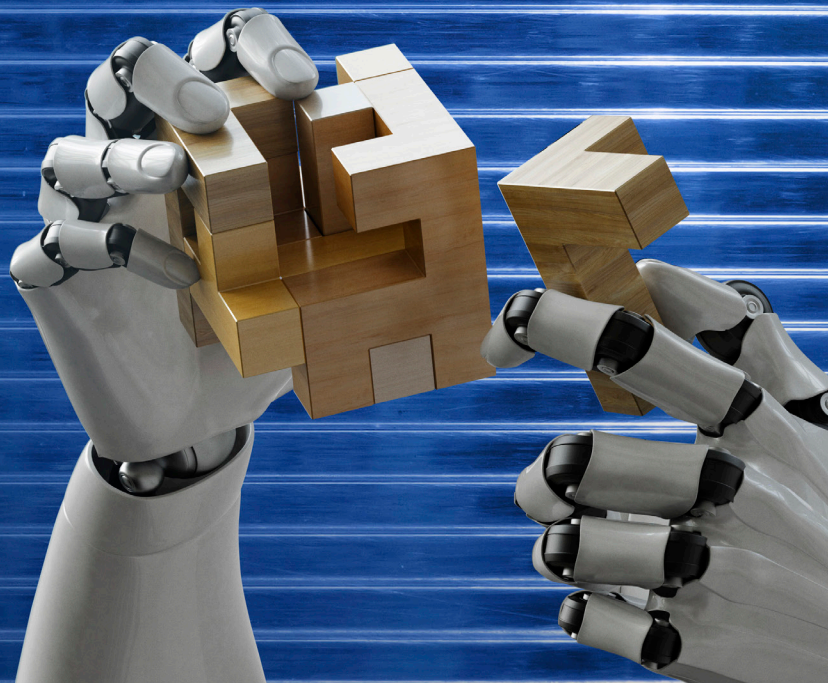




An Industrial Strategy for all

Spring 2017

The KPMG Response to the
Government's Green Paper 'Building
our Industrial Strategy'



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Introduction: Building our Industrial Strategy in times of change

This document represents the response by KPMG to the Green Paper on the UK's Industrial Strategy, which was published by the Department for Business, Energy and Industrial Strategy (BEIS) in January 2017.

KPMG is a leading provider of professional services, including audit, tax and advisory services. We operate from 22 offices across the UK with approximately 13,500 partners and staff, working with clients across a range of sectors in every region and nation in the UK. Last year our total revenue in the UK was £2,068 million, and we contributed £790 million to the UK in tax.¹

Our response to the Green Paper is anchored in the insights we gain every day from working with our clients and partners, here and around the world, in a fast-moving and rapidly changing business environment. We set out the broad themes of our response in this introduction before turning to more detailed responses covering the pillars outlined in the consultation paper.

We are living in times of enormous change

The context in which we work across the UK, and in which the Industrial Strategy must be built, is one of enormous change. It is hard to conceive of a sector or area of life that is not feeling this impact. The ways we are treated by the NHS, are taught in our schools, colleges and universities, interact with national and local Government, buy our groceries, receive our news and comment from the media, download our films and TV, play games, read books, drink coffee, and fall in love, are all changing because of the digital revolution. We are a heartbeat away from driverless cars on our streets, and drones in our skies, delivering everything from pizzas, to defibrillators direct to emergencies.

We are living through the 'Fourth Industrial Revolution'. The first changed our society, cities and landscape through the rapid growth of heavy industries powered by steam engines. The second saw electricity power, a new wave of manufacturing, including chemicals and cars. The third is the digital revolution, which has shaped our modern world with mobile computers, and the internet.

The Fourth Industrial Revolution will be shaped by nanotechnology, biotechnology, robotics and artificial intelligence. The so-called Internet of Things (IoT) links our homes, businesses, industries, Governments and institutions to each of us as citizens, producers and consumers. The old barriers between sectors are dissolving, and the old silos of activity are eroding. New sectors are emerging, with new forms of organisation and new types of work.

This provides the backdrop to the UK's need for an Industrial Strategy. No strategy can work without a sense of how the UK fits into this rapidly evolving new world of work and leisure. Equally it needs to take account of the macro-economics of globalisation: the powerful rise of

¹<https://assets.kpmg.com/content/dam/kpmg/uk/pdf/2016/12/annual-report-2016.pdf>

India and China, the growing economies of Africa, South America and the Far East, and the tilting of the world economy to the East and to the South. And, of course, Brexit.

Horizontal enablers are the right approach but long-term commitment is essential

In developing our Industrial Strategy, policy-makers need to prioritise the aspects that only Government can and must be responsible for. KPMG supports the broad concept contained in the Green Paper of focussing on horizontal industrial pillars or ‘enablers’ (such as skills or infrastructure). However, we believe that it will be essential that these enablers are underpinned by effective frameworks in the form of the tax and regulatory environments in which they operate, recognising the potential impact that digitalisation will have. It is also important that the Industrial Strategy developed now, endures for the long-term.

Prioritisation and criteria for making choices are important

As sectors converge and evolve, our view is that the Government is right to avoid a return to the past policy of ‘picking winners’. But there will still need to be choices made around how and where to focus resources, and how to intervene in ways which help and not hinder growth. This may mean specific interventions to develop ‘clusters’ of growth based on places, sectors, or even specific technologies and businesses, where such interventions fit into the wider strategy and the national interest.

Ideology should not trump pragmatism. Nor should the Government’s approach be completely uniform. During past industrial revolutions, each city-region developed its own industrial strength based on its local geography, climate, natural resources, traditions and civic leadership. Our economy reflects a range of historical, cultural and societal factors, and our Industrial Strategy needs to be equally variegated and nuanced. Some areas and sectors will need little or no support. Others will need hands-on intervention.

Crucially, Government needs to recognise that the criteria for deciding where and when to invest in infrastructure, or to support specific industrial sectors, must be broad, and allow scope for decision-makers to take strategic decisions in the national and regional interest.

A narrow cost-benefit analysis runs the risk of ignoring the wider desire for a balanced regional economy, and may result in parts of the UK being left behind. When it comes to decisions around high-speed rail links, for example, the economic needs of regions beyond London and the South East must be addressed. Regions themselves must also play a role.

The Industrial Strategy should facilitate faster routes to market

The Industrial Strategy needs to facilitate faster routes to market. This could be through closer collaboration between business and academic institutions, through more incentives to commercialise intellectual property developed in the UK and through support for innovative start-ups.

Within that context, KPMG supports the idea of ‘sand boxes’, which means specific geographical areas or clusters of businesses within a specific sector, where the traditional barriers of red tape and regulations are relaxed, where innovation is encouraged, where mistakes can be made and learned from, and where potential problems can be fixed. As an example, an innovation such as driverless vehicles, which is both exciting and challenging to implement, is already benefiting from taking the initial first steps towards such a ‘sand box’ approach ahead of a national roll-out. We believe that a bolder, more extensive sand box

approach in which ground-breaking technologies could be user-tested in controlled and ring-fenced environments could catalyse the uptake of new technologies.

The Industrial Strategy must work for every community

As a firm with a long-term commitment to social mobility and diversity, underpinned by a broad range of measures (as outlined in our most recent annual report²), KPMG is passionate about promoting an Industrial Strategy which works for every community and every part of the UK. From the windows of our London headquarters in Canary Wharf, we can see concentrations of both great wealth, and also great disadvantage, within a few yards of one another.

In the modern world, Britain cannot afford to be held back by a failure to tap into the true potential of every citizen. We want to see this conviction running through the UK's Industrial Strategy, especially the skills element of it.

Simplification, better connectivity and a more streamlined, 'joined-up' approach will be key

As the old sectoral walls come down in our economy, so our institutions and our regulatory frameworks need to reflect this change. We are not alone, nor the first, in calling for Government to be more cohesive and 'joined-up'. But the imperatives of the Fourth Industrial Revolution, global change and Brexit make this need even more stark and urgent.

In designing a new Industrial Strategy, there is an opportunity to simplify, streamline and better connect frameworks, systems and organisations at both national and regional levels. This should eliminate duplication of effort, focus resources and make the overall 'system' easier to navigate from the perspective of the businesses that we need to drive productivity and growth across the country. This needs to happen across the landscape: within Government by departments working more closely together, with regard to regional and devolved administrations and between public and private sector bodies working in partnership.

And in parallel there is a need to ensure that our regulatory frameworks from tax to planning permission are appropriately structured such that 'grit in the system' does not hinder growth whether that be through getting ideas through to marketable products or converting expressions of interest from an inward investor into operations on the ground.

Brexit presents opportunities for the Industrial Strategy

KPMG believes that a UK Industrial Strategy must also take full account of the impact and opportunities of Britain's exit from the European Union (EU). Our Industrial Strategy will be anchored on new trading arrangements, new partnerships and collaborations, and new competitors and threats. All of our institutions, from Government departments, to small and medium enterprises (SMEs), must recognise that the world is changing. Such times of change demand bold strategies in order to embrace the opportunities disruption presents.

The Government's negotiations on Brexit must be dove-tailed into the development of the UK's Industrial Strategy, with the needs of British businesses at the forefront of our

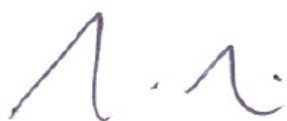
²<https://assets.kpmg.com/content/dam/kpmg/uk/pdf/2016/12/annual-report-2016.pdf>

negotiators' minds. A recent paper by KPMG highlights the relative impact of Brexit on different sectors.³

Some aspects of businesses' needs post-Brexit are covered in the Green Paper, but others are not. We consider it an omission which needs addressing that the Green Paper makes no mention of immigration policy. This is a key concern for businesses reliant on overseas workers and where skills needed to help drive growth and productivity are not readily available in the UK. The number of working-age immigrants coming to the UK has a huge influence on specific areas of our economy, for example social care, hospitality and agriculture. Brexit will have a deep impact on our economy, society and culture. Our thinking as a nation, including our Industrial Strategy, will need to catch up with the waves of change sweeping over us.

Developing the Industrial Strategy will require broad engagement

KPMG operates across the UK and is part of a global network of member firms, in countries each grappling in their own way with the challenges of the age. We can draw on this wealth of insight and experience to help the UK Government shape its Industrial Strategy. We can provide experts in our core business activities, and provide a platform for round-tables, discussions and seminars with civil servants, policy-makers and ministers. We look forward to working in partnership with Government to develop and support an Industrial Strategy for all.



Simon Collins, UK Chairman and Senior Partner

KPMG LLP, April 2017

³<https://assets.kpmg.com/content/dam/kpmg/uk/pdf/2017/03/brexit-the-sector-impact.pdf>

How we have responded in this document

The Government's Green Paper is structured around ten 'pillars' and our response mirrors those pillars. Broadly our views on them are:

1. Britain will prosper post-Brexit as a high-tech, high-skills economy, with a world-class science and technology base, with partnerships between research institutions, universities and businesses, and faster routes to commercialisation of ideas, innovations and products.
2. On skills, we see major improvements in education and skills as a necessary precursor to industrial prosperity and growth. Our report Variables for Sustained Growth in January 2017⁴ shows how equipping the UK workforce with the right blend of skills is essential, alongside an immigration policy based on our economic needs.
3. On infrastructure, we need to balance regional requirements, local objections, and the national interest as part of a national strategy. No region can be left behind, which means broad criteria for deciding where to build new infrastructure projects.
4. We want new businesses and entrepreneurs to have access to finance to kick-start and scale-up their enterprises. We argue for other forms of support such as mentoring, coaching and other practical advice as new businesses incubate and grow.
5. On procurement, we need a strategy which embraces the opportunities digitalisation and online technology present, with a focus on developing the capabilities of the Civil Service, which will need to migrate from purchasing skills to proficiency in complex commissioning.
6. As we leave the EU, our international trade policies will be transformed. At the same time we need to ensure Britain remains an attractive place for investors. Trade and investment (both Foreign Direct Investment and Overseas Direct Investment) need different approaches but both would benefit from a more co-ordinated and holistic approach.
7. In order to unlock the benefits of the transition to a low carbon economy, business needs greater certainty about the long-term policy framework for energy, for example on the future of carbon pricing in the 2020s, the UK's membership of the EU Emissions Trading Scheme⁵, or the future of the Levy Control Framework⁶.
8. Within a framework of horizontal enablers, business-led sector deals make sense but a sector structure must allow for convergence and emergence of new sectors. Enabling sectors, and those sectors most affected by Brexit, should be prioritised. The Government will need a framework for prioritising competing sector deal proposals. Additionally, we call on the Government to recognise the economic role of sectors which do not produce 'goods' in the traditional sense.

We believe that every region and community should benefit from the changes to our economy through a 'cluster' model. In previous eras of industrialisation, some parts of the country boomed while others languished. In this revolution, which is based on knowledge, information and skills, we need to open every area of the UK to the new opportunities, and leave no area behind. The regions themselves are best placed to identify areas of focus and they should be empowered to make choices as to how to drive growth around key sectors in specific places.

⁴https://home.kpmg.com/uk/en/home/insights/2017/01/kpmg_s-variables-for-sustained-growth-2016-index.html

⁵https://ec.europa.eu/clima/policies/ets_en

⁶<https://www.gov.uk/government/collections/levy-control-framework-lcf>

1. Investing in science, research and innovation

If we are to prosper post-Brexit, the UK economy must be based on high skills, high-tech, and high-quality innovation and entrepreneurialism. New technologies, such as artificial intelligence, nanotechnology, 3D printing, or the Internet of Things (IoT), will deliver benefits across all sectors, from healthcare to energy. KPMG have examined these benefits in a number of recent reports (Rethink manufacturing,⁷ Digitalisation of the UK Automotive Industry⁸ and Pharma outlook 2030⁹).

The UK needs to become better at commercialising its world-leading research and innovation, turning ideas and inventions into profits and jobs. With the right blend of investment and support, an idea in a lab can be turned into a small business in a back-room, and from there into a world-class household name business.

We must not lose sight of the true nature of the technological revolution. The visible part may be the smart devices in our pockets and in our homes, but technology does not only mean digital technology. Other technological innovations will have deep impacts, for example innovations in battery technology and the next generation of semi-conductors.

There is a role for Government

While much of the innovation that is shaping our daily lives stems from private sector innovators and 'disrupters', as well as academic bodies and research institutions, there is a significant role for

Government. This role includes creating the conditions and frameworks for entrepreneurialism and innovation to thrive free from barriers to growth and unencumbered by over-regulation. To overcome the big challenges for science and technology, long-term partnerships between Governments, academia and companies are important.

Support for collaboration is crucial

We support the Government's investment in innovation, for example through initiatives such as the 'Catapult' programme, which bridge the gap between British companies and world-class research communities. We want to encourage a new wave of collaborations between entrepreneurs, inventors, investors, researchers and academics to tap into our world-class academic institutions and research bodies. As we find our way post-Brexit, this kind of collaboration is a commercial necessity.

Secure data and personal privacy are important

Advanced technology is increasing the type, volume and ways in which data is collected and used. We live in an era of 'Big Data' which creates both opportunities and threats. Big Data allows large-scale analysis and interpretation of trends, and allows policy-makers to plan services. But it also creates threats to our privacy and security, and creates new forms of crime such as identity theft. We want advances in data collection and manipulation to be matched by new systems of security,

⁷<https://assets.kpmg.com/content/dam/kpmg/uk/pdf/2017/04/rethink-manufacturing-a-uk-industrial-strategy-for-industry-4-final-report-2.pdf>

⁸<https://assets.kpmg.com/content/dam/kpmg/uk/pdf/2016/11/SMMT-digitalisation-automotive-industry-report.pdf>

⁹<https://assets.kpmg.com/content/dam/kpmg/xx/pdf/2017/02/pharma-outlook-2030-from-evolution-to-revolution.pdf>

encryption and protection of personal privacy.

We want to see faster routes from invention to market

Faster and more efficient pathways between scientific discovery and research, and commercial products reaching the market are required. We note the many examples of products being developed in the UK, but licensed and manufactured abroad. For example, graphene was pioneered at the University of Manchester but of the 11,000 outstanding patents for its use, fewer than 1% are from the UK.¹⁰

KPMG supports the creation and incentivisation of more open-sharing networks to encourage the selling and licensing of unused intellectual property (IP). Many ideas never see the light of day, and languish in academic institutions or businesses.

One solution is being pioneered at the Massachusetts Institute of Technology (MIT), where the MIT Media Lab¹¹ allows companies to pay an annual subscription to access a wealth of research, data and development to help them move quickly from the drawing board to the marketplace.

Similarly, KPMG is currently working with a Government department to identify potential buyers or licensees for IP that is no longer used internally but may have value to new owners.

The Industrial Strategy Challenge Fund can drive bottom-up innovation

We welcome the Industrial Strategy Challenge Fund which will allow individual companies and consortia to bid for support for the areas of activity which they themselves consider a priority. This creates a bottom-up mechanism to get

resources where they are most needed, based on an industry perspective.

An example area from the life sciences sector is how ongoing advancements in understanding the heterogeneity of diseases and underlying mechanisms are enabling the production of new preventative and curative techniques, such as immunotherapies, stem cell and gene therapies.

We need a tax system which rewards innovation

Our system of tax must support innovation and risk, encourage research and development, and allow new ideas, businesses and enterprises to launch, survive the crucial first months, and flourish. We need a system of tax and incentives which encourages the rapid commercialisation of innovations and inventions, bringing new products to the market in a faster, more streamlined way.

The Government's review of the tax environment for research and development (R&D) should consider cash credits for capital expenditure on R&D and production facilities for innovative products. The tax regime should support the whole innovation life cycle, from early research to commercialisation and manufacturing of the resulting technologies, and all businesses from start-up to mature, and encourage not only home-grown, but also innovative new international firms to invest in the UK.

Commercial thinking and entrepreneurial spirit should be embedded in research institutions

Increasing awareness of commercial opportunity and access to commercial support and input at the start, during, and after the R&D phase is vital for motivating commercialisation and ensuring efficient transformation into IP. For example, in life

¹⁰<https://www.ft.com/content/4dfd6f86-4141-11e5-9abe-5b335da3a90e> (requires subscription)

¹¹<https://www.media.mit.edu/members/becoming-a-member-company/>

sciences, ensuring a holistic understanding of the commercial environment (including feasibility, regulatory requirements, and market access), would enable academic researchers to shape their studies towards development of treatments with high commercial potential.

We need a regulatory regime which enables growth

The regulatory regime should be light-touch, balancing the need for sensible safeguards (for example, safeguarding public safety) with the need to allow growth and innovation. Post-Brexit, our businesses' ability to trade internationally must not be hampered by over-regulation and we need to consider strategies for how we engage and influence standard-setters (especially in Europe) in the future.

'Sand boxes' of creativity and innovation

We support the idea of 'sand boxes', where businesses, partnerships and creative individuals can be allowed to innovate, create and solve problems by testing products, services, business models and delivery mechanisms in a live environment free from unnecessary regulations, and with the right financial support. KPMG sees these as having the potential to form powerful incubators for testing truly leading-edge innovations and develop market propositions in controlled environments centred around specific geographical areas or clusters of businesses within a specific sector.

In the fast-moving technological environment, it makes sense to allow these sand boxes to iron out problems, and develop prototypes, before widespread manufacture and entry into the market. The Government's user trials of driverless cars in Bristol, Coventry, Greenwich and Milton Keynes¹² are an example of a similar experimental approach on a limited scale, and the Financial Conduct Authority (FCA) employ regulatory sand boxes.¹³

Government could take this further using a bolder sand box approach to facilitate and allow experimentation and user-testing of ground-breaking technologies within controlled and ring-fenced environments which would be 'safe spaces' where lessons can be learned. Examples could be an experimental medical centre that aims to run on 'tomorrow's technology' (for example robotic nurse assistants, remote patient monitoring and wearable technology, health informatics, lightbulbs that disinfect and kill bacteria), or a full blown 'smart city' business park that is created to trial the latest IoT ideas including energy management, driverless cars, drone deliveries, and predictive analytics on maintenance of equipment and infrastructure. Whether centred around IoT, virtual reality, drones, robotics or Big Data, sand boxes have the potential to provide areas to test technological applications in close to 'real life' situations and act as a major catalyst to driving the uptake of new technologies.

¹²<https://www.gov.uk/government/news/driverless-cars-4-cities-get-green-light-for-everyday-trials>

¹³<https://www.fca.org.uk/firms/project-innovate-innovation-hub/regulatory-sandbox>



Conclusion: we can create a future as proud as our past

In the Fourth Industrial Revolution, Britain will only truly thrive as a nation if we boost our science and engineering base, support innovative science and technology firms, create the right tax and regulatory regime, create new partnerships between companies and research institutions, allow innovation to flourish, and create commercial value from ingenuity and expertise.

Britons invented television, telephones, computers, jet engines, photography, bicycles, vacuum cleaners, cash dispensers, toothbrushes and the World Wide Web.¹⁴ There is no reason why our future innovations and inventions should be less illustrious than our past ones.

¹⁴<http://www.radiotimes.com/news/2013-01-08/the-50-greatest-british-inventions>

2. Developing skills for the future

Britain's industrial growth and prosperity must be anchored on a system of education and skills which equips our workforce for the future. Britain faces a skills-gap which endangers this growth and prosperity. The UK is falling behind rivals such as France and Canada.¹⁵ We are not developing the right skills in enough people to meet the great challenges of globalisation, automation and life outside the EU.

KPMG shares the Government's belief that skills are a determinant of the country's productivity, as do manufacturing executives (KPMG Rethink manufacturing report¹⁶). They form the bedrock of prosperity across all sectors. Successful skills strategies rest on a trinity of Government, industry and educational institutions in conjunction with an approach to social mobility that raises overall aspiration.

KPMG's international experience reinforces this point. For example, in Finland, the skills curriculum is co-authored with Government, employers and trade unions, there are 53 competency-based qualifications, and there are multiple routes into higher education. In the Finnish model, learning is throughout life, either in the workplace or college, supported by qualifications where appropriate, or the acquisition of on-the-job skills.¹⁷

In Denmark, KPMG has hosted work placements for students in cyber security, audit, and other business skills, and

provided speakers for Denmark's business schools.

However, fundamentally the critical success factor in any education system is a stable operating framework that implements cohesive, rather than fragmented, policy as well as guidance that is transparent and easily accessible for learners, parents, businesses and providers alike. The existing policy landscape has grown in complexity as specific policies have been incrementally added. The number and type of funding sources have also increased, creating multiple funding streams. Simplification of both is required to create the transparency for users necessary to deliver optimal outcomes.

KPMG research¹⁸ shows that improving the scope, quality and relevance of skills training in the UK is one of the most swift and significant ways in which Government can make a difference. Nonetheless, this should not be 'bolted-on' to existing structures and provision, but rather seen as a fundamental element of a stable education system.

Reforming skills for the long-term

The new technical education routes and parity of esteem for qualifications are laudable aims. But successive British Governments have not had strong track records in sustaining policy on skills over a significant period. Attempts at large-scale reforms have met with patchy success, for example the recent planned introduction of 14–19 Diplomas. To sustain reform, we

¹⁵<https://home.kpmg.com/uk/en/home/media/press-releases/2017/01/education-could-help-cure-the-uk-productivity-malaise-but-brex-it-might-worsen-the-condition.html>

¹⁶<https://assets.kpmg.com/content/dam/kpmg/uk/pdf/2017/04/rethink-manufacturing-a-uk-industrial-strategy-for-industry-4-final-report-2.pdf>

¹⁷http://80.248.162.139/OPM/Koulutus/ammattilinen_koulutus/?lang=en

¹⁸<https://home.kpmg.com/uk/en/home/media/press-releases/2017/01/education-could-help-cure-the-uk-productivity-malaise-but-brex-it-might-worsen-the-condition.html>

need a partnership between Government, employers and educational institutions with all three stakeholders firmly behind the changes. Both employers and industries need to be prepared to not only invest time in terms of facilitating work placements but also their brands to achieve success and parity. At the same time the system needs to be easily accessible to learners to enable them make informed choices and compare options in an objective way.

This requires long-term commitments from the Cabinet and the Boardroom, and a strategy which lasts decades not months. The role of the Government is to provide clear leadership and a clear definition of shared goals and individual responsibilities early on in the process.

Funding for Further Education (FE) providers will be key to delivery

Further Education (FE) providers have seen successive funding cuts since the credit crunch and the advent of numerous policy changes, such as picking up the basic skills challenge on English and Maths from schools, and having to respond to the Apprenticeship Levy.

These have impacted on quality and capacity and the FE providers face significant financial sustainability issues. However, the sector is key to addressing the skills challenges posed within the Green Paper, as well as having an important general role in improving social mobility. If the Government is to achieve its aims, it may need to support the FE providers financially and help the sector enhance its overall 'brand'.

An immigration policy to meet our skills needs

To address our short-term needs, Britain, in common with many other countries, requires more skilled immigrants:

mathematicians, engineers, designers, scientists, and technicians of every kind. We need a positive programme, supported by a positive public discourse, to make Britain an attractive place for the best brains around the world. As we negotiate our withdrawal from the EU by 2019, we must plug the skills gaps left if large numbers of EU nationals choose to leave the UK for EU member countries.

Embedding basic skills into vocational curriculums and revisiting Skills for Life

As outlined in the Green Paper, the UK underperforms on the basic skills of literacy and numeracy. GCSE Maths (A–C) is seen as the benchmark but, in many instances, a more functional maths 'plus' approach in which numeracy is incorporated into a wider qualification might be more effective, especially if this went alongside other lifelong learning routes for reskilling. Our view is that students often respond better to numeracy skills embedded into their vocational curriculum which they can see as being relevant to their chosen career route, rather than being a separate, stand-alone, qualification.

So alongside the current welcome focus on numeracy in schools, a basic skills initiative could build on the Skills for Life strategy in the late 1990s and early 2000s, which involved the Government investing significant resources to engage employers in developing skills. An example of this is the Vision for Literacy Pledge¹⁹ supported by KPMG and led by the National Literacy Forum committing businesses to take practical action to drive up literacy levels.

Transforming digital skills

A recent KPMG report, Digitalisation of the UK Automotive Industry²⁰ shows that if vehicle manufacturers in the UK, already highly successful, were to embrace fully the opportunities of digitalisation, they

¹⁹<http://www.literacytrust.org.uk/campaigns-policy/vision-for-literacy-business-pledge>

²⁰<https://assets.kpmg.com/content/dam/kpmg/uk/pdf/2016/11/SMMT-digitalisation-automotive-industry-report.pdf>

could gain £6.9 billion every year by 2035 which we suggest could be worth a cumulative benefit to our economy of £74 billion. The report points to new digital skills that companies across different sectors will require to meet the challenges of the Fourth Industrial Revolution. We identified several needs:

- Digital scientists, with knowledge of designing digital models of physical systems and algorithms
- Digital engineers, familiar with coding and advanced robotics
- Digital architects, to manage data
- Development operations managers, to create an organisation's digital infrastructure including its cloud and virtual systems
- Cyber security engineers to protect companies and citizens from data loss, theft and fraud.

We need a broader review of the digital skills we will require soon, building on the commitments in the Government's own Digital Strategy.²¹ A child starting school in 2017 must leave in 2030 fully equipped with the digital skills to enter the worlds of work or further learning, and perform jobs and roles that may not even have been invented yet.

Beyond digital skills there is a wider need to bridge the gap between employers, learners and providers: an online portal could provide employers with a way to share their skills gaps with education providers, so that institutions can better meet the needs of employers.

More STEM graduates, especially females, are needed to meet industry demand

There is already a disparity between supply and demand for STEM graduates across sectors, such as automotive manufacturing and life sciences. As highlighted in KPMG's Rethink manufacturing report,²² with the pace of technological change increasing, and more businesses implementing these technologies, the gap is only expected to widen. Actions should be taken at all levels of education, to encourage the uptake of STEM subjects and meet current and future industry demand.

To deliver this education, Government must continue to address the teacher shortage, with a recent National Foundation for Educational Research (NFER) report showing that 31% of science teachers were considering leaving the profession.²³

Addressing the gender disparity within STEM professions will be an important component of the solution. For example, last year only 18% of ICT professionals working in the UK were female, even though women currently make up almost half of the UK workforce.²⁴

KPMG are working to address this through the 'Exceptional Women in Life Sciences'²⁵ series, and a new initiative called 'IT's Her Future'²⁶ which commenced with the launch of a report called 'Meet the Millennials'.²⁷ It outlined five ways in which companies can attract, engage and retain female talent in tech roles, including paying close attention to language; providing well-rounded benefit packages; setting-up focused initiatives driven by the senior leadership; increasing

²¹<https://www.gov.uk/government/publications/uk-digital-strategy>

²²<https://assets.kpmg.com/content/dam/kpmg/uk/pdf/2017/04/rethink-manufacturing-a-uk-industrial-strategy-for-industry-4-final-report-2.pdf>

²³<https://www.nfer.ac.uk/publications/LFSB01/LFSB01.pdf> (page 10)

²⁴<http://www.wearethecity.com/women-stem-2/>

²⁵<https://home.kpmg.com/uk/en/home/insights/2017/02/exceptional-women-in-life-sciences.html>

²⁶<https://home.kpmg.com/uk/en/home/media/press-releases/2017/03/kpmg-launches-its-her-future-scheme-by-outlining-five-recommend.html>

²⁷<https://home.kpmg.com/content/dam/kpmg/uk/pdf/2017/04/Meet%20the%20Millennials%20FINAL.pdf>

the number of females in leadership positions; and providing access to a senior mentor.

Technical education and careers for the next generation

We need to boost the standing and attractiveness of technical educational routes and career paths among parents, teachers and potential students, to create a situation where going into engineering seems as attractive and worthwhile as going into law or medicine. We must do this to tap into the huge reserve of potential talent, especially among young people from groups traditionally excluded from this kind of vocation.

In Germany, all the big brand-name companies in the engineering and manufacturing sectors run prestigious apprenticeship schemes. Trainees split their time between the classroom in a vocational school and on-the-job learning with their sponsoring company. To win a place on one of these apprenticeships is met with the same acclaim as getting into a Russell Group university is in the UK. To be an engineer in Germany is to be on a par with any professional.²⁸ We need the same ethos in the UK, and the Government can play a lead role in making this happen.

The new technical education system

The Green Paper recognises that there is a need to reform and simplify the technical education system to increase the supply of skilled technicians to UK business and industry, and to address current imbalances in terms of gender and socio-economic background. KPMG shares the Government's overall aims, but we are keen to offer some suggestions about the Government's approach to implementing its vision. We suggest below a range of ways in which reform proposals can be developed.

Routes into technical education should be designed in partnership with business

We would want to see a closer link between educational establishments and specific sectors such as manufacturing or engineering. A young person at college or university should work in partnership with potential employers at every stage of their studies, ensuring that the skills being learned in the lecture theatre have an application in the laboratory or design studio.

Businesses must be assured that each generation of newly-qualified technicians has the relevant skills and experience to join the world of work straight away, without further retraining. Businesses should be involved in the design and even the delivery of STEM syllabuses, so that not a moment of further or higher education is wasted.

The majority of education providers have a poor understanding of their local skill demands, and are not always given access to the Strategic Economic Plan data developed by their Local Economic Partnerships (LEPs). Access to this information is important for ensuring academic institutions plan technical courses and qualifications which meet the needs of local sectors and industries.

A 'UCAS' for Further Education (FE) and Apprenticeships

The Green Paper recognises the weaknesses of the Careers Advice and Guidance service in schools. There is often poor visibility of the wide range of vocational training opportunities. Advice to young people is often limited in scope and imagination. KPMG supports the recommendation, similar to that endorsed by the Social Mobility Commission, to introduce a system based on the university UCAS system for FE and skills, which could provide clearer advice on choices

²⁸<https://www.theatlantic.com/business/archive/2014/10/why-germany-is-so-much-better-at-training-its-workers/381550/>

and opportunities. This could be regionally-based and managed locally, and draw together sixth forms, FE providers, and employers to create a one-stop-shop for parents, teachers and young people. The higher education 'Hotcourses'²⁹ is another information and sign-posting system to emulate: locally-run, comprehensive and regularly updated.

We need work placements that work in practice

KPMG has a concern that work placement schemes may not always be effective in terms of teaching students new skills. Our own experience at KPMG is that a three-month placement (as proposed in the Spring Budget) is not long enough for a work placement student to learn and develop their skills. In this time, many students do not have the time to properly learn the business, apply their academic training to workplace problems, spend time with established professionals, and make the right decisions about their own careers.

We would suggest that the practicalities of designing effective work placements is an element of the policy that will need to be worked out in detail and in partnership with employers and industries.

Travel to and from Institutes of Technology

The Green Paper does not address how a student or apprentice can travel to and from Institutes of Technology, or indeed other places of learning. For many disadvantaged young people, the cost of travel is a barrier to their participation in education or work. We consider tackling this to be a vital part of promoting social mobility and widening access. We would want to see an equitable system which means no promising student is denied access to technical education because

they cannot afford the time or money to travel to their place of learning.

Tax incentives for industry to develop and support lifelong learning

The Government should review how tax breaks for companies which invest in the skills of their workforce can be used to increase the scale of skills training in the UK. This should be aimed at learning throughout life, building on the successes of the Government's Skills for Life programme which KPMG worked on.

We know that judicious and targeted tax incentives can transform a company's attitudes towards apprenticeships and skills training. A 'nudge' in the right direction can prompt significant changes in behaviour and attitudes. The fiscal system can be modified to encourage companies to introduce employee learning accounts. The Apprenticeship Levy could be extended into a 'Skills Levy' to cover broader employee skills. This will also require changes in delivery models to accommodate flexible learning patterns, and again link to the need for a more joined-up and transparent system.

Skills in a changing population

The UK population is getting bigger, and becoming older. The Office of National Statistics (ONS) states that the UK population will reach 70 million by mid-2027.³⁰ In 1950, it was 50 million. By 2037, there will be six million people over the age of 80. One in three babies born today will live until they are 100.

These huge demographic changes mean that our Industrial Strategy must address the need for young workers to support economic growth, including those from overseas, and also the need to employ older workers past the statutory retirement age. This might, for example, involve a major reskilling of older workers in digital

²⁹<https://www.hotcourses.com/>

³⁰<https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationprojections/bulletins/nationalpopulationprojections/2015-10-29>

and technical skills. Government incentives might include removing national insurance contributions for employees

over retirement age to encourage businesses to continue to invest in the skills of older workers.



Conclusion: skills for the future

Major advances to our system of skills and technical education are needed to provide the British economy with the workforce it needs, and to provide the British people with the jobs and opportunities they require in the future economy. We also need a system of immigration which attracts highly-skilled workers to Britain, to boost our science, medical, engineering and manufacturing sectors. To support this, we would encourage and advocate a long-term view, and a stable education policy that enables the parts of the system to work together to deliver the skills we need. The complexity of the existing policy landscape and funding streams must be simplified, to allow transparency for users and achievement of optimal outcomes.

3. Integrating national and local schemes, and boosting investment in infrastructure

It is right that the future of the UK's infrastructure should form a central part of the Industrial Strategy. We need to balance the infrastructure needs of the regions and nations of the UK, and to place local concerns in the context of national strategy.

KPMG recognises the positive impacts of other Government initiatives, such as the creation of the Infrastructure and Projects Authority (IPA) and publication of the national infrastructure plans. Government can take further measures to stimulate the necessary increase in private investment in UK infrastructure.

We understand from previous industrial revolutions that systems of communications, transport and cities are essential to economic growth. In the Fourth Industrial Revolution, infrastructure means more than roads, rail, airports, ports, energy and telecommunications; it also means the digital infrastructure which allows the UK to lead the world in digital technology.

We need an effective mechanism to prioritise infrastructure investment

The Government must define how, and who, will prioritise regional needs and where it will be willing to make investment decisions to rebalance the economy from a regional perspective, through allocation of funds to local areas. These decisions should be based on criteria broader than a narrow cost-benefit analysis, which include the need to create wealth and opportunities in every part of the UK, not just the South East and London.

Government investment has primarily focused on economic infrastructure such as energy and transport. Social infrastructure such as health and housing has been less salient. With social infrastructure playing an important role in rebalancing the economy, attracting private investment, and retaining talent in places, these infrastructure projects cannot be neglected.

Local infrastructure needs must feed into national UK infrastructure policy

Addressing local infrastructure needs, through better incorporation into national policy, will be an important factor in rebalancing the economy between the different regions and nations of the UK.

Policy should prevent unnecessary competition between city-regions for infrastructure projects, where this proves harmful to the national interest.

The Industrial Strategy should include clarity on the role of the HM Treasury in funding infrastructure projects. The Strategy also needs to be explicit in the role technology should play in driving efficiency in major projects.

Regional planning should be re-evaluated to clarify national and local responsibilities

There is an absence of effective regional planning to dovetail national and local infrastructure development. For example, the Government has created Transport for the North (TfN) but seems reluctant to cede responsibility to it, for example over regional road and rail policy. The

Government should re-evaluate its regional planning process to ensure it can devolve power to local bodies wherever practicable.

Local bodies need greater power and funding authority

In the UK around 1.7% of GDP is raised and spent locally compared to an OECD average of around 10%.³¹ A greater devolution of power and funding at a local level is required. For example, KPMG believes local authorities should be free to borrow funding for housing developments, and to support local infrastructure developments which require significant additional funding capacity. The Government must clearly define what autonomy will exist locally and regionally, who the responsible organisations are, and their respective, interlocking powers.

Local planning needs better visibility of the benefits of large projects

Large projects such as Heathrow Airport's second runway, Hinkley Point C nuclear power station and HS2 are all positive for the UK economy, but the local and regional benefits have yet to be defined. It is disappointing that the Private Finance 2 (PF2) pipeline was not published in the Government's Spring Budget. The Government should provide greater visibility of the local and national benefits derived from these projects, to enable more informed local planning and investment.

Improving procurement and governance is a priority

Infrastructure UK's 2014 Infrastructure Cost Review³² showed that most of the cost inefficiency of UK infrastructure relative to overseas benchmarks was due to poor governance and inefficient

procurement, rather than underlying cost of labour or materials. Once a project is approved for delivery, the scope should be fixed and insulated as far as possible from political intervention.

Work undertaken by KPMG for Government in 2015 demonstrated that competition (either actual or quasi) between providers of a service was a driver of efficiency in infrastructure delivery and operation by allowing benchmarking and cost comparisons between providers.

The Government should further develop the skills and supply chain to deliver the UK's strategic infrastructure

A range of initiatives were set out in the 2014 report Skills to Build,³³ published by London Chamber of Commerce and KPMG. The Government has already adopted some recommendations and has shown leadership in the establishment of the HS2 colleges. Sir Terry Morgan's 2016 report³⁴ on transport skills is a good blueprint for action in that sector.

The Government should reform the Construction Industry Training Board (CITB) and use the Apprenticeship Levy to drive change across the industry, and encourage investment in skills.

Government has a number of options to stimulate private investment in infrastructure

We believe there is a large pool of untapped investment for infrastructure projects available from the private sector. The Government needs to encourage more private sector investment, and remove the disincentives for companies considering whether to invest their resources.

³¹http://eprints.lse.ac.uk/47842/1/libfile_REPOSITORY_Content_Travers%2C%20T_Local%20government%E2%80%99s%20role%20in%20promoting%20economic%20growth_Local%20government%E2%80%99s%20role%20in%20promoting%20economic%20growth%20%28LSE%20RO%29.pdf

³²<https://www.gov.uk/government/collections/infrastructure-cost-review>

³³<http://www.londonchamber.co.uk/DocImages/12960.pdf>

³⁴<https://www.gov.uk/government/publications/transport-infrastructure-skills-strategy-building-sustainable-skills>

There is sufficient private capital, debt and equity, available for the infrastructure investment required by the existing pipeline of projects. However, we believe the Government is directly and indirectly discouraging this investment through:

- A lack of projects and programmes being brought to market for private finance. For example, nearly all rail and road investment in the UK is still taxpayer-funded by default
- Inconsistency in Government policy and messaging as to whether private investment is really welcome. For example, the backlash against the private finance initiative (PFI), regulatory activism over cost of capital, and reluctance to recognise that if private capital is to bear risk, that bears a cost to investors
- High-profile wavering over major investments. For example, the expansion of Heathrow, and decisions over new nuclear installations such as Hinkley Point C.

To benefit from increased private investment, the Government must adopt, and convey a consistent pro-private finance stance, including going further to encourage agencies like Network Rail to develop privately financeable projects, and fully embrace the long-term planning which is envisaged in the establishment of the National Infrastructure Commission (NIC).

Provide more visibility of pipeline to encourage private investors

The Government is not as good as it could be at showing how plans for future projects interlock, and the benefits they will bring to every part of the supply chain. This makes it harder for investors to see the benefits of becoming involved. The Government should provide greater visibility of the infrastructure pipeline to build private investor confidence, and encourage supply chain investment. This

visibility will also enable businesses to pre-plan their workforce skill requirements, a key component of enabling the upskilling of our workforce to meet industry requirements.

Accelerate the involvement of pension funds

While there is sufficient finance for the existing pipeline, additional activities will require longer-term institutional finance. An acceleration of the involvement of pension funds, especially local authority pension funds, is required to increase funding competition within the market, to ensure the right pricing, flexibility and willingness to take risks is delivered. The increase in 'UK Guarantees' (a Government scheme designed to kick start crucial infrastructure projects) is a positive step forward.

Ensure the civil service has the right capabilities to develop investable propositions for new difficult-to-determine projects

The PFI and PF2 programmes provide useful frameworks for the delivery of projects, through a process to follow and an incentive to follow it. This serves to focus the minds of sponsors on delivering the projects to predetermined milestones.

There are several projects on the horizon that are more difficult to define, and will require specific skills to develop into projects that investors will want to fund. The Government must ensure civil servants have the necessary knowledge and skills, to avoid delaying these projects from reaching the market.

Re-evaluate the regulatory framework for digital infrastructure

Under the current regulatory framework, digital infrastructure providers risk being dis-incentivised from investing in future digital infrastructure upgrades, as many market participants, over and above the investors are likely to reap the economic

benefits. Indeed KPMG's 2015 economic impact analysis³⁵ revealed that, at present, the greatest beneficiaries of an upgraded digital infrastructure would be over-the-top content (OTT) providers and consumers, rather than the investing telecom businesses.

To create a compelling environment for private investment, the Government should re-evaluate the current regulatory framework, to ensure telecom providers are incentivised through provision of long-term certainty of return.



Conclusion: a balanced approach to infrastructure

We need a national strategy for infrastructure which taps into the latent economic potential of every part of the UK. This means balancing national and regional infrastructure projects through a mechanism of prioritisation; boosting private investment in infrastructure; and ensuring the right incentives are in place for investors in digital networks.

³⁵https://www.ofcom.org.uk/_data/assets/pdf_file/0025/84724/bt_annex_delivering_britains_digital_future_-_an_economic_impact_study_kpmg.pdf

4. Supporting businesses to start and grow is about more than access to finance

Supporting businesses to start, scale, and grow will be crucial to the Industrial Strategy's success. Access to finance is essential, but not the only kind of support a business needs to grow.

In our experience, supporting businesses to start, scale-up, and grow to maturity is complex: there are different needs at different stages of development. In considering access to finance at each stage, we also need to take a broad view, assessing the impact of regulation and understanding the drivers of investor behaviour. Growth is not predicated purely on securing finance. There are a wide range of tax incentives and structures in place to encourage entrepreneurship and we believe access to the appropriate skills and talent is crucial. Mentoring from more experienced management teams and entrepreneurs can also play a major role by fast-forwarding learnings.

As discussed earlier in section 1, a faster and more efficient process of bringing new innovations and products to the market, and making them a commercial success, is essential to new business growth.

The need to continue to attract investment is as important as ever for scale-ups. According to KPMG Enterprise's Venture Pulse Q4 2016,³⁶ a quarterly report on global venture capital trends, venture capital financings around the world (including in the UK) declined both in numbers of deals, and total deal value, in 2016 compared to 2015, as investor

optimism turned to caution in the second half of the year.

Investors tell us that it is still largely 'business as usual'. However, some uncertainties have arisen from the Brexit vote in 2016 which may have contributed to some extent to the lower level of venture capital deal activity last year. Whilst we saw venture capital deal volume stabilising in Q1 2017,³⁷ we expect investors to remain cautious in 2017. Other European clusters of businesses and institutions are trying to position themselves as a strong alternative leading hubs. The competition for the best entrepreneurs, start-up and scale-up businesses, and technology talent has only just begun. The UK needs to act to remain not only competitive but in the lead.

Driving awareness of crowdfunding networks and opportunities could help with take-up of new funding opportunities across the country

Better education and information about funding needs and opportunities in the regions could support the adoption of new funding opportunities such as crowdfunding across the country. Using regionally-known and respected business leaders as local ambassadors could be helpful in raising awareness. The objective is to get the best match between companies and investors. This could be done through central points of the regional business ecosystems, for example Tech North. There may be a need for closer

³⁶<https://assets.kpmg.com/content/dam/kpmg/xx/pdf/2017/01/venture-pulse-q4-2016-report.pdf>

³⁷<https://assets.kpmg.com/content/dam/kpmg/xx/pdf/2017/04/venture-pulse-q1-2017.pdf>

links between activities in the regions and those in London as businesses tend to gravitate towards the capital when seeking funding or profile.

Government needs to analyse the actual or potential impact of regulation on the supply of finance to start-up, scale-up and growth businesses

Regulation is an important factor and analysis of its actual and potential impact on the supply of finance would be useful. This could include:

- The impact on the pricing of bank finance of the cost of responding to regulatory policy, in terms of banks' operational and strategic decisions (see KPMG's publication *Capital Myths and Realities*³⁸)
- The uncertainty regarding future capital and liquidity requirements, which may hold back bank lending
- Whether the practical application of the regulations on capital and liquidity creates undesired outcomes, especially where application then fails to reflect the underlying risks and uncertainties of the bank lending
- Potential tighter regulation of crowdfunding, other forms of 'shadow banking' and various forms of financial innovation
- The different tax treatment of debt and equity finance.

Non-financial support is also crucial: mentoring and 'fast-forwarding' learnings from others can be powerful measures

We know that access to funding, while essential, is not the only factor in supporting companies to start and, in particular, to grow. KPMG supports the proposal of the Minister for Small Business taking up the role of 'Scale-Up Champion'

as this could provide a useful catalyst to create an ecosystem of support.

Mentoring, in the form of enabling access to industry experts, established business owners, and experienced advisers, is often invaluable to young, growing enterprises as they can 'fast-forward' learnings by drawing on the accumulated wisdom of these mentors to grow their business. Policies developed as part of the Industrial Strategy should support this.

We welcome the comment in the consultation document that the Government intends to work with the ScaleUp Institute and other partners to build peer-to-peer networks. Such programmes could help business navigate the complexity of financing options and, in an era where investors are carrying out longer and more detailed due diligence before commitment of investment, access to experienced mentors could help nascent business leaders.

Access to markets and sales channels is important

Both start-ups, and in particular scale-ups, need access to markets and sales channels. For example, they should be considered in the context of post-Brexit trade negotiations, trade missions and subsequent follow-up, and in Government considering them in their procurement strategies. They sometimes get lost attempting to navigate these opportunities alone.

Access to talent is vital

Access to talent is an issue for many businesses and the focus on skills elsewhere in the Industrial Strategy consultation document is an important enabling pillar. Ensuring continued access to skilled management and strong, affordable technical experts is crucial for scale-ups. Post-Brexit, companies are concerned about the future availability of

³⁸<https://assets.kpmg.com/content/dam/kpmg/pdf/2016/07/banks-strategies-and-business-models-capital-myths-and-realities.pdf>

overseas talent, including people from the EU. KPMG's experience is that, especially amongst high-tech growth companies, international junior talent is flexible and not too concerned or impacted by Brexit uncertainty, but further security and assurance is needed to attract the more senior international hires.

The Industrial Strategy presents an opportunity to simplify and streamline support structures

The development of a new Industrial Strategy presents a golden opportunity to simplify the many and varied structures already in place to support small businesses. While it is welcome that these initiatives exist, the plethora of different bodies presents a challenge. For example in the Midlands, from May 2017 the community of organisations with decision-making capabilities, support and funding mechanisms spans national bodies (Innovate UK, Catapults, and HMRC's R&D tax credits), regional bodies (West Midlands Combined Authority and the Midlands Engine) and Local Enterprise Partnerships (LEPs).

The risk is that these multiple bodies can be confusing for businesses, do not tap into the full investment available, and can result in duplication of effort.

A simplified approach, perhaps involving Government working with the private sector to streamline the journey from ideas to commercialisation, could be of benefit. Collaboration and co-ordination are key to creating a vibrant ecosystem of stakeholders working together and not in parallel. We should also consider whether efforts across the country are co-ordinated in the best possible way.

As part of this process, the different needs of 'start-ups' and 'growing' businesses should be considered and tailored approaches developed both in theory (documents, frameworks and policy approaches) and in practice (support mechanisms).

Policy development should also consider investment decision drivers for investors and mature businesses

We need to understand investor behaviour when developing policy. This includes a granular understanding of the factors which influence an investor's decision-making, as an institution or corporate. We need analysis of what the important factors are, how decisions are taken, how risk is assessed and analysed, how reward is calibrated, and what tips investors into making a positive decision. A need to meet shareholder expectations matched to a fund's lifecycle can lead to a short-term view of what constitutes success in the market rather than a focus on fundamentals around longer-term viability. The measure of success or performance is thus not necessarily consistent with a longer-term timeframe.

In capital intensive sectors, fixed capital investment can be significantly impacted by a downturn in performance. In addition the level of fixed capital investment can be affected by changing business models as a result of industry disruption.

The Government may consider whether there could be incentives put in place to support longer-term investment, perhaps linked to the development of 'Industry 4.0'.



Conclusion: new businesses need access to more than finance

Start-ups and growing businesses need access to finance. But finance on its own is never enough. Our clients tell us that access to information, advice, support accessing sales channels, mentoring, coaching and benchmarking is every bit as essential to their success, alongside investment and access to finance on affordable terms.

5. Government procurement, powered by the right skills mix and further digitalisation, can drive growth

KPMG supports the inclusion of public procurement as a pillar, and cross-sector enabler, within the Industrial Strategy.

The UK Government spends billions of taxpayers' money every year, on everything from warships to welfare to work services. The Government has made real and welcome efforts to aggregate demand, increase efficiency, and streamline procurement decisions, increasingly acting as a single buyer on commodities spend. It also recognises that its vast spending power can, and should, be a force for good, supporting new and developing businesses and giving a boost to small and medium enterprises (SMEs). However, additional improvements can be made through further digitalisation of procurement and by enhancing the skills of the Civil Service.

Extending the Crown Commercial Service's approach to other bodies could drive further efficiencies

We suggest that the success of Crown Commercial Services in aggregating demand and purchasing commodities, should be further extended to public and private bodies outside of the Civil Service.

In the regions, the disciplines of aggregating demand for commodities by 'place' and negotiating further efficiencies and value for money, will have the potential to lead to a faster route to market by encouraging participation by SMEs and locally based suppliers, helping to drive growth.

Government should encourage further digitalisation of public procurement including considering 'one-click' ordering

KPMG supports the Government's vision of a fairer procurement system that encourages innovation. This will be well received by our clients across sectors. As the Industrial Strategy is developed, Government should encourage the further roll out of digital marketplaces for commodities. Digitalising the procurement of certain services can drive efficiency, greater participation of suppliers and purchasers and an enhanced commercial relationship. The online shopping experience of 'one click' ordering, purchasing and delivery could be applied to the public sector.

Extending the 'balanced scorecard' approach is a welcome and important move

KPMG welcomes the consideration of a 'balanced scorecard' for making procurement decisions. We have heard too often from our clients that, despite best intentions, purchasing on price becomes an overwhelming consideration to justify value for taxpayers' money.

Adopting a more balanced approach enables procurement decisions to be made and justified to ensure that they reflect the best interest of a community or allow access to the true potential of innovative businesses, together with justification that the price represents good economic value. It supports the strategy of

moving from commodity purchasing to commissioning complex projects that need to deliver a mixture of social and environment considerations, which are key to the development and delivery of a sustainable Industrial Strategy.

The Civil Service must be given the appropriate strengths and capabilities to take advantage of the power of public sector procurement

Government should focus on the strength and capability of the Civil Service and wider public servants to take advantage of procurement as a key pillar of the Industrial Strategy. To truly transform the landscape those charged with Government procurement need to migrate

from purchasing skills to complex commissioning skills.

Our international and UK experience of advising clients has indicated that purchasing can be a forceful driver of efficiencies. In addition, the power of commissioning the right services, the best available configuration of these services, and bearing the local economy and skills in mind, can drive transformational change. To achieve this, the Civil Service's skills and capabilities need to be addressed to ensure that the benefits of procurement extend to local communities by being inclusive and relevant, as well as accelerating innovation in large and small businesses.



Conclusion: digitalisation and enhanced commissioning skills will get the most from procurement

Government procurement is a powerful lever that policymakers can pull to drive productivity and innovation as it develops the Industrial Strategy. To deliver this, it should embrace online technology and digitalisation and focus on the skills, strengths and capabilities within the Civil Service and among associated public servants responsible for commissioning.

6. Encouraging trade and investment require different strategies, but both would benefit from a more co-ordinated Government approach

Trade and inward investment are key to the UK's economic success. The Government is right to focus on increasing international trade and we welcome the creation of the Department for International Trade (DIT). While the two elements of this pillar, trade and investment, may have similar needs relating to sector connectivity and regional support structures, they sometimes require separate approaches. Post-Brexit, both will need targeted Government support as part of the Industrial Strategy and would benefit from a more co-ordinated and holistic approach.

Trade and inward investment require differentiated Government strategies

The specific challenges of 'trade' and 'inward investment' differ. Businesses seeking trade opportunities require access, insight and connections to overseas customers and markets, supported by Government. Supporting increased exports is clearly crucial, but we also encourage the Government to consider how it can facilitate UK businesses looking at Overseas Direct Investment in order to drive trade opportunities.

Overseas businesses looking to invest in the UK are seeking integrated support (nationally and regionally) to bring insight, knowledge and skills to bear in the UK.

Therefore, Government should recognise the same strategy and support structures will not always be effective for both.

Post-Brexit, frictionless trade and the terms of trade will be crucial

The UK Government has indicated that it would be seeking to secure the 'freest and most frictionless trade possible in goods and services between the UK and the EU'.³⁹

This need for frictionless trade is echoed in what we hear from our clients. Whilst most Brexit media attention is on tariffs, businesses are sharing with us that they are equally concerned about non-tariff barriers (import licensing, rules for the valuation of goods at customs, pre-shipment inspections, rules of origin and investment measures) and technical barriers to trade (regulations, standards, testing and certification procedures) both of which may increase cost and logistics complexity.

We would encourage the acceleration of and investment in the Government's 'One Government at the Border' initiative⁴⁰ designed to integrate a number of processes for importing and exporting goods across the UK border, which are currently handled by 26 different Government departments and agencies. A technology-based solution is needed that

³⁹https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/589191/The_United_Kingdoms_exit_from_and_partnership_with_the_EU_Web.pdf

⁴⁰<https://gds.blog.gov.uk/2015/08/07/mapping-the-border-as-users-see-it/>

seamlessly gives border control information about what is moving from where, and to where. Brexit will only accelerate this need in the short term and the existing Customs Handling of Import and Export Freight (CHIEF, the processing system of trader declarations) system and Authorised Economic Operator (AEO) application processes will need to be reviewed in light of international trade arrangements. Improvements to the flow of goods would also be welcome, such as a fast-track process for trusted traders to import and export.

Whilst the need for frictionless trade is shared across sectors, the potential impact of Brexit varies from industry to industry. In a report⁴¹ issued in February 2017, KPMG ranked the initial level of exposure sectors may have to Brexit by looking at two simple measures: the proportion of EU nationals as part of each sector's workforce and EU exports as a share of each sector's output (as measured by Gross Value Added).

While exposure to EU labour tends to be broadly similar across many sectors, the relative importance of exports to the EU varies significantly, with some of the larger sectors such as construction and wholesale and retail trade being more domestically focused.

Government should focus on the elements it can influence to attract investment

Companies invest in the UK for a variety of reasons. Most of these fall into the broad category of 'horizontal enablers' such as high-speed transport, a skilled workforce or a world-class science base. Some of these are beyond the Government's control, such as language, geographical location and the UK's overall 'brand', which is a product of our culture and history.

Other enabling factors do fall largely within Government control and are critically important: stability and transparency of the taxation and regulatory environment, immigration policy and the existence of specific incentives. Most of these will have to change post-Brexit and Government must consider what levers it can pull to attract business and investment to the UK. For example, these could include measures such as grants and incentives for innovation, new enterprise zones and special economic zones.

Some longer-term, but nonetheless very important, horizontal enabling factors can be 'nudged' and encouraged by Government policy, such as education and workforce skills (as covered in section 2) and the macroeconomic environment. There is unlikely to be an instant impact, as could potentially be the case with specific incentives.

New exporters require support across a range of areas including access to finance

Finance is a critical enabler of UK exports. With varying degrees of success, Government is already taking steps to improve the accessibility of export credit facilities in instances where there is 'market failure'; i.e. where supply persistently fails to satisfy good quality demand and where the trade finance available is insufficient to ensure that no commercially viable export should fail.⁴² However, there is more that could be done to improve exporters' access to credit. Increasingly, resolution of market failures could be addressed by stepping back from direct, Government provided products (as alternatives or substitutes for private sector provision) and instead establishing the enabling mechanisms by which the private sector can correct these market failings. Example actions may include:

⁴¹<https://assets.kpmg.com/content/dam/kpmg/uk/pdf/2017/03/brexit-the-sector-impact.pdf>

⁴²https://www.wto.org/english/res_e/reser_e/ersd201701_e.pdf

- Driving increased transparency of default rates for SME exporters. In the absence of this information, trade finance lenders have to rely on proxy credit ratings for determining capital requirements (e.g. for corporate bonds) which do not reflect the reality of the SME exporter default rates, making trade finance expensive to provide
- Reviewing regulatory treatment of the security held by banks for bond support products
- Moving Government's focus from being the designer and issuer of its own products, to operating as an effective underwriter to lenders where there is market failure, and supporting increased innovation, flexibility and competition in the provision of finance.

These examples (and others) could form part of a package which collectively addresses the challenges in export finance.

Government should work in partnership with industry embracing digital opportunities to get the most relevant advice to exporters

Government should recognise that starting to export can be a big commitment for businesses. It is more complex than simply finding a buyer and having the finance. A new exporter must consider issues such as regulatory compliance, practical matters such as translating marketing and product information and in-country support. Additionally, with uncertainty around customs duties and tariffs, assessing the economic and business model is challenging for businesses.

Digitalisation is essential to ensure fast dissemination of information to potential exporters and as a mechanism to match opportunities for trade. However, a general and comprehensive digital platform may not entirely meet the needs of all

businesses; a proportion of businesses will require a more tailored approach.

A more integrated service for the provision of advice to exporters, drawing on private sector and commercial bodies, could allow businesses to obtain the most relevant advice, support and insight. Rather than the Government providing these services or access, it should consider offering a financial contribution to the costs of obtaining advice from this more integrated commercial market. Under such a model, Government's role would be one of oversight and facilitation, not actual implementation, ensuring access to a broad range of providers.

We need better connectivity between Government departments, and private sector bodies

Practical barriers, undue bureaucratic process, lack of access to decision-makers within Government departments can all render the best-intended policy ineffective. Closer working between different Government departments (for example HMRC operating on the ground at borders sharing trade data with the DIT) would make trade promotion much easier.

There are multiple trade missions organised by various regional and national, private and public sector bodies. A clear sector or regional focus and a more collaborative approach with the private sector would be more effective.

KPMG clients, looking to invest in the UK, tell us that they often receive a more 'joined-up' service from other countries. In KPMG's experience, overseas companies often need support with access to finance, information about grants in particular areas, support in obtaining visas for strategic staff, certainty over the tax implications of establishing in the UK, for example access to the R&D or Patent Box tax regimes, or whether controlled foreign company, interest restrictions, or other rules might apply.

A more empowered and agile 'one stop shop' approach for inbound businesses looking to set up in the UK to easily gain access to informed decision-makers within Government departments would be helpful.

Government should support the creation of national and regional brands to better market the UK globally

Building on existing UK sector strengths on a national (for example automotive) and regional (for example Cambridge for tech and biotech) level, Government should support the 'branding' of these globally, providing credibility to support exporters and attracting investment. For example, France established a label 'La

French Tech' in 2013 to promote the French Tech start-up community.⁴³

Some countries have been very successful by building a stable, long-term brand with clear cut incentives, and an informed focus on business investment. Singapore stands out, but closer to home Switzerland and its cantons have a long track record of actively approaching multi-national corporations and providing targeted incentives. The best examples in this field play to their strengths, therefore there is no point in the UK trying to replicate Switzerland or Singapore. Our country is different with different sectoral strengths and market size, and we should exploit these.



Conclusion: Britain will rely on strong international trade and inward investment post-Brexit

The role of the Industrial Strategy, and especially the Department for International Trade (DIT), must be to make international exports easier and more profitable for British firms, and to make Britain a more attractive place for investors. As we leave the EU, there are new opportunities for British exporters.

There will be new sources of inward investment but Brexit may also cause the UK to lose ground against its international competitors, as illustrated in KPMG's recent tax competitiveness survey.⁴⁴ The Industrial Strategy must ensure these opportunities are seized, and potential threats mitigated.

⁴³<http://bonjourlafrenchtech.com/>

⁴⁴<https://home.kpmg.com/uk/en/home/media/press-releases/2017/04/uk-remains-attractive-place-to-do-business-but-loses-ground-over.html>

7. Government must provide a long-term framework of energy policy to allow companies to innovate

The overall aim for energy policy must be to ensure security of supply, and decarbonisation at the least cost to energy consumers.

We understand that the energy industry can create jobs and opportunities across the UK, invest in skills training and apprenticeships, create opportunities in areas such as Anglesey, Cumbria or the Welsh coast where other employment is scarce, and invest in research and development, especially in the next generation of renewables technology.

Greater clarity on the long-term energy policy framework is required to limit long-term energy costs, create more competitive markets, increase opportunities developed from innovation and support businesses to realise more cost savings.

The role of Government is to set the long-term direction of travel for industry and put in place the policy framework to support them to achieve it. At the heart of the UK's Industrial Strategy must be an energy sector which is stable, secure and safe.

A long-term policy framework is essential for securing investment to transition to a low-carbon economy, keeping costs down for consumers

By developing a smarter power system, as set out in the recent BEIS consultation on A Smart, Flexible Energy System,⁴⁵ we can keep costs down for businesses and households. To secure the significant investment required to make the transition

to a low-carbon economy, investors will require greater clarity over the long-term policy framework for energy. The 2017 Spring Budget once again deferred key policy decisions, such as the level of the carbon price floor in the 2020s, and what the Government is willing spend on supporting low carbon energy under the Levy Control Framework (LCF) in the period to 2025. Providing this clarity will help keep the cost of capital down and ultimately result in lower bills for energy consumers.

Government must define its long-term energy goals to enable industry to innovate, and create competitive markets without the need for ongoing subsidies

It is the role of the private sector to innovate and find new solutions. The Government must set the long-term policy framework to define the overall goals for companies to meet. The electricity market reform programme put this in place for power, although subsequent policy decisions, such as the removal of support for onshore wind, have added to the costs of the low-carbon transition at a time when the Government says it wants to keep bills down.

The UK has made significant strides on renewables in recent years, with the share of electricity generation rising from around 5% a decade ago to around 25% today. The falling costs of new technologies such as solar and storage mean that new decentralised energy solutions can increasingly be developed

⁴⁵ <https://www.gov.uk/government/consultations/call-for-evidence-a-smart-flexible-energy-system>

without direct subsidy. Similarly, the costs of large-scale generating technologies like offshore wind are falling fast, and will soon be able to compete with conventional generation, so long as there is a robust carbon price in place.

Businesses and households will increasingly become 'prosumers', by generating power, selling the excess back to the grid and managing demand more actively using new technology. This will enable local energy markets to develop, with demand and supply increasingly balanced at a distribution level.

The position on heat is less clear. The industry needs a policy framework which sets out the direction of travel for Britain's future heating needs that is consistent with the long-term carbon reduction goals and keeps costs down to a minimum. Without that overall sense of direction, it will be difficult for the private sector to develop new solutions to decarbonise our heating system.

A clear long-term framework for energy efficiency will provide advance warning to businesses, and help minimise costs of achieving any new standards

It is in the commercial interest of all companies to keep energy costs to the minimum possible.

For too long, energy efficiency policies have been set on a short-term basis (for

example, the ECO scheme), or without taking into account practical delivery issues (for example the 'Green Deal'). The industry requires a clearer long-term framework for energy efficiency across the UK. This might include a role for building and appliance standards to drive energy efficiency improvements. By giving long lead times and advance notice of any changes, the Government can help minimise the costs to business of achieving new standards.

Simplifying the energy innovation landscape would help Government engage with the private sector more easily to develop competitive opportunities

It will be for the private sector to innovate and find new solutions that meet the overall goals the Government has set in the long-term energy policy framework. In many cases that innovation will take place at a global level. This happened with solar, and is now underway with electric vehicles. In other areas, like offshore wind, the UK can help drive the global trends, creating jobs and boosting trade.

The Catapults and other innovation bodies provide ways to bring together public and private interests in energy innovation. Simplifying the energy innovation landscape, rather than adding to it, would help engagement with the private sector.



Conclusion: long-term policy stability is key

As both an enabler and an innovator, the energy sector is an integral part of the Industrial Strategy. The role of Government is to provide the background for this with a long-term policy framework and clarity around the direction of travel on policy.

8. Different sectors are best placed to identify what support they need, but sector deals must be flexible

While 'horizontal enablers' provide the necessary foundations for economic growth, they must exist in the context of sector and place.

KPMG supports the invitation to specific industries to propose bespoke 'sector deals'.

The Green Paper rightly stresses that the Industrial Strategy cannot be imposed from Whitehall. It must be 'owned' by the various industrial, manufacturing and other sectors which comprise Britain's producers. Sectors must be free to pursue their own arrangements and partnerships, within the overarching strategy.

The sector deal approach recognises that the scale and 'life stage' of UK sectors differ, so the type of support and role of Government and industry will vary. KPMG, a firm with cross-sector experience and exposure, supports the five high-potential 'early sector deals' referenced in the Green Paper, and also endorses the Government's commitment to maintain an open mind at this stage on all 'sector deals'.

Making this a 'business-led' approach in which the sectors convene, organise and make propositions within the parameters laid out by Government is helpful. It frees industries to be creative in their suggestions. Nonetheless, more clarity is required as to how the Government will prioritise conflicting in-sector and across-sector priorities. Sector deals must also

allow for the rapid pace of change in the economy.

Sector deals must allow for convergence and emergence

Sector convergence, the colliding and merging of market sectors, is happening across almost all markets, reshaping the business landscape. A key enabler of this is technology. Today, more than 20 sectors regard automobiles as strategic platforms for their businesses, from banking and media to healthcare and infrastructure. We are still in the early stages of this prolonged, non-cyclical structural shift in markets, which is requiring businesses to develop new financial, business and operating models. This is discussed in our KPMG International Annual Review.⁴⁶

Sector deals proposed today need to take these trends into account. Government should therefore ensure a flexible 'sector deal' framework, at the submission and the review stage, which fosters collaboration between sectors to identify common opportunities across the value chain, in addition to the creation of their own specific sector deals. This should support efficiencies through the identification of initiatives or investments with cross-sector benefits. For example, we need to understand how food production, manufacturing and retail could partner and work together more closely.

⁴⁶<https://home.kpmg.com/content/dam/kpmg/iar/international-annual-review-2016.pdf>

As technology and business models evolve, new regulations and standards may be required to govern new sectors, or established ones re-visited to ensure innovation is not blocked. While the Government already has some initiatives in place, such as the Taylor Review⁴⁷ examining the gig economy and modern employment practices, there will be a need for Government and industry to work together to identify these potential challenges early on, to ensure they do not inhibit development. The UK Government should influence standard setting wherever it can, such as at the G20, or in bi-lateral trade deals, but ultimately this may mean implementation of standards adopted by others (such as the EU).

KPMG is already working with businesses to consider the impact of changing economic models and priorities for the Industrial Strategy, and anticipates doing more

As a leading business adviser, KPMG works across a range of sectors and routinely convenes groups of business leaders with other stakeholders (in the form of round tables, hosting meetings, or running workshops) to consider the impact of the changing world in which they operate. In some cases, we have considered the specifics of the Green Paper.

For example, KPMG's recent publications Rethink manufacturing,⁴⁸ and The Digitalisation of the UK Automotive Industry,⁴⁹ discuss the Industrial Strategy in the context of these industries.

KPMG's Pharma outlook 2030⁵⁰ report, while not specifically covering the Industrial Strategy, examines the challenges the industry faces. In construction, we proposed a seven-point

plan for the industry⁵¹ which includes launching a campaign designed to make the industry appeal to the millennial generation, promoting collaboration across the supply chain, and creating a single pipeline format to provide clarity.

As development of the Industrial Strategy progresses, KPMG's sector leaders anticipate working further with businesses and industries to help develop their responses.

Other convening bodies should be encouraged to support the development of sector deals

As a general principle, Government should encourage all bodies that have convening power to work with business and other stakeholders to support the development of sector deals. Such convenors include business bodies — for example, the CBI, the British Chamber of Commerce, the Federation of Small Businesses — together with trade or industry specific bodies.

Sectors should unite to develop their own ideas — businesses know best what works for them

Sectors each have their own characteristics and there is unlikely to be a 'one size fits all' approach. KPMG agrees with the notion of empowering them to come together and propose their own ideas for sector deals. As the Government recognises in its Green Paper, sectors uniting behind strong leadership to work collaboratively with other stakeholders has proved a successful model in the case of the automotive and aerospace industries.

⁴⁷<https://www.gov.uk/government/news/taylor-review-on-modern-employment-practices-launches>

⁴⁸<https://assets.kpmg.com/content/dam/kpmg/uk/pdf/2017/04/rethink-manufacturing-a-uk-industrial-strategy-for-industry-4-final-report-2.pdf>

⁴⁹<https://assets.kpmg.com/content/dam/kpmg/uk/pdf/2016/11/SMMT-digitalisation-automotive-industry-report.pdf>

⁵⁰<https://assets.kpmg.com/content/dam/kpmg/xx/pdf/2017/02/pharma-outlook-2030-from-evolution-to-revolution.pdf>

⁵¹<http://www.building.co.uk/analysis/comment/let%e2%80%99s-make-them-an-offer-%e2%80%a6/5086585.article#> (registration or subscription required)

A clear framework for prioritising conflicting in-sector and across-sector initiatives should be defined by Government

Government should be prepared to receive conflicting in-sector or across-sector initiatives that will require prioritisation. A clear framework, and internal process, should be defined and communicated to those submitting sector deals. In its simplest form, this may be a prioritisation matrix of impact (economic, social etc.) versus feasibility (economic, Government remit etc.).

'Enabling' sectors should be prioritised

Some of the 'enablers' identified in the Green Paper are also 'sectors', and enabling sectors such as these should be prioritised in the sector deals. Technology for example can be viewed as a 'sector' (albeit an extremely diverse one) but it is also a huge enabler across a range of businesses that rely on specific innovations. Linkages and interdependencies will increase as sectors converge. The Government should prioritise sectors with the potential to drive growth across other industries

Sectors heavily impacted by Brexit negotiations may need prioritisation

Brexit casts a long shadow over the Industrial Strategy, as an enormous amount depends on the terms of trade and the macroeconomic climate the country encounters outside the EU. Different sectors have different sensitivities which in turn will differ depending on the exact nature of the post-Brexit arrangements. As details emerge, if some sectors are especially affected, they may need attention and support via their sector deals.

In automotive for example, cars exported from UK to EU will face trade restrictions

to comply with 'rules of origin' which require a certain percentage of parts and technology used to build the vehicles to qualify as British. Colin Lawther, Senior Vice President, Manufacturing, Supply Chain Management and Purchasing, Nissan, recently stated at the Commons Select Committee on International Trade meeting on 28 February 2017 that unless the Government supports the rapid stimulation of the UK supply chain, UK carmakers may be prohibited from selling cars into the EU.⁵²

As an illustration of how sensitive different sectors can be, KPMG's macroeconomics team recently examined the potential impacts of Brexit on various sectors, depending on access to the EU market and access to EU labour.⁵³ The research showed that some sectors, such as hotels or restaurants, were far more sensitive to restrictions on freedom of labour than trade. For others it was the opposite and some were highly sensitive to both.

Sector deals should include sectors which do not produce traditional 'goods'

We call on the Government to recognise the economic role of sectors which do not produce 'goods' in the traditional sense, but do add substantially to our GDP and employ significant numbers of people, especially in geographical areas struggling after deindustrialisation. These sectors include tourism, hospitality, financial services and our own professional services industry. They form a vital part of our industrial ecosystem, and cannot be side-lined in an Industrial Strategy.

Sector deals should look for commonalities across sectors as well as industry-specific requirements

Across sectors there are some common areas of need, a number of which are addressed elsewhere in the Industrial

⁵²<http://www.parliament.uk/business/committees/committees-a-z/commons-select/international-trade-committee/news-parliament-2015/uk-trade-options-beyond-2019-nissan-evidence-16-17/>

⁵³<https://assets.kpmg.com/content/dam/kpmg/uk/pdf/2017/03/brexit-the-sector-impact.pdf>

Strategy Green Paper, including investment in R&D and innovation, digitalisation skills training, and support for SMEs to go digital. The value of sector deals remains in the ability to also capture the more sector-specific needs, such as availability of STEM graduates especially for automotive manufacturing and life sciences.

Existing industry bodies may need to work together to ensure new entrants and diversity across the sector is represented

The Government is right in wanting to ensure that the interests of new entrants are incorporated in sector deals. KPMG observes that some sectors, construction for example, are very diverse with thousands of organisations. The challenge will be to unite behind representative leadership. KPMG's view is that the construction industry will need to unite behind the Construction Leadership Council which should then bring together the main industry bodies and sit at the apex of the group it convenes. This model may need to be deployed in other industries.



Conclusion: sector deals make sense but must be flexible enough to adapt

KPMG supports a sector-by-sector approach, driven by the needs of individual industries. But Government must recognise that an impact of the Fourth Industrial Revolution is the blurring of the lines between sectors, as technologies from one area affect another. There is a need for co-ordination between companies and sectors, and sector deals must take account of sector convergence and the growth of entirely new sectors.

9&10. Using a cluster model is the right approach to driving the ‘place’ agenda

In earlier industrial revolutions, city-regions developed their own local economies, supported by regionally-specific industries, manufacturing and trades. These were often the result of distribution of natural resources such as iron ore or coal, the result of natural features such as deep rivers, clean water supplies or suitable climate, or because of individual entrepreneurs, investors, inventors or business dynasties.

Great cities including Glasgow, Belfast, Newcastle, Leeds, Manchester, Liverpool, Bristol and Birmingham were expressions of wealth, industrial and financial power, and civic pride. In the post-industrial era, many city-regions have struggled to find their place once the heavy industries, shipyards and factories closed for good. The result was an unbalanced UK economy, with uneven distribution of population, assets, jobs, opportunities and investment. For example, eight million people live in one city, London, which is about the same as the population of Scotland and Wales combined. London and the South East have boomed, while other parts of the UK have been left behind.

KPMG concurs with the Government's acceptance that rebalancing the economy across the country is a critical objective. With over 20 offices across the UK, KPMG is well connected with businesses across the regions and is already active in convening forums for discussing the development of the Industrial Strategy.

KPMG agrees that a ‘cluster’ model based around sectors or key institutions can be effective. In designing policies to support

this model, it is important that regions are empowered to identify priority areas in terms of what they are ‘good’ or ‘best’ at, which skills, infrastructure and other policies can be aligned around.

The challenge will be to create criteria to identify the ‘greatest’ hotspot, to avoid competition between regions where that would be counter-productive. In making such decisions, policy makers at national and devolved levels should consider both those sectors which are already currently excelling, as well as those which are strong but could be strengthened (for example medical technology in the Midlands).

Empower regions to make their own decisions

Local business, academia and Government should be empowered to define what the region is best at, with the Government then supporting an environment (particularly focusing on skills) that attracts inward investment in the region, to grow these clusters based on what they are good at. A model similar to the Midlands Engine initiative can help aggregate the views of Local Enterprise Partnerships (LEPs).

The objectives should continue to be based on economic growth and value added, not targets for employment of people. The challenges will be to ensure there are not too many competing clusters (most likely for high growth sectors such as technology and life sciences) and to prioritise support fairly where there are.

Horizontal enablers are a good approach but prioritisation is a challenge

KPMG agrees with the approach of supporting horizontal enablers, such as skills and infrastructure, to underpin the wider Industrial Strategy in general and in relation to its approach to 'place'. The message KPMG hears from businesses in the regions is often one of 'give us the tools and we'll do the job'. The principles laid out in the Green Paper represent a good starting point.

Within such a wide-ranging Green Paper, the primary challenge will be to prioritise, in terms of the type of enabler, and the region, recognising the interlinkage between region and sector. While national GDP growth should be a key component of prioritisation, we do advocate broader decision-making criteria, beyond the current cost-benefit analysis used that can favour London schemes (as previously stated in section 3).

The regional skills agenda should be a priority

For KPMG and the many business leaders it speaks to, the skills agenda is the single most important component to drive productivity across the regions.

Work by the CBI⁵⁴ and others has demonstrated the clear connection between the productivity challenges faced by many regions of the UK and educational outcomes, particularly at secondary level. A key requirement in the regions is to attract investment. To do that, skills are required (especially around areas such as digitalisation). The Industrial Strategy should be developed in a way that addresses the root causes of productivity underperformance, recognising that without the right skill levels in the workforce, other investments

will not be able to deliver the required returns.

The demands of the local economy and the ambitions of the regions should influence the development of these skills. Government should work closely with regional businesses and educational institutions to identify skillsets to support the type of investment the regions want to attract. To do this, regions need to establish what they are 'good' or 'best' at in a similar way to how London has with its financial services cluster or the M25 circular for pharmaceuticals and life sciences.

Government investment and clearer, more consistent policy, together with a simplification of the funding landscape to enable local levers to be used more effectively, could support upskilling. Such an approach could go some way towards addressing issues around the skills landscape across the UK, which is currently fragmented and complex, as is the spectrum of educational providers.

This means at a strategic level it is hard for Local Enterprise Partnerships (LEPs) to influence the delivery of the skills requirements for their strategic economic plans. It is hard for both students and businesses to make informed choices or know where to go to deliver on business needs.

Successful programmes, such as Make the Grade,⁵⁵ to link local business and schools should be rolled out further. From a business perspective a consistent and modernised careers service would also be a substantial step forward.

For the North, transport is a key infrastructure issue to address

The case for improved transport connectivity in the North of England, specifically East-West rail (Northern

⁵⁴<http://www.cbi.org.uk/news/unlocking-regional-growth1/>

⁵⁵<http://www.aheadpartnership.org.uk/make-the-grade/about-the-programme/>

Powerhouse Rail) and road links, is a well-rehearsed one and has been a major focus for Transport for the North (TfN). In KPMG's opinion, this remains the number one infrastructure issue faced by businesses in the North of England, affecting the overall efficiency of the labour market and the ability to attract and retain the right talent.

A strategic vision for the future of transport and the role of TfN in delivering that should be a key component of the Industrial Strategy. Strengthening its ability to take decisions and look at innovative fund raising options, as have been seen in London, would provide added momentum in this important area.

There is a need to balance decisions around supporting existing and new 'clusters'

Clusters or ecosystems can be effective drivers of growth or productivity. But, as noted in KPMG's Rethink manufacturing report,⁵⁶ there is a need for balance between the Government's focus on reinvigorating regions which have little industry and low productivity and the preference for companies to base themselves around clusters where expertise and supply chains already exist. However, as discussed in the same study, an increased and co-ordinated focus on emerging ecosystems could potentially marry these competing priorities, especially if areas where it was desirable to build expertise were identified.

Educational institutions must connect better and get behind regional priorities

Universities and academic institutions are assets around which this model can work effectively. For example, in York a strategy of focussing on which sectors were regional priorities and then harnessing universities, business and local Government around those priorities has

created clusters of expertise in life sciences and media.

The North of England is home to a number of highly successful research intensive universities which collaborate via a group known as 'N8'. In Sheffield, the city's two universities and Sheffield Teaching Hospitals NHS Foundation Trust have been working during 2016 with the Sheffield City Region Combined Authority, the Local Enterprise Partnership and a range of public, private and community partners to better understand the city's strengths and weaknesses and produce a prospectus for the region.⁵⁷ The challenges of effectively linking business and the higher education sector are well-recognised but such linkages offer potential benefit in terms of enhancing the quality and accessibility of research within business and the commercialisation of university-led research.

Developing the Industrial Strategy should include a focus on improving connectivity between universities, business and Government in local areas to drive innovation.

Policy development should include consideration of the location of public bodies

KPMG agrees that central Government decisions over the location of specific public bodies, can have a significant impact on the emergence of sector-focused communities forming clusters around those bodies.

For example, the relocation of the BBC has had a huge and positive impact on the digital and media sectors in Salford and Greater Manchester. KPMG would welcome further and more wide-reaching consideration of other bodies, including Government departments and regulators, which could be located away from London and the South East, and provide a focal

⁵⁶<https://assets.kpmg.com/content/dam/kpmg/uk/pdf/2017/04/rethink-manufacturing-a-uk-industrial-strategy-for-industry-4-final-report-2.pdf>

⁵⁷<http://scrvision.group.shef.ac.uk/wp-content/uploads/2017/02/SCR-Vision-Brochure-FINAL.pdf>

point for existing sectoral strengths which exist in the UK regions. For example, this could be financial services-related public bodies in Yorkshire, or automotive and industrial manufacturing in the Midlands.

Consistency around devolution deals is needed

The inconsistent progress made on devolution deals for local Government is a cause for concern. If policymakers believe that this offers the potential for a better approach to decision-making then it should be encouraged across all of the major City regions with a clear commitment to achieving deals within a predefined timetable.

In KPMG's Rethink manufacturing report⁵⁸ almost three quarters of manufacturing executives (72%) were critical of Government's current approach to regional development, deeming it disjointed and unclear.

Review and share best practice among Local Enterprise Partnerships (LEPs)

The Local Enterprise Partnership (LEP) framework is inconsistent in terms of its effectiveness in joining up the public and private sectors. KPMG has seen some LEPs work well to encourage investment and the engagement of the private sector, but in certain other cases the private sector representation is less strong and the LEP has less impact. KPMG would support a review of best practice among the LEPs and consideration of the best approach to driving meaningful business involvement going forward.

National devolved administrations will be crucial to driving productivity across the UK

KPMG applauds the Government's commitment to work with each of the

devolved administrations to consider how the Industrial Strategy can best address key productivity barriers in those nations.

Taking Scotland as an example (where KPMG has a significant presence), the various horizontal enabling pillars cover a number of key areas (such as infrastructure, school and higher education, economic development and inward investment) where some or all of the policy responsibility is devolved to Scottish Government.

These enablers are just as relevant to the economy and business in Scotland as in the rest of the UK so this commitment to working closely together is welcome. Skills were a key area for Scottish businesses questioned as part of KPMG's Rethink manufacturing report.⁵⁹

Universities and academic institutions are discussed in various parts of the Government's Green Paper. Scottish Universities have an excellent track record in research and development and innovation and have been successful in attracting funding to support this. Both Governments should build on these strengths, especially when Brexit affects access to EU funding.

Looking at the sector deals element of the Industrial Strategy covered in Pillar 8, Scotland is home to the UK's oil and gas sector, which is explicitly referenced in the Green Paper. The industry has improved productivity in the last 18 months following the dramatic fall in oil price.

De-commissioning is a key challenge for the future and any oil and gas sector deal would need to say more on actions the UK Government is taking and intends to develop further.

On sector deals more widely, although they are not necessarily place based

⁵⁸<https://assets.kpmg.com/content/dam/kpmg/uk/pdf/2017/04/rethink-manufacturing-a-uk-industrial-strategy-for-industry-4-final-report-2.pdf>

⁵⁹<https://assets.kpmg.com/content/dam/kpmg/uk/pdf/2017/04/rethink-manufacturing-a-uk-industrial-strategy-for-industry-4-final-report-2.pdf>

(although combining sectors and places is seen to be desirable), KPMG's view is that businesses in Scotland would be pleased

to contribute to sector deals already established.



Conclusion: regions are best placed to identify focus areas building on 'enablers' and existing strengths

The regions themselves are best placed to identify areas of focus. They should be empowered within a clearly defined devolution framework to make choices as to how to drive growth in specific places around appropriate sectors underpinned by the horizontal enablers of the Industrial Strategy such as skills and infrastructure. Every region and community should benefit from the changes to our economy. An Industrial Strategy developed for the Fourth Industrial Revolution based on knowledge, information and skills, needs to open every area of the UK to new opportunities, and leave no area

Afterword: An Industrial Strategy for all

Previous British Governments have grappled with the conundrum of how interventionist to be on industrial policy. Some decided to 'leave it to the market'. Other previous British Governments have sought to direct British industry from Whitehall, regardless of world economic factors.

The role for Government in the fast moving times of the Fourth Industrial Revolution is to create stable platforms, partnerships and frameworks, and enable businesses to innovate, grow and prosper in a collaborative environment, confident there is a strong commitment from policy-makers to the long-term direction of travel. The Government's Industrial Strategy has the potential to be the sails, harnessing momentum, and the rudder, setting the direction, for the British economy as we sail into rough waters.

But the private sector too must play its part if the Industrial Strategy is to succeed. Business has a critical role to play in building our economic future and this goes beyond being simply the engines of productivity. By operating responsibly, offering inclusive opportunities for existing and future workforces, embracing technology for innovation and working collaboratively with Government bodies across the nation to drive growth, business can help policy-makers manage the social impact of the seismic changes we are living through. The Industrial Strategy must ensure the whole country prospers and no-one is left behind.

Great Britain is geographically small, but huge in terms of talent, innovation and potential. As Britain leaves the EU, opportunities and threats will emerge which will test our ingenuity and adaptiveness. At KPMG we remain confident that the British people are more than capable of meeting the challenges ahead.

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