contributes 46% of exports.[8]

Exhibit 1: A boost for manufacturing means better balance between regions



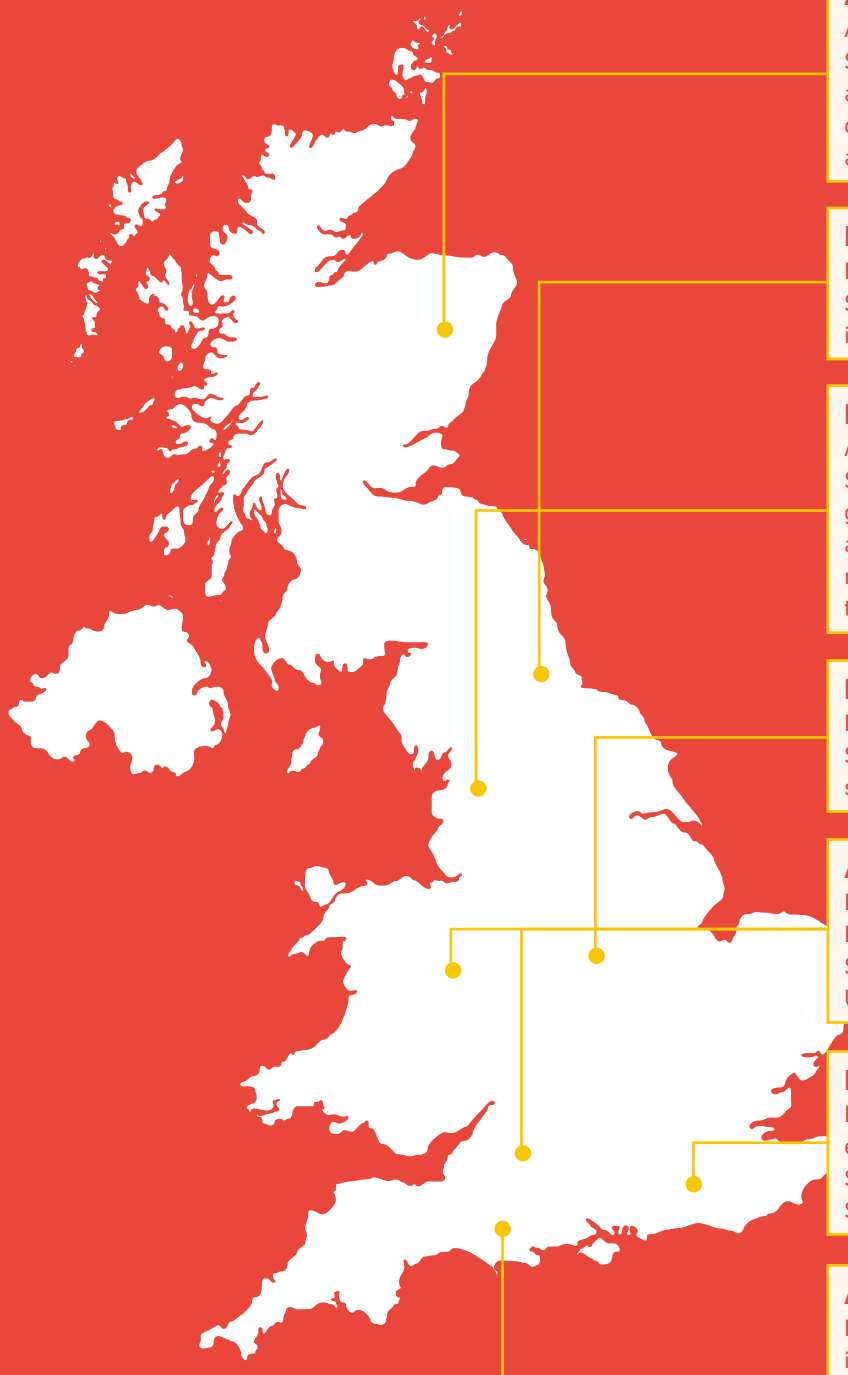
Source: ONS, House of Commons library, CBI/A.T. Kearney analysis, 2014.

...by strengthening regions and clusters

Manufacturing activities are disproportionately weighted towards areas of lower overall economic activity, and therefore the success of the sector would boost the performance of a broad range of regions, including those outside the greater south east (Exhibit 1). Though the dynamics vary by specific sector, these activities tend to be located around larger or higher-tier 'anchor companies', which act as important regional anchor points for suppliers engaged in activities ranging from the production of material or component inputs to the provision of services.

'Anchor companies' and their suppliers form mutually reinforcing clusters of activity, where the prosperity of the one reinforces the prosperity of the other. Strengthening supply chains around these companies, as well as action to attract more anchors to locate to the UK, would therefore help rebalance overall UK economic performance (Exhibit 2).

Exhibit 2: Anchor companies support clusters across UK regions



Selected anchor companies and their impacts

Aberdeen Energy Cluster
Anchors include: BP, GE, Costain, and Schlumberger. Employment generated: around 105,500 individuals in over 900 companies, along both the Oil & Gas and Offshore Wind supply chains

Nissan
Employs around 7,000 at its plant in Sunderland. Supports a further 28,000 in its local supply chain

North West Nuclear Cluster
Anchors include: Westinghouse, Urenco, Sellafield Ltd and Amec. Employment generated: around 25,000 individuals across 300 companies. The North West nuclear cluster accounts for over a third of total employment in the UK's nuclear sector

Rolls-Royce
Employs around 14,000 at its site in Derby. Supports a further 35,000 jobs in its local supply chain

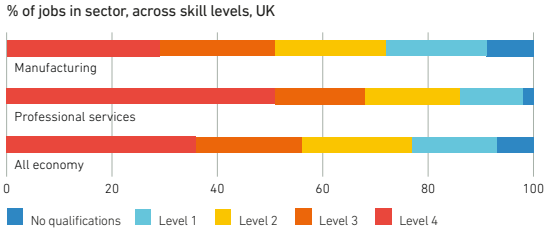
Airbus
Employs around 10,000 across two sites: Broughton in Wales and Filton near Bristol. Supports more than 100,000 jobs in its UK-wide supply chain

BT
Employs around 9,500 directly in the South east, alongside around 850 contractors. Supports a further 30,000 jobs across the South East's economy

AgustaWestland
Employs around 3,200 directly at its site in Yeovil, as well as 1,800 subcontractors. Supports a further 6,800 jobs across its local supply chain. The most significant economic enterprise in the Heart of the South West LEP zone

Source: CBI research, information provided by companies, 2014.

Exhibit 3: Manufacturing supply chains offer opportunities for all



Source: Manufacturing Sector Skills Assessment 2012, ONS Labour Force Survey 2010.

...by providing jobs for people at different skills levels

The capacity of strong supply chains to create a healthy employment ecosystem is often overlooked, but should not be underestimated. Because of the diversity of activities that take place within manufacturing supply chains, they support a broader and more evenly distributed range of jobs across all skills levels compared with other economic sectors (Exhibit 3).

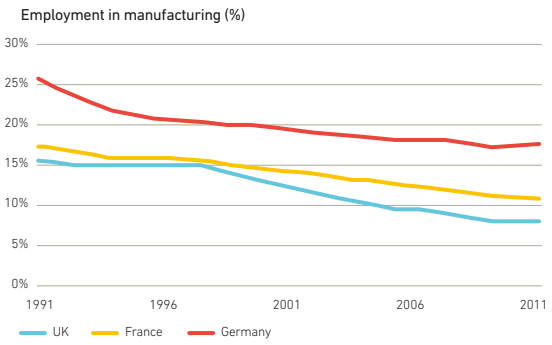
Healthy supply chains are therefore crucial, not only in fostering thriving local economies with employment opportunities for the people within them, but also in creating employment 'ladders' that enable people to progress from jobs with lower skills levels to those with higher ones.

To gain these benefits we need a strategy for a supply chains comeback

Alongside other mature economies, the UK has seen the overall size of its industrial base reduce over the last few decades (Exhibit 4). Manufacturing activity and employment levels have been curtailed through a combination of industrial consolidation, operational efficiency improvements and the relocation of facilities to lower cost markets.

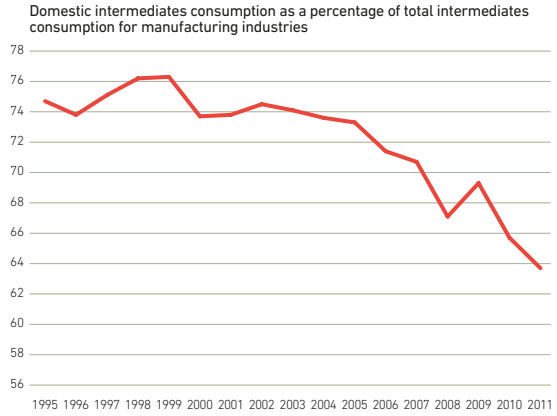
Manufacturing supply chains have been hollowed out too as part of this process. As Exhibit 5 shows, the proportion of domestically produced intermediates being used in UK manufacturing has declined, meaning that a lower proportion of UK 'inputs' are being used by UK manufacturing businesses. While some of this decline is a natural product of globalisation, too much of it points to a lack of competitiveness and the erosion of key capabilities.

Exhibit 4: Like other western economies, the UK industrial base has reduced



Source: ONS, De Statis, INSEE, CBI/A.T. Kearney Analysis

Exhibit 5: Manufacturing supply chains have been hollowed out



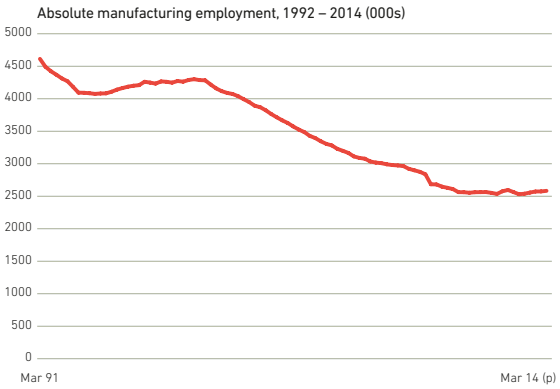
Source: World Input-Output Tables 2014, CBI / A.T. Kearney Analysis

However, despite this process, two indicators – employment and investment –suggest reasons for optimism. Employment in the manufacturing sector has stabilised in the last five years (Exhibit 6), with only relatively minor fluctuations since then. According to the CBI's Industrial Trends Survey investment intentions in the manufacturing sector are at a 17-year high.[9] As private sector investment is a good lead-indicator of medium to long-term economic activity, this is particularly encouraging. Taken together, these two indicators seem to suggest that economic activity in UK manufacturing may have stabilised for at least the short- to medium-term. With targeted action to help strengthen the UK's supply chains and boost the UK's manufacturing sector as a whole, this stabilisation could become an inflection point instead.

17yr

Investment intentions are at a 17-year high.

Exhibit 6: UK manufacturing employment seems to have stabilised



Source: ONS, UK Workforce jobs by industry 2014

Innovation and service: The routes to a supply chains comeback

The ability to innovate, improve quality and deliver better customer service is increasingly important for firms when weighing up where to base their supply chains, alongside cost. This presents the UK, which has clear strengths on which to build in these areas, with an opportunity that could potentially be worth £30 billion by 2025. A resurgence in our supply chains cannot be taken for granted though: many countries are fighting to retain or expand their industrial base, and the UK must not fall behind.

Business priorities for supply chains are changing

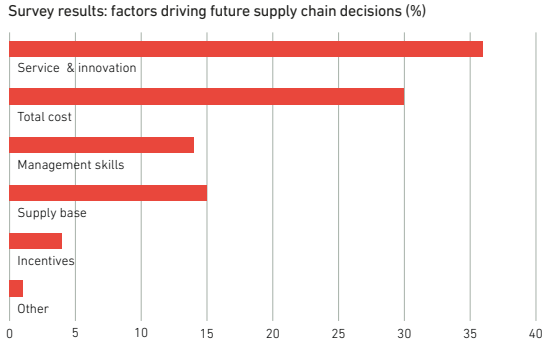
In recent decades, cost considerations have been key factors informing supply chain decisions, and have driven both network consolidation and offshoring of supply chains to low-cost locations. Though cost will remain one of the key considerations influencing supply chain decisions, there has been a shift in business priorities over the last few years and firms are attaching greater weight to other factors too.

Recognition is growing in some industries that factors associated with greater innovation, quality and market responsiveness are approaching or have reached parity with cost as a consideration. This reflects an internet age where consumers and companies want bespoke products quicker, meaning companies are having to work to ensure faster time to market for new products, faster delivery, more customisation and better overall service.

The importance of innovation, quality and service factors is apparent in the results of a joint CBI/A.T. Kearney survey undertaken for this study, where companies were asked to rate factors influencing their future supply chain locations. While cost remains critically important for supply chain decisions, innovation and service factors – including quality, market responsiveness, customer service and brand strength – are equally important (Exhibit 7).

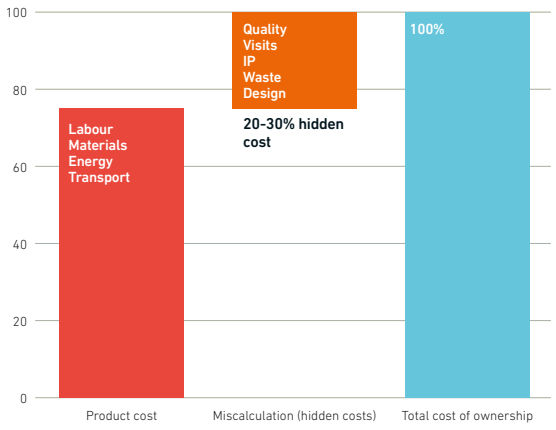
For the UK to overcome international competition and bolster its domestic supplier base, it needs to establish itself as the destination of choice for innovative, high-quality and highly responsive supply chains. Though the UK can and must compete on cost with other western economies, focusing our efforts to develop supply chains with strong innovation and service offerings will provide the most opportunity for growth. The UK has many strengths in these areas already, and our strategy must be to harness and develop them as fully as we can.

Exhibit 7: Service and innovation factors will influence future supply chains alongside cost



Source: CBI/A.T. Kearney survey, 2014

Exhibit 8: Offshoring has hidden costs



Source: A.T. Kearney analysis, 2014

UK supply chains must be cost competitive with other western economies...

The fact that innovation and service factors are significant does not and should not downplay the importance of the UK staying competitive on cost. Indeed, even businesses that depend on the innovation potential of their supply chains must consider costs when deciding where to source products, and action is needed to ensure the UK is in line with other western economies. In particular, we need an energy policy that secures the long-term investment needed to update our infrastructure with an acceptable balance of costs for businesses across the UK's supply chains.

As a mature economy, the extent to which the UK can compete *purely* on cost is naturally limited; the UK is never going to be the lowest-cost economy, and aiming to become one would be unrealistic and undesirable. However, as the hidden costs of offshoring production and high wage inflation in emerging economies become more apparent to firms, a competitive UK cost base will help tip decisions at the margin more in favour of local production.

While traditional wisdom has advocated offshoring as a key tool for lowering costs across the supply chain, offshoring decisions may have underestimated the actual costs of offshoring by 20-30% (Exhibit 8). Most companies tend to compare "landed costs"[10] and are rarely able to evaluate hidden costs incurred in managing extended supply chains, such as potential Intellectual Property (IP) loss, poor quality, waste, additional site visits and the cost of management time in weighing up the decision.

In addition to understanding the hidden costs, there has also been significant inflation in labour costs across Eastern Europe and Asia, typical offshoring destinations. This decreasing wage gap between previously low-cost locations and the UK underlines the fact that offshoring decisions can leave companies at risk of unexpected or rising costs, particularly in the medium-term. Indeed, these hidden and rising costs, combined with recent shocks to global supply chains such as the global financial crisis and natural disasters in 2011, have prompted firms to re-evaluate extended and potentially vulnerable supply chains.

Specialisation and high quality are key factors for growth.

– Cameron Harvie, Heathcoat Fabrics

...and aim to become world-leading on innovation and service-driven supply chains

Though maintaining cost competitiveness is important, the UK should focus efforts on becoming the leading destination of choice for supply chains driven by innovation, quality and service. With strong foundations in many of these areas – a strong ideas environment underpinned by world-class research institutions, solid IP protection and a reputation for quality – there is good cause to believe that such an ambition can be realised.

a) A strong ideas environment can catalyse more productive UK supply chains

The UK is a world leader in providing a conducive environment for IP development. The Global Intellectual Property Centre of the US Department of Commerce ranks the UK second only to the US in providing a regulatory environment for IP that fosters growth and development.[11] Not only does the UK provide the right environment for ideas, it is also an effective generator of them: with some of the world's best universities, the UK leads the way in field-weighted citation impact, a key indicator of research quality.[12]

This is an enviable strength, and needs to be capitalised on to ensure that a greater share of the total value of the manufacturing supply chain is captured in the UK. With research suggesting that R&D productivity increases by a factor of 2.5 when R&D and manufacturing facilities are co-located, action needs to be taken to ensure that we are able to take advantage of our strong research environment to drive value through domestic supply chains.[13] Encouraging companies to undertake more of this co-location would bring significant benefits for the UK's research and manufacturing, and would help the UK win in innovation driven supply chains. As discussed in the next chapter, achieving greater levels of R&D and innovation activity all along the supply chain will be vital if we are to strengthen both supply chains and the manufacturing sector as whole.

b) Demand for shorter lead times and better quality can play in the UK's favour

Customer expectations of total order-to-delivery times have undergone a significant change since the dawn of the internet age. New and emerging developments in technology, such as additive manufacturing and the 'Internet of Things', permit increased dynamism in response to product demands and customer needs, and require a closer relationship between customer and supplier. This change in customer expectations, coupled with a need to maintain lower inventories, has placed a premium on shorter lead times across most tiers of the manufacturing supply chain.

Business feedback substantiates this point. An EU-wide survey on re-shoring, carried out by the CBI earlier this year, revealed that 54% of companies that had re-shored to the EU were motivated by a need for faster market responsiveness.[14] A similar survey, carried out by the Manufacturing Advisory Service (MAS) in September 2013, found that the third highest cause for re-shoring decisions was to improve lead times.[15]

54%

54% of companies that had reshored were motivated by a need for faster market responsiveness.

In addition to lead times, UK supply chains can compete by delivering better quality than their international competitors. Our survey found that quality considerations were of major importance around re-shoring decisions, with 71% of respondents that had already re-shored citing better quality in their home market as a critical factor in their decision. The MAS survey, referenced above, found that quality considerations were the second highest driver of re-shoring decisions.[16]

Smurfit Kappa and Tulip collaborating to meet dynamic consumer demand

Two companies operating within the UK, Smurfit Kappa (Paper based packaging) and Tulip (a leading food supplier) have recognised the need to work collaboratively in a fast-changing fast-moving consumer goods market place.

"The demand on our business is to have products in the right packaging format for each route to market so that it protects the food and helps promote and sell it as well," says Michael Sondergaard, Supply Chain Director at Tulip UK. "However, that is only part of the challenge. We also need a supplier who understands the various retail channel issues, and crucially truly understands our factory and machinery capabilities to design and deliver the optimum packaging first time."

Smurfit Kappa and Tulip UK have invested in a dedicated person that works for both their businesses. This sharing of resource ensures that new packaging is designed optimally first time to run through Tulip's factories with maximum efficiency.

"Using our industry unique 'Experience Centres', we can help U.K. customers avoid the costly mistakes of factory inefficiencies and poor shelf presence with new product lines," says Terry McGivern, Regional Director for Smurfit Kappa UK South.

He continues: "Progressive companies realise close collaboration and long-term partnering, prove more successful than tendering and commoditising supply. Working together, greater efficiency and competition-beating speed to market can be achieved."

Winning in the modern retail arena means understanding and addressing a myriad of factors. These include the consumer, the purchaser, the various drivers of product selection at the point of purchase, supply-chain product protection and efficiency, all with significant speed of change and speed to market. It is no longer the case that the strongest and biggest company will survive and win. The fittest and most agile supply chain is the modern champion.

CASE STUDY

A targeted supply chains strategy could deliver lasting economic benefits

Delivering on this vision for future UK supply chain strength, as well as out-competing other developed economies that are seeking to rebuild their own supply chains, will require an approach to supporting supply chain development that plays to the different dynamics and supply chain drivers of individual industries. As Exhibit 9 shows, the UK has the potential to achieve supply chain growth in a range of different industries: where the UK can convince firms that logistics, energy and other costs offshore would outstrip those incurred domestically, they may look to develop a UK supply chain. Equally, where the UK can demonstrate that it has a clear lead in factors like innovation, quality and product lead times, firms motivated by these considerations may also look to develop a UK supply chain.

> *Centres of innovation are more likely to become the future centres of supply.*
>
> – Michael Mychajluk, Jaguar Land Rover

> *Speed is more and more important, and is driving us to expand engineering support resources near manufacturing sites.*
>
> **– Paul Broadhurst, Technetix**

Exhibit 9: Key supply chain drivers for the UK

	Revenue drivers: Innovation and service	Cost Drivers: Total Cost
Why choose a UK supply chain?	- Better innovation - Benefits of co-location of R&D with supply chain - Pool of skilled resources - Stronger brand - Shorter lead times for local/regional demand - Perception of better quality	- Lower logistics cost - Potentially greater energy efficiency - Lower hidden cost (e.g. loss of IP, poor quality, visits, etc.)
Select industry examples	- Life sciences and advanced crop science - Nuclear & defence - Civil aerospace - Engineering and Information Technology - Premium automotive	- Refining - Mass market automotive

Source: CBI / A.T. Kearney analysis

As before, though the UK should aim to compete on cost where possible, it will rightly not be able to rival low-cost locations like the Far East. The potential benefits to the UK economy from fostering a stronger innovation environment and building on our reputation for quality and service, however, are significant. Analysis by A.T. Kearney and the CBI indicates that boosting growth in manufacturing subsectors where supply chains are especially driven by innovation and service factors could stand to benefit the UK economy by as much as **£30bn** by 2025, creating over **500,000** jobs.[17]

This estimate is based on a trend analysis of manufacturing sub-sectors, and assessing what the impact would be if those primarily driven by innovation and service factors were to grow.[18] An employment figure was then estimated based on an assumed GVA to employment ratio.

Service agility and responsiveness is becoming increasingly important.

– Stuart Lorimer, Diageo

Six challenges to overcome to realise the comeback

By creating an environment that bolsters supply chains driven by innovation and service, our industrial sectors can compete effectively on the world stage. However, there are a number of barriers that must be addressed if UK supply chains are to meet their full potential and drive a resurgence in UK manufacturing.

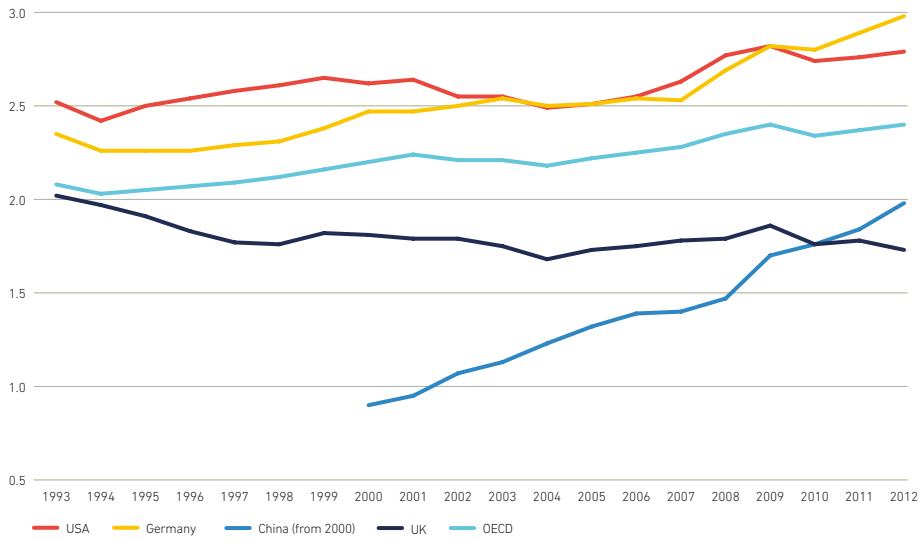
Stagnating and unbalanced R&D investment impedes commercialisation of ideas

For the UK to become the destination of choice for innovation and service driven supply chains, it is essential that our innovation environment competes on a global level. We have a world-leading research base and are home to many highly innovative businesses, but our innovation ecosystem also has weaknesses. In particular, our level of R&D investment is declining relative to our main competitors, and there is untapped potential for the domestic commercialisation of UK-generated research.

Declining relative R&D investment

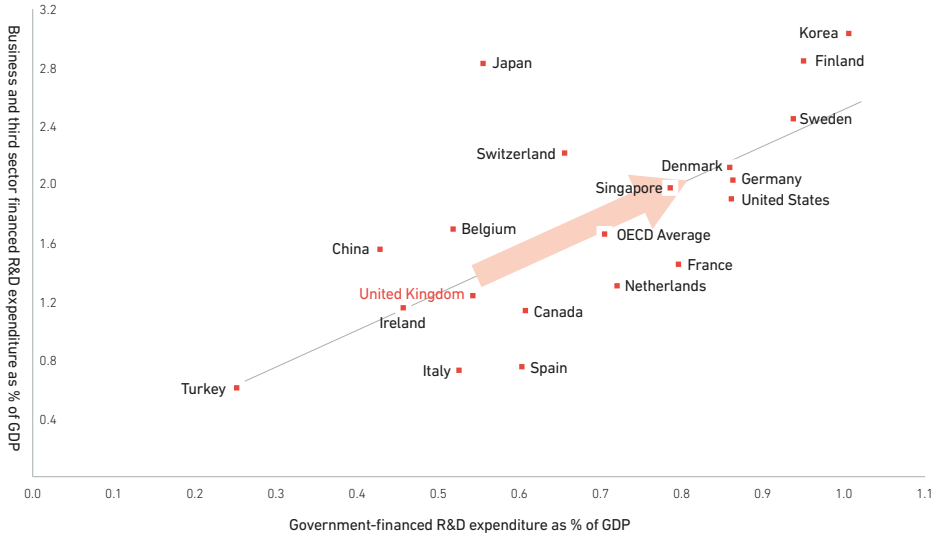
The overall level of both public and private investment in R&D accounts for a lower share of GDP in the UK than in major competitor countries. The proportion of GDP which the UK devotes to R&D – both publicly and privately funded – has changed little over the past 18 years, having fallen quite steeply over the previous decade. Meanwhile, major competitors have continued to steadily increase their R&D investment. The UK is now well below the average levels for both the OECD nations and the EU, and in 2011 was overtaken by China (Exhibit 10). In 2012 France, with an economy of similar size to the UK, invested more than $55bn in public and private R&D, while the figure for the UK was less than $40bn.[19]

Exhibit 10: UK R&D investment is slipping behind our competitors



Source: OECD Main Science and Technology Indicators, 2000 & 2014

Exhibit 11: Business and government are under-investing in R&D – and the two are correlated



Source: OECD Main Science and Technology Indicators, 2014

The high quality of UK academic research is strongly reflected in citation indices but this evidence relates to research which has been conducted in the past, and there is no guarantee that this performance can be sustained indefinitely with diminishing resources. Funding for university research was frozen in the 2010 and 2013 spending reviews, a comparatively benign settlement in the circumstances, and the right decision to take, but erosion through inflation will have reduced it in real terms by over £1 billion by the end of 2015/16.

Business accounts for most R&D, and though business investment in R&D held up relatively well during the recession, the level is correlated with public funding and remains low by the standards of competitor nations (Exhibit 11). A high proportion of business R&D in the UK is by large companies, reflecting the challenges faced by medium-sized and smaller businesses, including lack of resource and a shortage of supportive institutional infrastructure. The R&D tax credits system has been improved and its impact is increasing, but it does not carry through to support later stages of commercialisation and manufacturing in the UK of innovative products.

Failure to commercialise research

The second crucial weakness of the UK's innovation ecosystem is the imbalance between the levels of public funding for innovation support and for research, which prevents supply chain businesses getting the full benefits of research outputs. This weakness has a particular impact on small and medium sized businesses, which may have more of a focus on near-market development rather than long term research:

- Innovate UK remains under-resourced to fulfil its mission. Its budget for 2013/14 is £440m, or just under 0.03% of GDP. By contrast, the science budget, which funds research, is £4.6bn (0.29% of GDP). Comparable figures for Finland are 0.27% and 0.61% of GDP respectively.[20] In other words Finland devotes nearly ten times as much of its resources to its innovation agency, and more than twice as much to research, as the UK. Germany does not have a single national innovation agency, but a sense of the scale and balance of its approach may be gauged from the R&D budgets of the Ministry of Economic Affairs and Energy (which includes technology) and Ministry of Research and Education – 0.1% and 0.3% of GDP respectively, with the latter also including core funding for the business-facing network of Fraunhofer institutes.[21]
- The UK suffers from a relatively underdeveloped institutional infrastructure to support the transition from research to prototyping and commercialisation. There are some excellent independent research and technology organisations that occupy this niche successfully, but they are few in number. It is a prime objective of the new Catapult centres to meet this need, but they are at an early stage of development. Core funding for the 7 existing Catapults runs at about £50m per year, whereas the comparable figure for Germany's 67 Fraunhofer institutes is nearly €650m. Like the Fraunhofer institutes the Catapults require stable core funding to enable them to invest in emerging future technologies where industry will need their support in commercialisation.[22]

CASE STUDY

MIRA – providing support for the commercialisation of research

MIRA Ltd is an advanced engineering, research and test consultancy, providing R&D to the transport industry. Established in 1946 as the Motor Industry Research Association to conduct research for UK companies, it is now expanding in a number of growing global markets. Its services range from individual product tests to multi-vehicle design, development and build programmes for a wide range of vehicle and component manufacturers and suppliers in the automotive, aerospace, rail and defence sectors. In 2013 it contracted with 727 UK companies.

MIRA's internal research accounts for 2% of the organisation's £45m turnover and grant-funded collaborative projects represent a further 3%. Major programmes include intelligent mobility, low-carbon technologies and unmanned vehicles.

MIRA's involvement with a number of UK universities through collaborative research projects and sponsored PhDs puts it in a strong position to support business commercialisation of research results. Its Technology Park in Nuneaton is the hub of a transport sector technology cluster and will host the University of Leicester's £2.5m Advanced Structural Dynamics Evaluation Centre, providing 3D laser structural dynamics vibration testing and analysis.

Working with local colleges MIRA has also set up MIRA Academy, to provide a training resource addressing the skills needs not just of its own staff, but also those of partner, customer and industry-related organisations based at the Technology Park. The Academy will support work experience placements and employability training as well as providing education and training in relevant supply chain STEM skills.

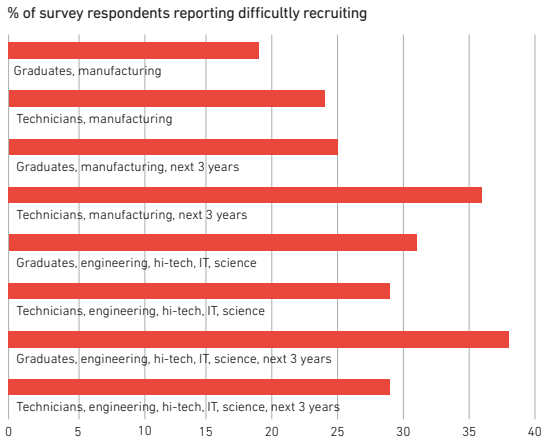
The consequence is that, although the UK punches above its weight in terms of the volume and quality of research outputs and the success of R&D-intensive sectors, it is now slipping down the ranks of innovative nations. It has fallen from 4th place (in 2009) to 8th in the EU's Innovation Union Scoreboard. A specific area of weakness identified in this assessment was the relatively low sales derived from new products in the UK.[23] If these trends continue there is a serious risk of long-term damage to our competitiveness.

Supply chains are bearing the brunt of a growing skills crisis

The high-value supply chains we need to encourage in the UK require more specialised skills than our system is currently able to provide. With generalised shortages of well-trained, STEM-skilled individuals being exacerbated for smaller companies in the supply chain, action to resolve the UK's skills shortfalls is vital. In addition to technical skills, managerial skills shortages are also having an impact on supply chain development, as smaller companies sometimes struggle to access the skills needed to capitalise on opportunities to grow their business from small to medium and beyond.

Though businesses of all sizes must contend with a growing skills crisis in the UK, it is the UK's smaller, lower-tier suppliers that feel its effects most keenly. With competition for limited numbers of skilled personnel intense and skilled individuals tending to gravitate towards the more well-known companies within a supply chain, smaller companies can be left at a disadvantage when trying to attract or retain the personnel they need.

Exhibit 12: Skills shortages have reached critical levels



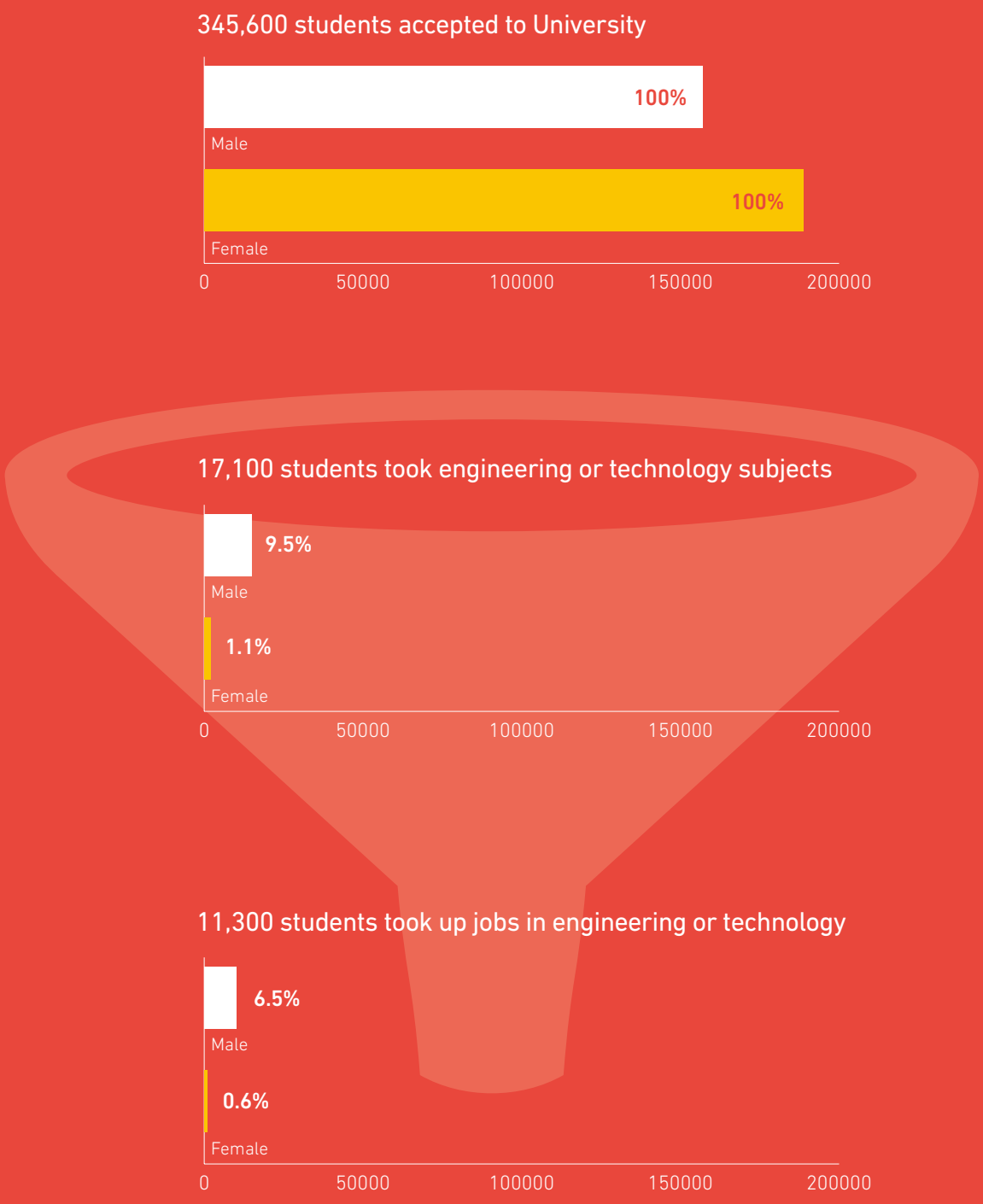
Source: CBI education and skills survey data, 2014

Though recruitment dynamics in supply chains can certainly be unhelpful, the core issue facing the UK's supply chains is simply that not enough suitably skilled individuals are available to meet employer demand. As Exhibit 12 shows, upwards of one in five employers in both the manufacturing and the engineering, hi-tech, IT and science sectors are currently reporting difficulty recruiting either STEM graduates or STEM technicians. Almost across the board, these shortages are expected to become more prevalent in the next three years.[24]

Whilst some progress has been made in increasing STEM uptake at all levels of the UK education system, the throughput of the UK's current skills pipeline is still insufficient to meet demand. This problem is exacerbated by factors including continuing issues around low levels of female participation in STEM subjects or careers, as well as the quality of careers advice in schools.[25] Looking at the academic pipeline that fed into the 2010 graduate cohort, the proportion of engineering graduates remains low at only 9.5% of men and 1.1% of women. Of this limited number, around a third of these graduates do not even go on to take up employment in engineering or technology-related jobs Exhibit 13. With many of the sectors that rely on these skills facing demographic challenges in addition to those of recruitment, these skills shortages are likely to be compounded still further, aggravating the effects already being felt by businesses on their ability to grow and innovate.

Only 1 in 20 university students studied engineering or technology subjects; only 2 in 3 graduates with degrees in these subjects took up jobs in engineering or technology.

Exhibit 13: The UK needs to 'fill its funnel' of engineering and technology graduates



Source: Engineering UK 2013 – The state of engineering, Engineering UK, 2013; UCAS; Higher Education Statistics Agency; A.T. Kearney / CBI Analysis; figures rounded up to nearest hundred

Although some companies are able to counteract this by upskilling new or existing employees through training schemes, smaller companies tend to find this harder.[26] A number of factors are behind this, the most common restrictions including resource constraints, excessive bureaucracy, a disjointed skills funding landscape, and insufficient links between businesses and their local Further and Higher Education institutions.

Though technical skills shortages are certainly one of the primary barriers to the development of the UK's supply chains, managerial skills shortages can also hold them back. While many smaller companies are run well, the challenge of expanding a business from 50 individuals to one of 500 or more can require greatly different skillsets and management structures, both of which may require external assistance to secure. This challenge is reflected in survey responses to the CBI's Future Champions report, 54% of respondents from companies with an annual turnover of between £10 and £250 million selecting better senior management skills as the most important amongst a range of growth drivers.[27]

CASE STUDY

Taking a collaborative approach to tackling skills shortages – Gen2

One company aiming to address skill shortages is the Cumbrian based training organisation, Gen2. Having been established by 5 major organisations in 2000 (Sellafield Ltd, Amec, Iggesund Paperboard, Innovia Film and Tata Steel), the company has adopted a collaborative approach to skills development to ensure training delivery addresses key skills shortages, particularly in the nuclear supply chain.

In the past 14 years the company has grown significantly. With an initial intake of 75 apprentices in 2000, Gen2 now have an annual intake of over 450 apprentices and over 1,200 apprentices currently in learning. In addition, Gen2 train 200 Adult learners, 300 Higher Education learners and deliver in excess of 10,000 delegate days per annum.

A key element of skills development is the wide range of bespoke training courses, apprenticeships and higher-education programmes developed through employer engagement. The courses are designed to meet specific skills requirements, are fully-accredited by relevant professional/awarding bodies and range from Entry level through Foundation Degrees to Masters level. Programmes include ready for work programmes, STEM workshops, traineeships, nuclear specific apprenticeships and a suite of foundation and BEng (Hons) degrees.

One organisation benefitting from this collaborative approach is Morgan Sindall, who, amongst many other projects, are working within the Cumbrian nuclear supply chain. The collaborative approach adopted by Gen2 and Morgan Sindall has resulted in the development of an 8 week employability skills programme which has led to the employment of local people. In addition Gen2 has also worked with Morgan Sindall to provide apprenticeship training, Technical Specialist Trainee Programmes, safety training and a range of commercial CPD programmes.

The collaborative approach adopted by Gen2 to address key skill shortages has proved to be a very successful business model with major company growth realised for the past 5 consecutive years.

Exhibit 14: CBI business environment scorecard (CBI assessment)

Theme	Indicator	UK	France	Germany	US	Japan	World leader
Education & Skills	PISA ranking[29]	26	25	16	36	7	Shanghai, China
Research & Innovation	Quality of science research institutions[30]	2	12	8	4	7	Switzerland
	R&D expenditure, % of GDP[31]	1.7	2.3	3.0	2.8	3.4	Korea
Infrastructure	Quality of overall infrastructure[32]	27	10	11	16	9	Switzerland
Energy costs	Average industrial electricity prices[33]	8.9	8.1	10.8	4.4	10.6	USA
Tax competitiveness	Headline corporation tax rate %[34]	21	33.3	29.6	40	35.6	Russia, Turkey, Saudi Arabia
	Effective marginal tax rate,%[35]	18.9	17.5	18.2	23.2	24.7	Italy
Regulatory burden	Burden of government regulation[36]	37	121	55	82	64	Qatar
Access to finance	Ease of access to loans[37]	82	17	34	14	19	Qatar
Investment & trade	Openness to trade (Trade to GDP ratio)[38]	46.7	47.6	75.1	23.9	28.4	Hong Kong

This scorecard has been compiled to reflect key factors determining the attractiveness of the UK's business environment. The data in the scorecard is wide-ranging, drawing on figures from organisations such as the World Economic Forum, the World Bank and the OECD, with detail on the sources set out in the reference. It represents a snapshot only, using data based on the latest figures official figures available.
The CBI's assessment is based on relative performance compared to other countries in key indicators, and has been determined according to the following rules:

- For ranked variables, countries are green if they fall in the top ten, yellow if between 11-20 and red if over 20
- For all other indicators, the assessment has been made based on where countries sit relative to the mean of the indicator

The UK's business environment is good... but only once you're here

With the UK being only one among many mature economies looking to develop its supply chain capacity, it must take a targeted and coordinated approach to attracting investment, ensuring that we are able to secure the resources needed to develop an innovation and service-led supplier base.

Maintaining a strong and dynamic business environment will be key in helping the UK to develop its supply chains. Though the UK's overall business environment places it in a position of strength relative to a number of nations, with particular strengths in areas like headline corporation tax, we cannot afford to be complacent on this matter. Compared with our closest competitors, the UK appears to be lagging on certain fronts – as latest figures and the CBI's business environment scorecard (Exhibit 14) show, the quality of our infrastructure and our education & skills environment have fallen behind the standard of our leading competitors.

In more specific areas, the UK's environment around business 'dynamism' is also a concern. Though the World Bank's 'Ease of doing business' ranks the UK in 10th place overall, we quickly fall behind in areas critical to enabling businesses and investors to respond to rapidly emerging opportunities. In activities like getting electricity, registering property and dealing with construction permits, the UK lags behind its overall ranking (being 74th, 68th and 27th respectively); in the sub-element concerning 'starting a business', the UK is only placed 28th.[28]

A fragmented approach to attracting inward investment is also limiting the development of supply chains in the UK. CBI members have highlighted a perceived lack of coordination between local and national-level government in efforts to attract or retain activities in the UK. This stands in contrast to many of our international competitors, who are better able to coordinate national-level commercial diplomacy with the actions and incentives offered by local government when seeking to attract businesses to specific areas.

Production of critical materials is under threat

With the UK's foundation industries[39] under sustained pressure, we are at risk of losing the critical materials capabilities that underpin a wide range of manufacturing activities, and add much to the competitiveness of the sector overall. If factors like innovation and quality are to be the main drivers of growth for the UK's supply chains, every step of the UK's supply chains – from top to bottom – will have to be involved in delivering this vision. Taking action to ensure these capabilities remain in the UK will not only help keep the manufacturing sector as a whole more competitive, but will provide additional benefits through higher quality inputs and greater collaboration on materials innovation between producers and consumers.

The UK's foundation industries play a vital role in ensuring UK supply chains punch above their weight. As well as contributing significantly in their own right – responsible for almost half a million jobs and £24.6bn value added – they also underpin the supply chains of a number of our key industrial sectors. As an example, purchases from the foundation industries represent:

- 28% of purchases by manufacturers of motor vehicles
- 27% of purchases by manufacturers in the aerospace sector
- 17% of purchases by the construction sector[40]

Despite their key contributions to UK manufacturing, many of these industries have been under sustained pressure from international competition and rising energy prices: in 2013, for instance, industrial electricity prices for extra large consumers in the UK were over 33% higher than the EU 15 Meridian[41]. In addition, the UK's foundation industries also suffered acutely during the recent financial crisis, seeing their output fall more sharply compared to the manufacturing sector as a whole (Exhibit 15).

0.5m

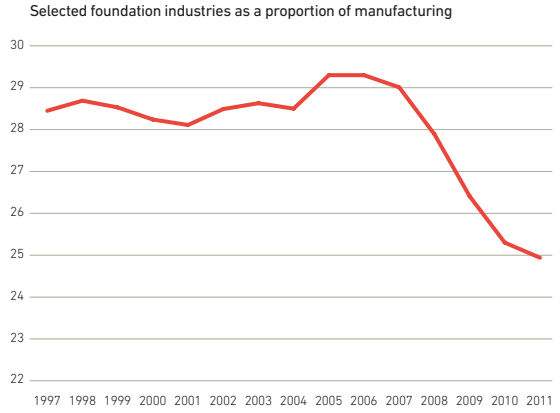
Almost half a million people are directly employed in the UK's foundation industries.

Snapshot of CBI's policy recommendations around the UK's foundation and Energy Intensive Industries energy needs

To ensure all new and existing industries can thrive in the low-carbon economy government should:

- Ensure the competitiveness of the UK's foundation industries is central to future energy policy
- Support the further rollout of Energy Intensive Industries roadmaps, including identifying and addressing the barriers to deploying on-site generation and low-carbon technologies, as well as exploring cost-effective ways to support the decarbonisation of supply chains.

Exhibit 15: Foundation industries were hit hardest by recession



Source: ONS, 2014

These factors have combined to leave the UK at real risk of losing the capability to produce materials critical to a wide range of manufacturing activities. Taking the example of the UK's chemical industries, domestic production of ammonia, of great importance to the UK's agri-food sector amongst others, has been reduced to just one manufacturer. Chlorine, which is important in the production of a wide range of plastics, is now only produced at a single site. Faced with such reductions in domestic capability, manufacturers further up affected supply chains have had to look to imports to meet their needs; some manufacturers are even having to set up their own material production facilities.

CASE STUDY

Plessey Semiconductors struggle to source materials to match their growth ambition

Plessey Semiconductors is a leading expert in the development and manufacture of semiconductor products used in solid state lighting, sensing, measurement and control applications. With products used in a wide range of markets from medical to aerospace, the company has ambitious expansion plans with a rapid R&D route to market supported by growth in their manufacturing capability and capacity.

As this strategy turns to reality, Plessey's supply chain demands have increased – demands that are struggling to be matched through the firm's current UK supplier arrangements, particularly with regard to the raw materials that underpin its manufacturing processes.

Plessey already sources its base material, silicon in wafer form, from the US or Japan, with a 12 to 14-week lead time, and it is increasingly finding that chemicals it has traditionally sourced from the UK, such as ammonia is becoming too scarce to meet their needs as they grow. The 20 tonnes of hydrogen it consumes each week in its manufacturing can currently be supplied from within the UK, but as this demand increases to over 200 tonnes per week this will no longer be possible. In light of this, the firm are now having to consider building their own on-site hydrogen farm at a facilitation cost of £1m.

Strategies for developing world class supply chains capitalising on the innovative potential of the UK must be considered from the bottom up as well as top down. While the UK's industrial strategy programme has made good progress in establishing strategies for a growing number of vertical sectors, it is less developed in considering the advancement of horizontal industries that cut across them. Without a focus on retaining and enhancing our capabilities to produce key materials, those sectors that have been identified as areas of strength for UK manufacturing will not reach their full potential.

In addition to underpinning the strength of the wider manufacturing sector, the UK's foundation industries also have an important role in enabling greater innovation. The work of the Tata Steel's Proving Factory is an example of how collaboration between domestic materials producers and consumers can enhance innovation, in this case demonstrating how Tata Steel is working with the UK's automotive supply chain to help commercialise innovative new ideas through contributing its expertise in the design and application of steel products.[42]

Developing and formalising this kind of collaboration will be important if the UK is to fully exploit the opportunities presented by new and transformative materials. Companies are concerned the UK is not currently fully achieving this: taking the example of graphene, a material that was discovered in 2004 through pioneering research in the UK and that has a host of potential applications across different industries, only just over 50 patents making use of the substance had been registered in the UK by 2013, compared with almost 2000 each in the US and China.

CASE STUDY

A roadmap for graphene

Graphene is a new material, first produced by Andre Geim and Konstantin Novoselov at the University of Manchester in 2004 – for which they were awarded the Nobel Prize for physics. It has a wide range of remarkable properties which could lead to revolutionary applications with significant market potential. Research is being conducted at a relentless pace in many countries, and patenting has exploded worldwide – though patenting by UK and other European businesses is well behind the global leaders.

The CBI's 2012 report *Playing our Strongest Hand* recommended that government and industry should work together to identify critical roadmaps for the development of materials like graphene. An example of one way forward can is offered in Sweden, where a task force bringing together universities and businesses has consulted widely and produced *Agenda Graphene*, a roadmap which identifies areas of national strength and synergies with other agendas as well as proposing goals, metrics and a time plan and making a number of recommendations on aligning efforts and expectations and strengthening value chains and SME competitiveness.

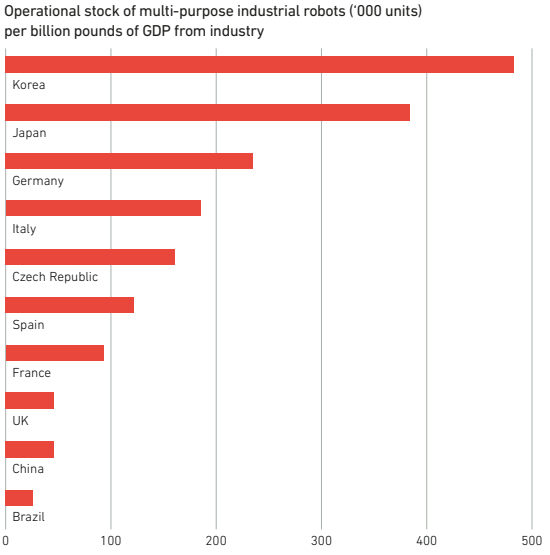
In the UK, with government and EU funding, a £61m National Graphene Institute is being built in Manchester. Cambridge also has a graphene centre which includes a centre for doctoral training. The EU has launched the Graphene Flagship, its biggest research initiative ever, with a budget of €1bn, which will cover the entire value chain from materials production to components and system integration. With appropriate resource, Innovate UK would be well placed to coordinate projects similar to the Swedish *Agenda Graphene* roadmap, both for graphene and other technologies with major transformative potential across a range of sectors.

Our short-term focus holds back investment

Making UK supply chains more competitive based on innovation, quality and service will require a long-term commitment, consistent with the broader aims of industrial strategy. Not enough business are making this commitment however, and there is a need for businesses to expand their horizons, raise their ambitions and investing sufficiently to take advantage of growth opportunities further down the line. As it stands, UK manufacturing firms are not investing as much in key technological and process improvements as those in other countries. Over time this will act as a drag on productivity throughout supply chains, making them less competitive internationally.

As an example of this, the UK is significantly underinvesting in robots and automation, not only in comparison to leading economies in Asia, but also European economies, such as France, Germany, Italy and Spain (Exhibit 16).[43] Automation is an increasingly important ingredient to developing manufacturing businesses, so evidence suggesting we are behind the curve in investments made to date is a concern.

Exhibit 16: UK firms invest less in robotics than other countries



Source: World robotics 2013, International Federation of Robotics, 2013

The UK is significantly underinvesting in robots and automation.

Anchor companies too can play a more proactive role in fostering long term relationships with their supply chains and encouraging their investment; the most successful supply chains are collaborative rather than confrontational.

This investment shortfall is also shown in the capital structures of companies: 40% of all companies have no long term debt, rising to 65% for small and medium sized firms.[44] In addition, only 3% of small companies in the UK use equity finance – well below the EU average of 7%.[45] This underinvestment is driven by many factors: partly lack of demand from the companies themselves, but also the limited supply of patient capital options available to them. Though there are signs that more options for patient capital are opening up in the UK, such as through the ICAP ISDX market, the London Stock Exchange's AIM market and the LSE's ELITE programme for high growth business, there is still more to be done. The UK's public and private capital markets do not extend to mid-sized companies as they do in the US, for example, and equity finance options can often be available on terms that medium-sized businesses struggle to find acceptable.

Underinvestment may be partly explained by either a lack of ambition or risk aversion. Companies at the top of the UK's manufacturing supply chains have reported that those already supplying products to them can sometimes be happy to 'keep filling the factory' without taking steps to increase their production capacity or advance their technology in the long term. Previous CBI research has identified that this is a particular problem for medium sized businesses, which are disproportionately represented in manufacturing sectors.[46] Without scaling up their ambition and capabilities supplier firms will struggle to deliver volumes required by anchor companies.

Anchor companies too can play a more proactive role in fostering long term relationships with their supply chains and encouraging their investment; the most successful supply chains are collaborative rather than confrontational. Though there are growing numbers of anchor companies setting up specific programmes to nurture key firms in their supplier base, there is still scope to do more. Embedding a prompt payment culture in the UK, for example, could help resolve a frequent source of tension among firms in supply chains.

65%

65% of UK SMEs have no long term debt on their balance sheets.

Politicians have an important role to play in helping to nurture these relationships, by helping to create a supportive atmosphere where tensions in supply chains can be discussed and resolved. All too often though, political rhetoric from all parties has sought to exploit such tensions in an attempt to pitch 'big versus small'. This rhetoric fails to grasp the complex dynamics and relationships present across the UK's supply chains.

CASE STUDY

United Biscuits – building efficient and sustainable supply chains

United Biscuits has been working with its UK supply base for over 5 years in order to build industry leading, sustainable supply chains that reach all the way back to farm and in some cases further, working with seed breeders to encourage varietal investment and development.

This approach has instilled the necessary confidence required not only to secure the long term supply of (for example) specific biscuit making wheat varieties, but has also brought the supply chain together in order to build understanding of the different issues, sharing of information and developing collaborative approaches to finding solutions and innovating.

The first category of focus was potatoes. Working directly with local potato farmers, a new grower co-operative of 12 farmers was established and pricing model agreed that ensured the long term supply of local potatoes for the Teeside factory. This approach has subsequently been applied to other key categories such as wheat (into flour), as well as exploring alternative sourcing models for dairy ingredients to reduce volatility (into chocolate) and how the use of UK produced oilseed rape could replace oils sourced further afield to meet consumer demands for sustainable sourcing whilst also securing a more cost effective supply chain.

The example of wheat into flour

From UB's perspective, sourcing the right flour is critical to producing high quality biscuits. To this end, carefully selecting the wheat to mill into flour can make a big difference to the efficiency and quality of the biscuit baking process. By bringing all parties together into one forum, from millers, farmers and often seed breeders (including weekly conference calls with all parties during critical periods) United Biscuits can ensure that the best varieties are selected, grown and milled in the correct way for use in a variety of biscuits.

From the farmer's perspective, before the back to farm supply chains were established, 'soft' or 'biscuit' were less attractive and more risky to grow than the higher yielding 'feed' wheat varieties. Through the dialogue created by the back to farm agreement, the decline in these varieties has been reversed. Such is the strength of this partnership, even during the catastrophic harvest of 2012, the UB wheat supply chain remained strong and all the wheat volumes were met.

Public and private sectors focus on cost rather than value

There are opportunities to develop the UK's supply chains, based on the value offered by the firms within them. Both public and private sectors will have to recognise this value however, rather than focus on short term cost. For the public sector, this value can be realised through the broader economic and social benefits of procuring from UK companies. For the private sector, this value can be realised through more innovative and high-quality products, as well as a potentially lower 'total cost of ownership'.

Spending around £187 billion[47] each year on goods and services, the public sector could play a major role in boosting UK supply chains. However too often it fails to assess or monitor the wider economic or social impacts of its procurement decisions. Instead of looking at just the cost, government should consider whole-life value and look at the potential wider benefits that could be derived from its decisions to the UK as a whole. These include increased business and innovation activity in UK supply chains, as well as the broader impact on government finances through higher tax yield paid by businesses and their employees.

The Social Value Act of 2012 and the 2014 EU Procurement Directive both include provisions to allow for broader social, economic and other criteria to be used in procurement decisions, but these regulations are underused in the UK. A lack of joined-up thinking exacerbates this problem – a local authority has little incentive to consider total value when most of the benefit may be gained by a different part of the public sector, such as HM Treasury.

Though the private sector does not face the same challenges in procurement as the public sector, it too can still have an incomplete understanding of value. In addition to the underestimation of the true cost of offshoring decisions, as described previously, feedback from CBI members suggests that some industry buyers still perceive that they are "paying too much" for products that are not manufactured in traditionally low-cost locations like China. This blinkered view can put UK suppliers at a disadvantage.

Making it happen: Actions for government and industry

Prompt, targeted action from both government and industry is needed if the UK is to overcome the challenges it currently faces in developing its supply chains. Working in partnership, government and industry must take action to overcome the six challenges identified in this report, action driven by an overarching vision of where the problems lie and what success looks like. With international competition fierce, we cannot afford to stand still.

Building an innovation ecosystem to match the UK's world-leading strengths in research

Vision:

Raising our performance on innovation becomes a national priority on a par with deficit reduction and service reform – an ambition backed up by a long-term strategic commitment to achieving a total level of public and private R&D funding comparable with other innovation leaders. The UK develops a better landscape to support the commercialisation of new ideas, encouraging investment in innovation from companies of all sizes across the UK's supply chains. We become the leading global location for companies to relocate their formerly overseas R&D and product commercialisation activities to the UK.

Government should:

- Commit to increasing overall government spending on R&D in the next parliament, with the long-term aim of reaching a combined public / private R&D spend of 3% of GDP
- Aim to double departmental funding for Innovate UK by the end of the next Parliament, with a stated ambition for at least tripling it
- Develop a 'supercharged' use of R&D tax credit to incentivise the domestic commercialisation and manufacture of UK-generated ideas
- Commit to providing long-term support and resources for both the Catapults and the Advanced Manufacturing Supply Chain Initiative

Industry should:

- Prioritise investment in R&D, recognising innovation as a vital driver of future revenue and growth
- Develop and expand supply chain innovation schemes, making use of pooled resources and pooled risk to unlock the innovative potential of small and medium-sized suppliers
- Build closer collaborative relationships to take more advantage of the capacity of universities to support business innovation: anchor companies should use their own relationships with universities to support the wider engagement of their customers and suppliers

Grasping the urgency of the skills crisis

Vision:

The UK understands the impact of the skills crisis on manufacturing as a whole and supply chains in particular, which bear the brunt of growing skills shortages. Action is taken in both the short term to address pressing constraints on capacity and in the longer term to support a step-change in the availability of STEM-skilled personnel. Whilst ensuring that the training and qualifications received are high quality and relevant for business needs, this should include doubling the number of STEM graduates and tripling the number of STEM apprentices, in both cases growing female participation.

Government should:

- Incentivise *both* the uptake of STEM-based degree courses *and* the uptake of employment in strategically important sectors by STEM graduates
- Ensure skills funding is better aligned with the UK's Industrial Strategy, and as a first step provide a new round of the Employer Ownership Fund (EOF) for key sector supply chain projects
- Institute 'Davies-style' targets for female participation in STEM subjects at A-level
- Reform immigration to help meet current skills demands, including:
  - Scrapping the net migration target
  - Making a long-term commitment to a cap-free visa route for genuine students
  - Raising the Tier 2 skilled visa cap as the economy recovers
  - Considering the expansion of the Tier 1 visa route for the most skilled individuals

Industry should:

- Expand efforts to nurture skills in the UK's supply chains: boost technical skills and management capabilities through industry-led skills training and supplier mentoring programmes, supported by funds such as the Regional Growth Fund
- Develop and expand participation in 'clearing house' schemes to redirect promising applicants to their suppliers
- Expand business participation in industry outreach programmes in schools

CASE STUDY

Sharing in Growth – Aerospace sector takes action to nurture skills in its supply chain

Sharing in Growth is an innovative and ambitious £120M programme to raise the capability of approximately 40 UK Aerospace suppliers in order to share in the anticipated growth of this global market. The programme was created with £50M from the Regional Growth Fund and with industrial knowledge and leadership from Rolls-Royce. It provides intensive high impact development to ambitious companies with potential to compete internationally.

Each of the 40 benefitting companies undertakes a tailored £3M gross programme over 4 years to drive globally competitive performance and thereby tackle their barriers to growth, boost exports and develop highly valued manufacturing in the UK for this generation and the next. The programme has brought together a team of over 100 people, each providing expertise in leadership and key business processes, such as strategy and business planning, manufacturing capability and lean operations.

"Our U.K. sites in Derby and Yeovil are already becoming more focused, efficient and competitive as a result of the training and development afforded by our Sharing in Growth funding." – Steve Smith – President, Europe, Middle East & Asia for AGC AeroComposites.

"Sharing in Growth has created a program involving the best partners in the industry. We're proud to be part of a continuous improvement process and are confident it will reap benefits as the training and on-going education permeates all leadership levels across our organization." – Rick Armstrong – President and CEO of AGC AeroComposites

Though the World Bank's 'Ease of doing business' ranks the UK in 10th place overall, we quickly fall behind in areas critical to enabling businesses and investors to respond to rapidly emerging opportunities.

Developing a dynamic business environment to build our supplier base

Vision:

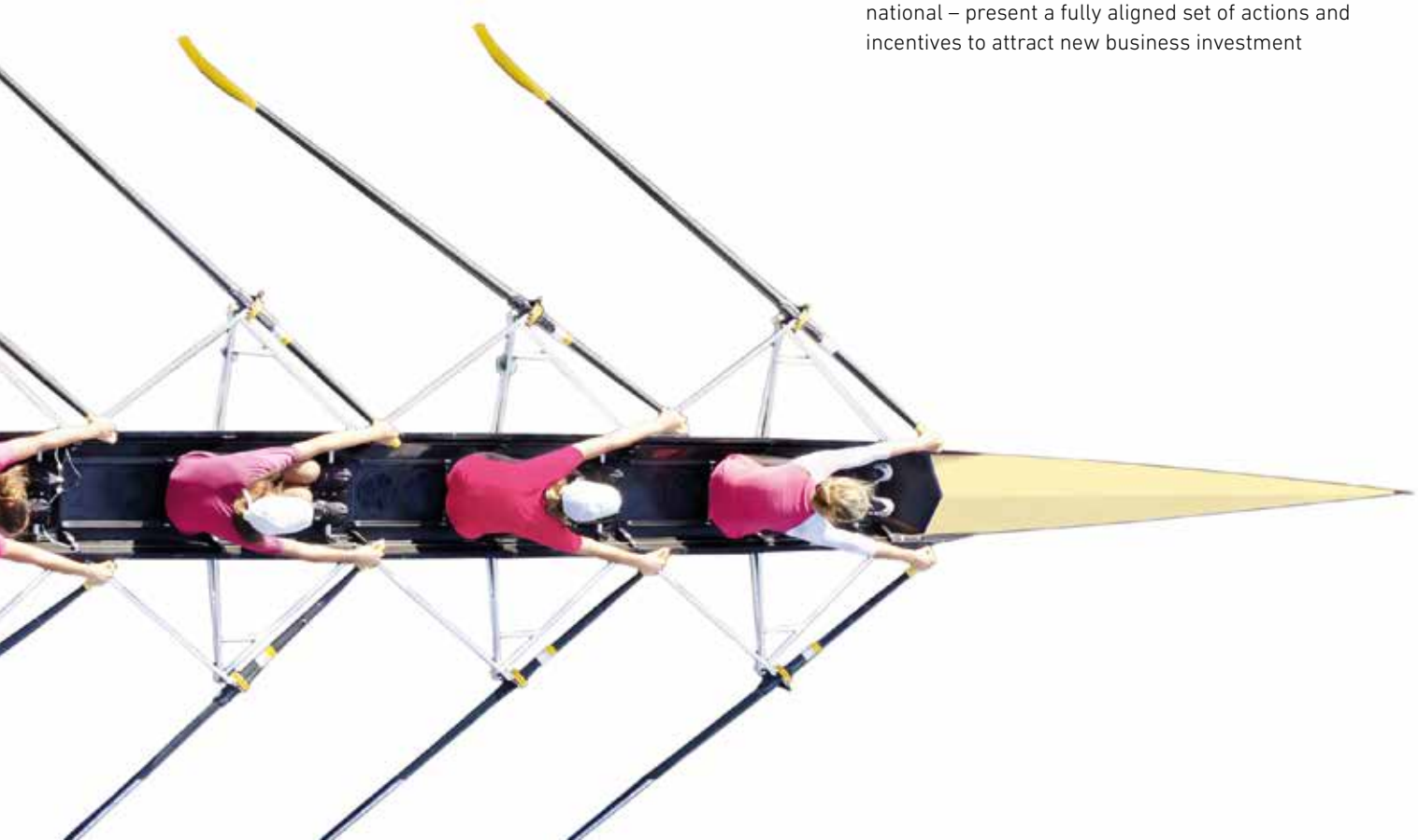
The UK develops a business environment that makes it measurably one of the best places to start, grow and invest in business – moving up in the World Bank's "Ease of Business" ranking from 10th place to 5th by 2020. The UK's mindset shifts from 'open for business' to 'hungry for business', with government and industry working together to fill gaps in hollowed-out supply chains and encourage more anchor companies to invest in the UK.

Government should:

- Act to resolve current 'red flags' around specific areas of the World Bank's "Ease of Business" ranking and the CBI's business environment scorecard
- Establish an annual 'benchmarking' review of the UK's energy, logistics and other costs compared to leading competitors in the developed world. The results of this benchmarking should be reported to the Industrial Strategy Council

Industry and government should:

- Integrate the UK's approach to foreign direct investment: using international business relationships and the industry sector councils to identify and encourage potential investors, ensuring that all layers of government – from local to national – present a fully aligned set of actions and incentives to attract new business investment



Protecting and enhancing the UK's materials capabilities

Vision:

A government and business working in partnership through a coherent industry-led strategy, protecting the competitiveness and enhancing the capabilities of the UK's materials producers, enabling UK industry to capitalise on ground breaking material technologies.

Government and industry should:

- Support the materials sector by establishing a UK materials strategy along the lines of the UK's current industrial strategy, incorporating existing initiatives such as the 2050 roadmaps for low-carbon energy intensive industries
- Collaborate on the development of roadmaps for transformative materials technologies:
  - Innovate UK to lead on 'horizon scanning' work, identifying new and promising materials
  - The Industrial Strategy Council to lead on coordinating the development and application of promising new materials across industry
- Integrate the Materials Processing Institute into the High Value Manufacturing Catapult

CASE STUDY

Bringing materials into the Catapult network

The Materials Processing Institute (MPI) is an independent research institute which operates as a not-for-profit company, with members representing the metals, minerals and chemicals sectors. The centre houses approximately one hundred research engineers working in the areas of sustainable processing, raw materials efficiency and new process development.

MPI has a strong track record of technology commercialisation and customer service, and will now bring together a new group of multi-national industry supporters and small and medium-sized businesses seeking to undertake activity in the UK. In its approach and objectives it strongly resembles some of the seven components of the High Value Manufacturing (HVM) Catapult centre.

The existing centres in the HVM Catapult are mainly focused on specific manufacturing sectors, such as aerospace and automotive. The materials producing industries underpin all of these sectors, and advanced materials are one of the 'eight great technologies' of the industrial strategy. In order to retain a robust foundation industry sector in the UK, businesses like steel, mineral products, glass and chemicals will have to innovate relentlessly, to ensure international competitiveness, to decrease energy requirements, and to reduce environmental impact. They also have a pressing need to develop the skills of their workforce across the supply chain. The MPI has a critical role to play here, and its potential would be increased further if it were absorbed into the HVM Catapult network.

The most successful supply chains are collaborative rather than confrontational.

Raising long-term ambition and investment across industry

Vision:

Ambitious and dynamic businesses of all sizes looking beyond the next quarter to make strategic choices to invest in their long-term growth, backed up by a vibrant market for 'patient capital'. Anchor companies developing stronger and deeper relationships with their suppliers – and politicians helping this by moving away from rhetoric that casts larger companies against smaller ones.

Government should:

- Enable more long-termism in business by:
  - Continuing work to improve the accessibility of capital markets to small and medium-sized businesses
  - Continuing to push forward with the removal of quarterly corporate reporting requirements, as agreed by the EU
- Make tax rules encourage long-term investment in both small and medium-sized business: for example, revise SME R&D partnership enterprise rules around non-controlling corporate interests to remove disincentives around corporate investment in innovative medium sized businesses in the UK's supply chains[48]

Industry should:

- Encourage the UK's small and medium-sized businesses to scale up their ambitions and develop their appetite for growth
- Commit to engaging with suppliers more as long-term strategic assets, including increased transparency on payment terms

CASE STUDY

Why SMEs are important to Fujitsu

Fujitsu has recognised the value that SMEs bring to the supply chain, in particular their expertise and innovation.

In 2013, Fujitsu launched a major research study, The Collaboration Nation, looking at the relationship between SMEs, big business and government.

To promote it's ongoing commitment to SMEs, Fujitsu's UK & Ireland organisation recently launched an SME Charter as part of a wider programme to develop truly collaborative SME relationships. Recent initiatives include:

- The introduction of a supply chain finance programme to help SMEs improve their cash flow, enabling them to track invoices and receive payment of approved invoices earlier than the contracted terms. This is supported by Fujitsu's ongoing and long term commitment to The Prompt Payment Code.
- Regional discussion sessions hosted by Fujitsu to help foster collaboration and to highlight specific opportunities for SMEs.
- A commitment to work collaboratively with SMEs to help them achieve the standards required by Fujitsu's commitment to responsible business practices.
- Joint CSR-based activities with SMEs, including activities that benefit Fujitsu's corporate charity partner.
- Support for the Business in the Community (BITC) Access Pledge, evidencing the Company's fair, transparent and open approach to providing opportunities to SMEs.

Fujitsu's supply chain now includes over 770 UK-based SMEs, representing approximately half of its active UK supply base. Over the last two years, over 20% of Fujitsu's UK spend on suppliers has been with SMEs.

Recognising total value in procurement

Vision:

Government and industry buyers acting as 'intelligent customers', basing procurement decisions around whole-life costing rather than narrowly defined 'value for money', recognising the broader value of UK supply chains. Central and local government using joined up thinking, so that potential costs and benefits are looked at across both departments and different layers of government.

Government should:

- Ensure that public bodies assess the total value of procurement decisions to government as a whole, making full use of both the Social Value Act 2012 and the 2014 EU Procurement Directive
- Task the Cabinet Office to carry out a 2017 review of how effectively both central and local government is taking advantage of social value considerations during procurement activities
- Build on existing value-based procurement activities by government, for instance through working with industry to raise awareness of the supplier opportunities offered by the Small Business Research Initiative

Industry should:

- Improve understanding of the full cost of offshoring decisions, including hidden costs, and counter false perceptions that UK companies are uncompetitive compared with those based in offshore locations

CASE STUDY

The Small Business Research Initiative

The Small Business Research Initiative (SBRI) is a process which helps public sector organisations meet their challenges by tapping into innovative ideas from industry. Championed by Innovate UK, SBRI helps companies to generate economic growth, and at the same time helps government to achieve its objectives.

Public sector bodies identify future needs that are not yet addressed by the market, and through SBRI offer opportunities for innovative companies to develop new products and services to achieve the outcome they need. Using Pre-Commercial Procurement frameworks, and a competition approach, any businesses with an idea that addresses the challenge are invited to come forward. Companies whose ideas are selected are then given development contracts, and work with the public sector body which becomes "a lead customer."

Typical challenges come from across the breadth of the public service and solutions can come from many sectors

- PolyPhotonix, a company that specialises in producing Organic Light Emitting Diodes (OLEDs), is developing a home-based treatment for diabetic retinopathy and age related macular degeneration (AMD). AMD is the biggest cause of poor sight and blindness for the over 60's and the potential cost savings to the NHS of implementing this technology are estimated to be up to £1 billion per annum. In support of this product they are moving manufacturing of their core technology from the Far East to the UK.
- MOST (AV) Ltd and ASV Ltd are two SMEs which responded to a National Oceanography Centre SBRI requirement for long endurance marine unmanned surface vehicles for environmental research. These companies have each taken differing approaches to the challenge of long sea voyages to produce autonomous sea vehicles with innovative uses of energy sources that enable the vehicles to run for months on end. They have both now made sales of their vessels, both to the NOC and other customers.

References

1 *Raising the bar*, CBI, September 2013

2 *Raising the bar*, CBI, September 2013. Detailed examples of this can be found in individual sector strategies. For instance: *Lifting off – implementing the strategic vision for UK aerospace*, HM Government and the Aerospace Growth Partnership, March 2013; *Driving success: UK automotive strategy for growth and sustainability*, HM Government and the Automotive Council, July 2013; *Offshore wind industrial strategy: business and government action*, HM Government, August 2013; *Nuclear industrial strategy: the UK's nuclear future*, HM Government, March 2013

3 CBI EU Reshoring survey, March 2014

4 *Offshore wind industrial strategy: business and government action*, HM Government, August 2013; *Driving success: UK automotive strategy for growth and sustainability*, HM Government and the Automotive Council, July 2013; *Lifting off – implementing the strategic vision for UK aerospace*, HM Government and the Aerospace Growth Partnership, March 2013; *Nuclear industrial strategy: the UK's nuclear future*, HM Government, March 2013

5 Workforce Jobs data, ONS; UK Non-Financial Business Economy, 2012 Revised Results, ONS, June 2014

6 ONS Labour Productivity figures, 2014

7 *UK Trade, June 2014*, ONS, August 2014

8 UK Trade figures, ONS, 2014

9 CBI Industrial Trends Survey, July 2014

10 The total cost of an item once it has been delivered, including purchase price, transport costs and duties

11 *Global Intellectual Property Centre IP Index – 2nd Edition*, Global Intellectual Property Centre, US Chamber of Commerce, January 2014

12 *International Comparative Performance of the UK Research Base – 2013*, Elsevier on behalf of the Department of Business, Innovation and Skills, 2013

13 *The Location of Industrial Innovation: Does Manufacturing Matter*, Isabel Tecu, Brown University, USA, September 2011

14 CBI EU Reshoring survey, March 2014

15 *MAS Barometer Survey*, September 2013

16 *MAS Barometer Survey*, September 2013

17 This estimate is based on a trend analysis of manufacturing sub-sectors, and assessing what the impact would be if those primarily driven by innovation and service factors were to grow. An employment figure was then estimated based on an assumed GVA to employment ratio.

18 Based on these assumptions innovation driven and service subsectors were attributed differential growth rates above trend, with cost driven sub-sectors unchanged

19 OECD Main Science and Technology Indicators, 2000 & 2014

20 Official Statistics of Finland (OSF): Government R&D funding in the state budget [e-publication], Helsinki: Statistics Finland, 2014. [referred: 8.9.2014]

21 Education and Research in Figures 2013, Federal Ministry of Education and Research; Eurostat

22 *Fraunhofer Annual Report 2012*, Fraunhofer-Gesellschaft, 2013

23 *Innovation Union Scoreboard 2013*, European Commission, 2013

24 Data taken from CBI/Pearson education and skills surveys, 2014

25 *Engineering our future*, CBI, March 2014; *Future possible*, CBI, August 2014

26 *Changing the pace*, CBI/Pearson education and skills survey, June 2013

27 *Future champions*, CBI, October 2011.

28 *Ease of Doing Business index*, World Bank Group, Doing Business project, 2013

29 Programme for International Student Assessment (PISA) 2012 rankings for education performance, Organisation for Economic Cooperation & Development (OECD), 2014

30 Ranking for quality of science research institutions, *Global Competitiveness report 2014-15*, World Economic Forum, 2014

31 Science and technology indicators – gross domestic expenditure on R&D as a percentage of GDP in 2012, Organisation for Economic Cooperation and Development (OECD), 2014

32 Ranking for quality of overall infrastructure, *Global Competitiveness report 2014-15*, World Economic Forum, 2014

33 Industrial electricity prices in EU and G7 countries – 2013 prices in pence per kWh (including taxes), DECC, June 2014. Prices are average; different categories of energy consumers are subject to different pricing and compensation regimes, which vary by country

34 *Global Corporation tax rates table – headline rate of corporation tax percentage*, KPMG, 2014

35 CBT tax database – effective marginal tax rate percentage figures for 2015, table 7, Oxford University Centre for Business Taxation, 2012

36 Rankings for burden of government regulation, *Global Competitiveness report 2014-2015*, World Economic Forum, 2014

37 Rankings for ease of access to loans, *Global Competitiveness report 2014-2015*, World Economic Forum, 2014

38 Merchandise trade as a percentage of GDP in 2012, World Bank, 2012.

39 Defined as basic metals, chemicals and non-chemical products, other non-metallic mineral products, fabricated metal products and wood and wood products

40 *Understanding the economic contribution of the Foundation Industries*, Tata Steel-PWC, January 2014.

41 *Quarterly: Industrial electricity prices in the EU for small, medium, large and extra large consumers (QEP 5.4.1, 5.4.2, 5.4.3 and 5.4.4)*, DECC, June 2014

42 Information provided by Tata Steel

43 *World robotics 2013*, International Federation of Robotics, 2013

44 *List of UK Public Companies*, Bloomberg, 2013; A.T. Kearney analysis

45 *Ibid.; SME Business Barometer*, BIS, June 2013

46 *Future champions*, CBI, October 2011.

47 *The role of major contractors in the delivery of public services*, National Audit Office, November 2013

48 For further detail, please see Recommendation 3 of the CBI's *Stuck in the middle – Addressing the tax burden for medium-sized businesses* report, June 2014

A.T. Kearney is a leading global management consulting firm with offices in more than 40 countries. Since 1926, we have been trusted advisors to the world's foremost organizations. A.T. Kearney is a partner-owned firm, committed to helping clients achieve immediate impact and growing advantage on their most mission-critical issues. For more information, visit www.atkearney.com.

CBI
THE VOICE OF BUSINESS

For further information on this report,
or for a copy in large text format contact:

CBI
Robert Irvine
Policy Adviser
T: +44 (0)20 7395 8235
E: Robert.Irvine@cbi.org.uk

A.T. Kearney Limited
Charles Davis
Partner
T: +44 (0)20 7468 8000
E: Charles.Davis@atkearney.com

INVESTORS IN PEOPLE

October 2014

RECYCLED
Paper made from recycled material
FSC® C007570
FSC www.fsc.org

Printed by Duncanprint on Revive 100 pure white silk, containing 100% recovered fibre certified by the FSC®. Duncanprint is certified to ISO 14001 and registered to EMAS environmental management systems NEZ052.

Product code: 10548

In association with

ATKearney