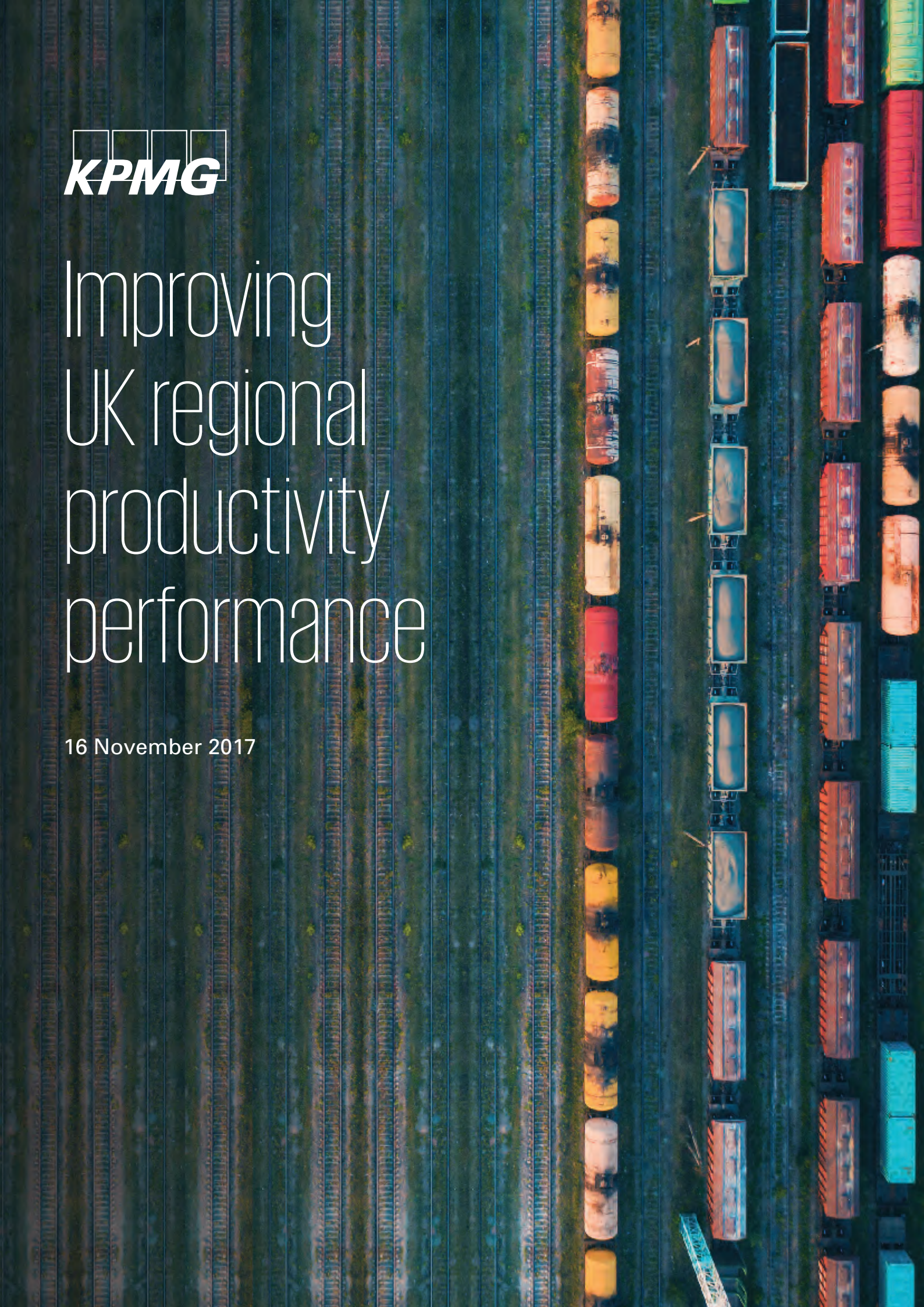




Improving UK regional productivity performance

16 November 2017



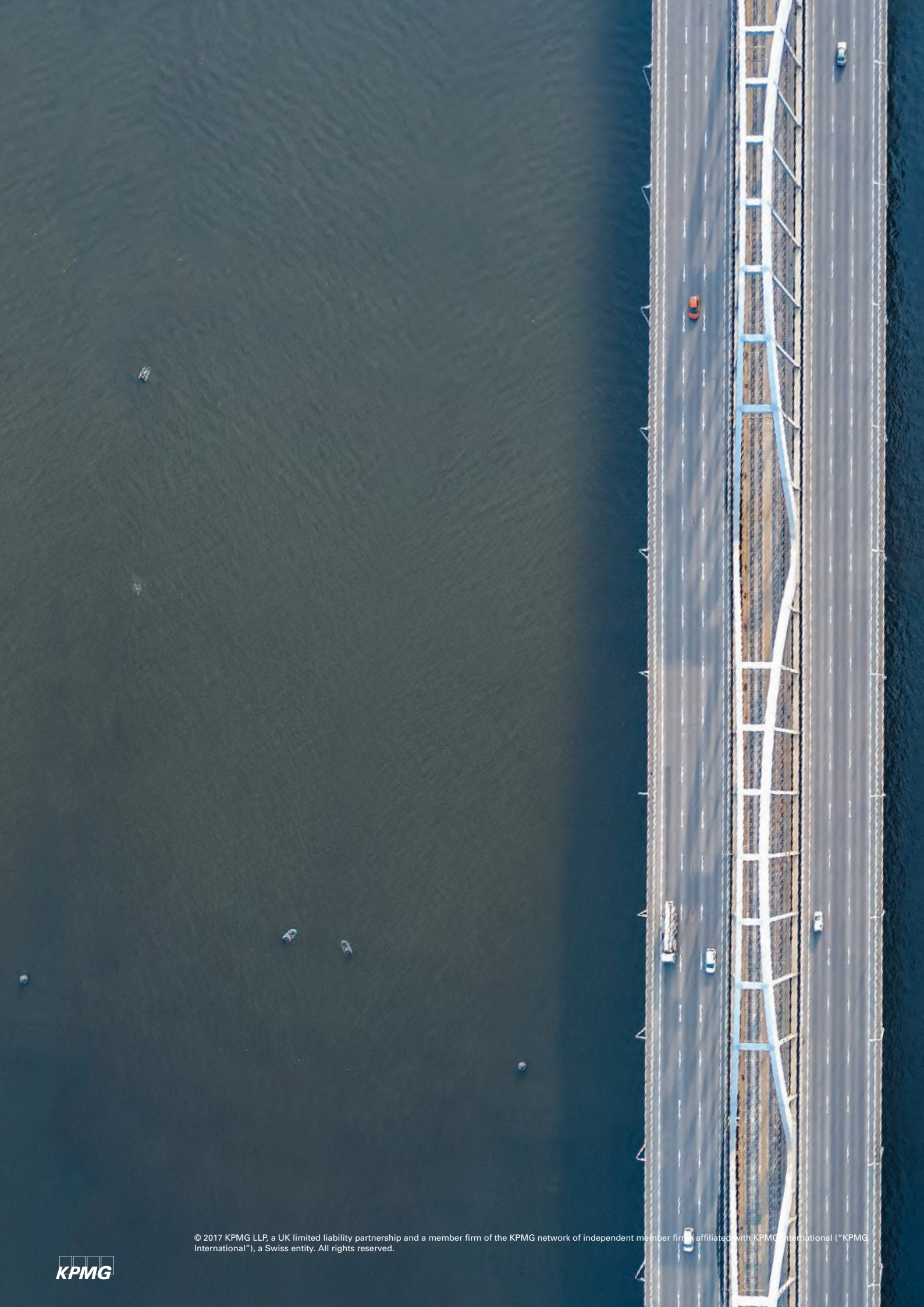




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1 Foreword

At KPMG, we are passionate supporters of economic prosperity across the UK's diverse regional landscape. We are proud that our office network, with some 13,000 professionals nationwide, enjoys relationships with some of the country's most dynamic and interesting businesses.

The performance of all the regions is crucial to the future success of the UK. For far too long, the productivity of most of these areas has lagged behind that of London and the South East, creating an imbalance that is increasingly unsustainable. But, conversely, this productivity gap also offers one of the greatest opportunities for growth. We believe the UK government shares that view, as seen with the introduction of its Industrial Strategy which highlights regional growth – and a devolution agenda that empowers local leaders to influence the economic environment on their doorstep.

In addressing that opportunity, we also recognise the challenges many regions face. Low productivity is the result of other factors which require significant and sustained investment. In other words, it should be considered as a symptom not a cause. To that end, it is by addressing issues such as regional transport infrastructure and educational standards that will we see an improvement in productivity.

Furthermore, Brexit raises the stakes in terms of requiring many regions to internationalise and pursue growth opportunities in developing markets around the world. And innovation has never been more critical to the development of industries with a genuinely sustainable competitive advantage.

We believe that there are exciting opportunities for the UK to engage with these challenges. Technology is changing the skills our workforce needs and the way they are educated. Through our work as learning providers to the Civil Service and NHS, for example, we see demand for digital learning growing as a means of delivering the technical and management skills the UK needs over the years ahead.

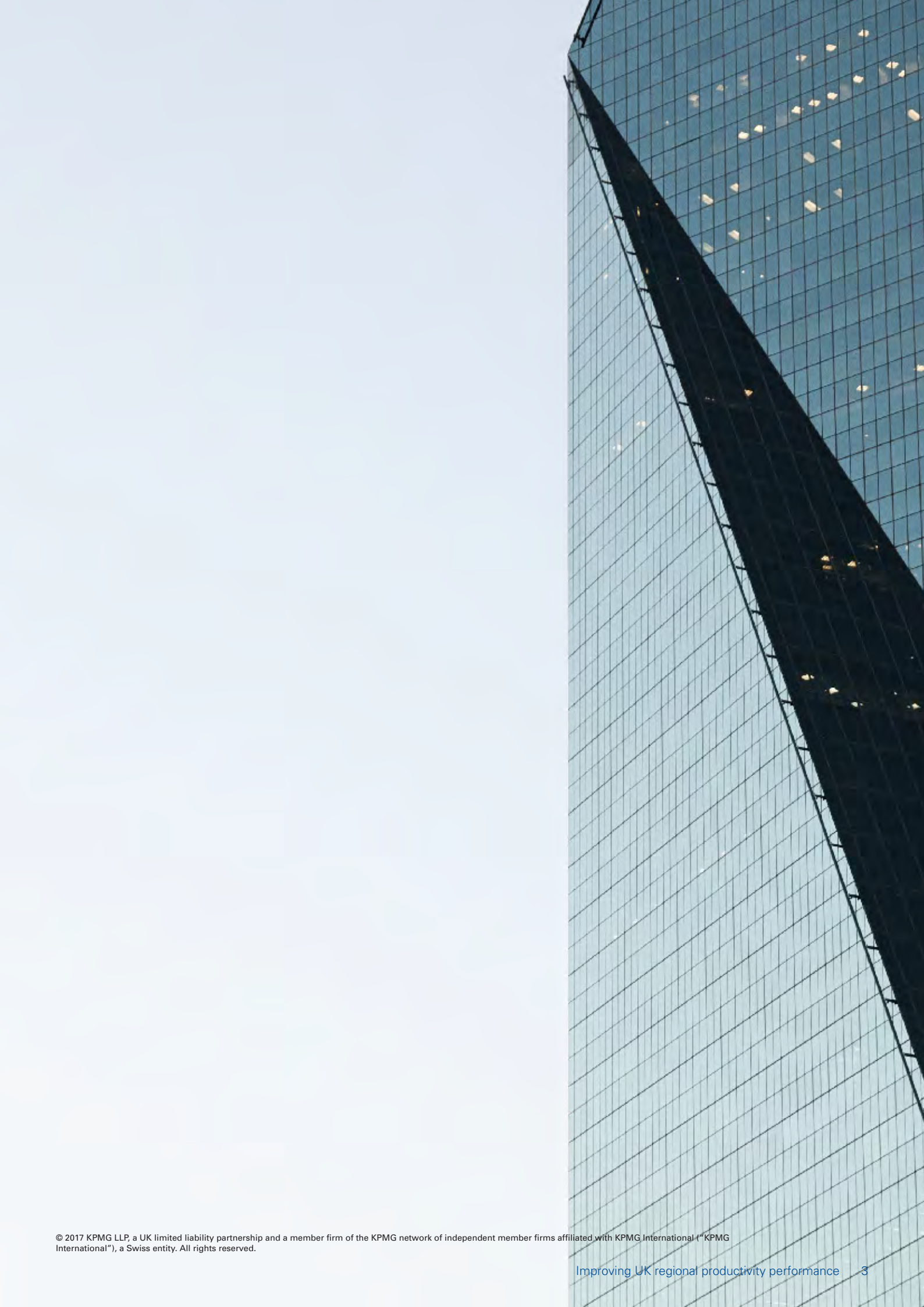
Digital technology adds a different dimension to the traditional debate around connectivity. Strength in this increasingly critical infrastructure has seen Leeds City-Region and Thames Valley position themselves as the lynchpins of the UK's IT network.

Innovative funding models can allow the public and private sectors to work in partnership, as we have seen with Crossrail and the Mersey Gateway Bridge. We believe this kind of collaboration will be key to unlocking many of the transformational projects in the UK's regions.

This report seeks to shed light on key areas that can help unlock regional productivity performance, and in doing so, make a valuable contribution to the debate around this critical economic issue.



**Iain Moffatt,
KPMG's UK
Head of National
Markets**



2 Executive summary

Productivity is a key element in determining our future standard of living. Unfortunately, the UK has been underperforming many Western countries in this respect¹. Likewise, the performance across regions within the country has also been uneven.

This report assesses some of the potential causes of poor productivity performance and examines how different UK regions fare in each of these areas. We then focus on each region in turn in greater detail – ranking each in terms of how its level of productivity compares with the rest of the UK and then providing a suggested policy response to address these urgent challenges.

We assess three of the principle drivers of labour productivity²:

Characteristics of businesses:

Exposure to international supply chains, a higher than average level of innovation, and a larger size of operation tend to improve a company's access to best practice management techniques and technology, as well as to new markets and products.

Infrastructure:

Effective transport and digital infrastructure make it easier to source inputs and market company's products.

Skills and education:

A skilled, educated workforce improves the agility and efficiency of companies' operations and therefore enhances labour productivity.

A mixed picture nationwide

Our report shows that, while London and the South East have performed most strongly overall, other regions clearly have their strengths. In all regions across the country, however, there are well-defined areas for improvement.

We found that:

- London, South West and South East-based businesses are, on average, more **export-oriented** than the rest of the UK,
- The South East and the East of England are UK leaders in **innovation**, as measured by R&D spending and registered patent counts. By contrast, Welsh R&D expenditure is only half of the UK average, while the North East and Yorkshire significantly fall behind better performing regions in England in terms of spending on innovation;
- While London has the best **transport links**, as measured by the ease of access to major road junctions, rail stations and airports, the region struggles with road congestion and has the lowest 4G speed in the UK. Meanwhile, relatively poor transport connectivity in the Northern Powerhouse regions is an important impediment to reaping the benefits of agglomeration, and the North West, North East, Yorkshire and the Humber would greatly benefit from improved inter-regional links. East and West Midlands should focus their efforts on interregional transport links (e.g. through materialising the Midlands Connect strategy);
- While East of England performs well when it comes to primary and secondary **education attainment** results, the region's employers are

on average not satisfied with the **basic skills and motivation** of their young recruits. Meanwhile, survey data point at employers in Yorkshire and the Humber positive on average about the skills of the 16-18-year old workers they have recently hired, but the region fares poorly in terms of educational attainment test scores. Improving both educational attainment and basic skills of school leavers is seen as a priority in the Midlands.

Strategies to yield results

If the UK is to improve its productivity performance to match that of its Western peers, every region nationwide needs to play its part in addressing weaknesses where they exist and boosting the area's existing strengths. Our research shows that the answer lies in a combination of factors: developing a fit-for-purpose local infrastructure, driven by enlightened regional policymaking; encouraging innovation and best management

practice, with the full support of business; and promoting a far higher level of skills and education in the local workforce, starting at the earliest possible age.

As the Chancellor of the Exchequer finalises his Budget, it is crucial that significant emphasis is placed on measures that will help support improved productivity performance within the UK. It is possible that Brexit deals a significant blow to productivity, as the country's

international links and access to talent come under strain. But, at the same time, enhanced productivity is the only answer to helping the UK avoid a weakened economic future. The Budget should therefore focus on investment in the economy's long term future, by prioritising measures that encourage improvements in productivity across all parts of the UK.



KPMG's recommended next steps

Among the actions that could help improve regional productivity, our people on the ground highlighted:

The North East:

- The focus should be on improving connectivity, **particularly with the Northern Powerhouse region**, to which the North East is critical, but often poorly connected. This should be done through the timely delivery of **rail electrification plans** and, more broadly, through support and investment in the **Northern Powerhouse Rail** initiative, including incentivising private investment. Intra-regional public transport improvements are also needed: that includes greater numbers of buses and additional routes outside of city centres, linking small towns to regional business hubs.

The North West:

- Infrastructure is a major priority here, focusing on continued upgrades of the Trans-Pennine rail network. Within the region, **Local Enterprise Partnerships, Combined Authorities and Local Transport Authorities should lead on devising and investing in reliable public transport**

links to enterprise zones and metropolitan areas such as Manchester and Liverpool. Making public transport a viable alternative to commuters who use the M60 around Manchester would go a long way towards helping to alleviate road congestion.

Yorkshire and the Humber:

- Infrastructure is the main priority in Yorkshire, with support and funding required for projects such as **high-speed rail connecting Leeds and Manchester**. More broadly, improving rail links to Leeds is imperative as it would help tackle congestion on roads such as M1 and M62. Within the region, improving **public transport road and rail links to employment centres such as Sheffield City Region Enterprise Zone** needs to be urgently addressed.

East Midlands:

- Upskilling the existing workforce is the most significant challenge this

region currently faces. Education is a major area of concern: secondary and primary educational attainment both need to be improved, requiring an increase in the number and scale of **initiatives such as the UK-wide £75 million Teaching and Leadership Fund** announced in February 2017.

West Midlands:

- Skills and education are the priority issues here. Local government needs to work in tandem with higher and further education institutions to improve educational attainment in line with local business needs. The devolution of education funding control, allowing for the retention of part of the unspent levy locally, may support this goal. Significant investments such as the **Engineering Skills and Training Centre in Hinckley, or the advanced manufacturing and design centre at Stafford College** are very welcome – but need to be accompanied by an effective career guidance to incentivise prospective students.



The East of England:

- Improving **intra-regional rail links** to unblock road congestion, particularly around the Cambridge area, as well as **rail links to the South East and London**.

London:

- Tackling the problems caused by **road congestion is a major priority for the capital** - for example, through broadening the introduction of congestion charges. So too is **upgrading the digital infrastructure**, including the speed and reliability of the internet and 4G mobile networks.

South East:

- The region should prioritise **further investment in housing supply** to prevent shrinkage of the available labour pool. Timely **delivery of infrastructure projects such as rail electrification and Crossrail** is essential to maintain good links to London. Likewise, continued support for the **East-West rail is crucial for improving inter-regional links** outside London.

South West:

- The focus should be on infrastructure: further investment, for example, needs to be made in **extending the electrification programme to include suburban rail service in Bristol, Gloucestershire and Somerset, as well as improve links to Bristol airport**.

Wales:

- Improving **educational attainment and basic skills** is imperative – in the light of employers' relative dissatisfaction with even basic literacy and numeracy skills – if the region is to boost its productivity. Devising and funding an **alternative to the now scrapped Schools Challenge Cymru programme** should therefore be a priority.

Scotland:

- The region should focus on **education and skills initiatives** which would accelerate previous progress made on improving productivity. Specifically, Scotland

should undertake actions to further enhance **digital and technology skills across the workforce, enhance managerial and leadership training** in both private and public sector and improve **numeracy and literacy skills** in schools, where Scotland has in recent years fallen down the international PISA rankings. Secondly, the region should invest in improving **digital infrastructure and enhancing 4G availability and network speeds**.

Northern Ireland:

- Given the high percentage of workers without qualifications in the region, policy makers should focus on **adult learning and upskilling initiatives**. In terms of infrastructure, **completing the A6 between Derry and Belfast is a major project** for the region.



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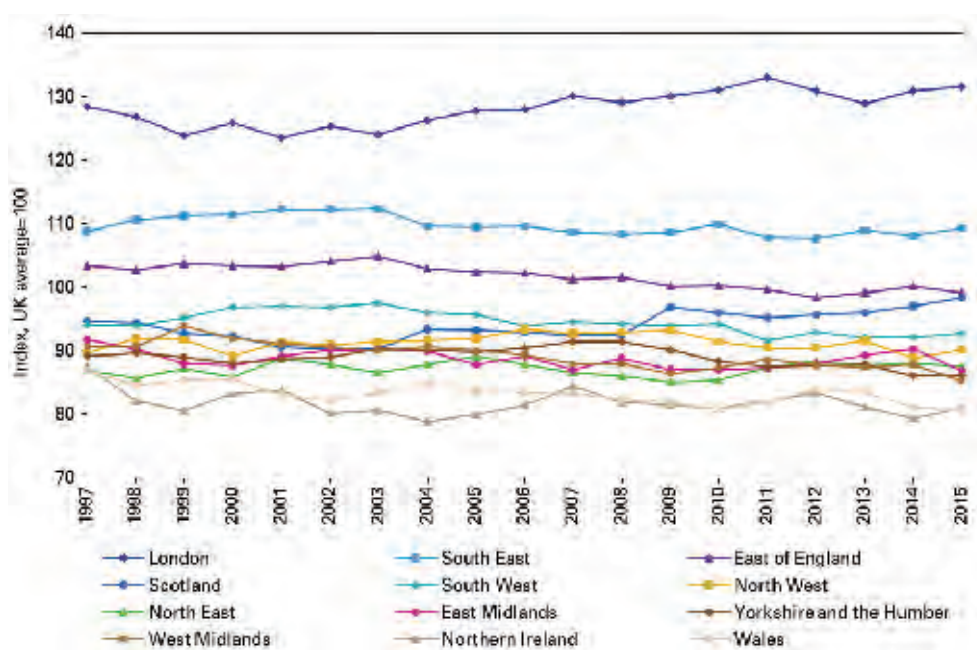
3 Introduction

Productivity – in other words, the efficiency of production – plays a crucial role in driving long term economic growth and prosperity. Relatively weak productivity growth across many Western economies, including the UK, since the Global Financial Crisis in 2008, poses a concern for economists and policymakers alike. As the UK leaves the EU, it will become harder to match earlier economic performance, with productivity likely to suffer from reduced international links and reduced access to talent. Brexit should therefore act as a catalyst to addressing UK's productivity failings as matter of urgency. Productivity

holds the key to the country's future prosperity and the UK's departure from the EU can help spur a complete turnaround in the UK's performance.

In the UK, average labour productivity has been poor for some time, compared to many Western economies, including France, Germany, Italy, and the US³. Performance across UK regions has also been uneven. While productivity in London has been relatively high, the performance of other areas such as Wales and Northern Ireland has consistently fallen behind over the past 20 years (see Figure 1 below).

Figure 1: Labour productivity⁴ by UK region

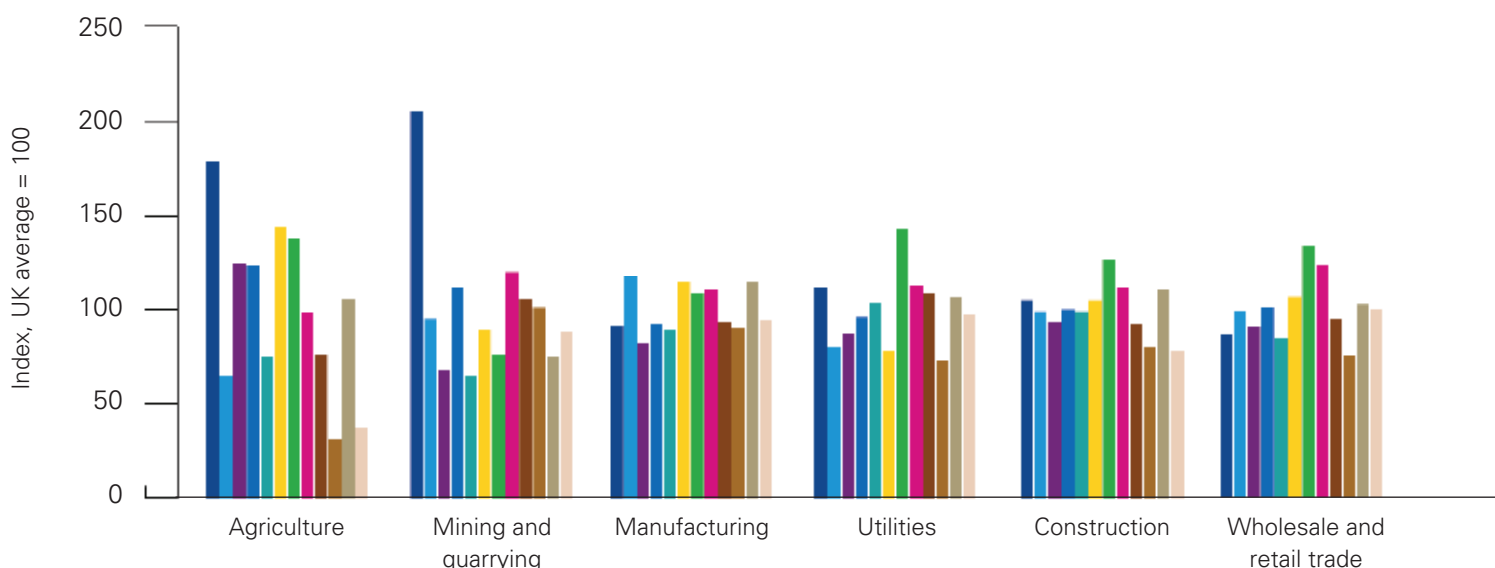


Source: Haver Analytics based on ONS 2017 data.

A range of factors underpin the disparity in productivity performance across UK regions⁵ including: the industry mix, level of skills and workforce education, quality of infrastructure, and the extent of R&D and innovation by local businesses, as well as the quality of management. In this report, we assess how some of these factors may have influenced the productivity performance of UK regions, and identify potential focus areas for policymakers in each region.

4 Unpicking UK regional productivity

Figure 2: Output per worker across sectors and regions



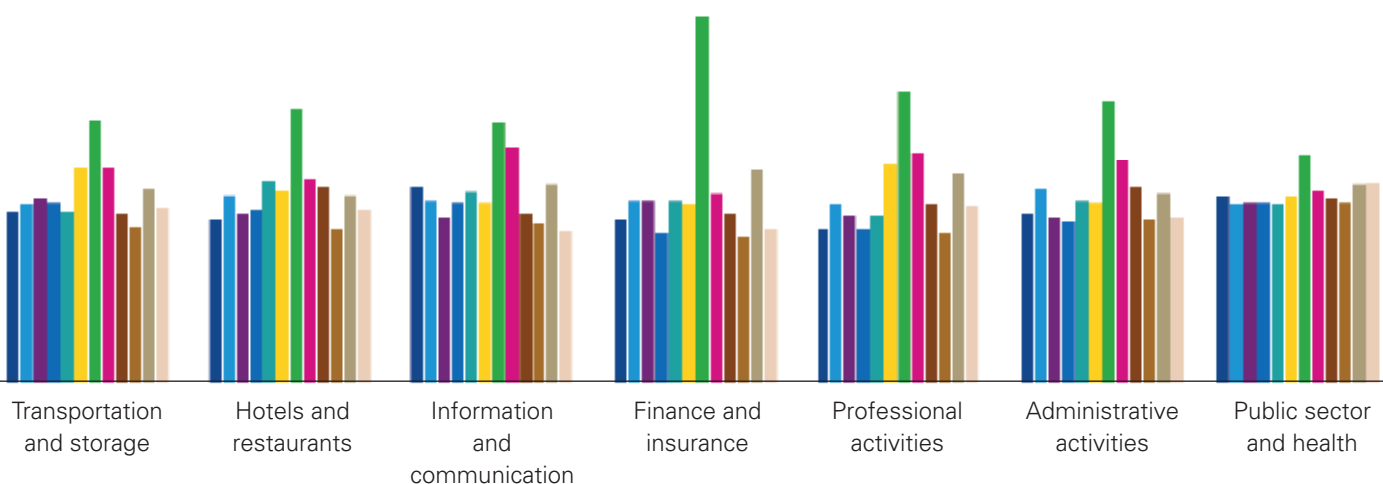
Source: ONS, 2017.

The productivity performance of UK regions is likely to have been hampered by a number of factors, negatively impacting economic growth and living standards. In this section, we look at a range of possible reasons for the mixed regional performance. We also outline potential areas of focus for regions to help raise their productivity.

Regional variations in labour productivity may reflect differences in industry composition. London, for example, has a large share of financial, information and communication services, compared to the rest of the country – all sectors that tend to be relatively more

productive. Meanwhile, areas with poorer average productivity performance, such as Wales, Northern Ireland and the North East, have a relatively high share of public sector activities, which tend to be less productive.

However, not all variations in regional productivity performance can be explained by the broad sectoral mix in each region. Figure 2 above outlines how productivity performance varies quite significantly between regions for the same sector, indicating that other factors – a lack of high quality skills, for example – must be at play in holding back productivity.



4.1 Company characteristics

The UK's poor productivity performance when compared to other developed countries could be partly explained by a difference in managerial practices. Bloom and Van Reenen⁶ put an average score of management practices in the UK at 3.02, compared to 3.35 in the US and 3.23 in Germany. Their findings highlight the fact there is a large proportion of small, family-owned and family-managed companies in the UK where poor quality of management practice can be particularly pronounced. Further UK-focused research⁷ found evidence that the management scores of multinationals, large businesses (with 250 employees or more) and non-family-owned businesses in the UK tend to be higher than those of domestic, smaller and family-owned businesses. Bloom and Van Reenen came to a similar conclusion: those companies which are better managed tend to be larger, partly because they have the resources – and time – to employ enhanced management techniques.

Due to data constraints, we are focusing here on companies' size across regions – rather than family-ownership – as a potential indicator of the quality of management. The prevalence of small companies is a

UK-wide phenomenon, with no major outliers in any of the regions, apart from Wales and the South West. These two areas have a moderately higher contribution by small businesses to the local economy, relative to the national average⁸.

Another company characteristic that can enhance productivity is being involved in export activities. Those companies which export are exposed to global competition and tend to be more integrated into global supply chains – and are also more likely to be foreign-owned – all of which can boost efficiencies and access to managerial practices in line with best global standards⁹. Among UK regions, London and South East-based companies are on average more export-oriented, compared to the rest of the country¹⁰.

Similarly, foreign direct investment (FDI) can boost productivity in the host region, due to positive spillovers from foreign to domestic companies¹¹. For example, foreign companies may transfer new technologies and “know-how” to local incumbent companies. Over the four-year period between the fiscal years 2012/13 and 2016/17, 39% of all of UK's FDI projects materialised in London, followed by 11% in the

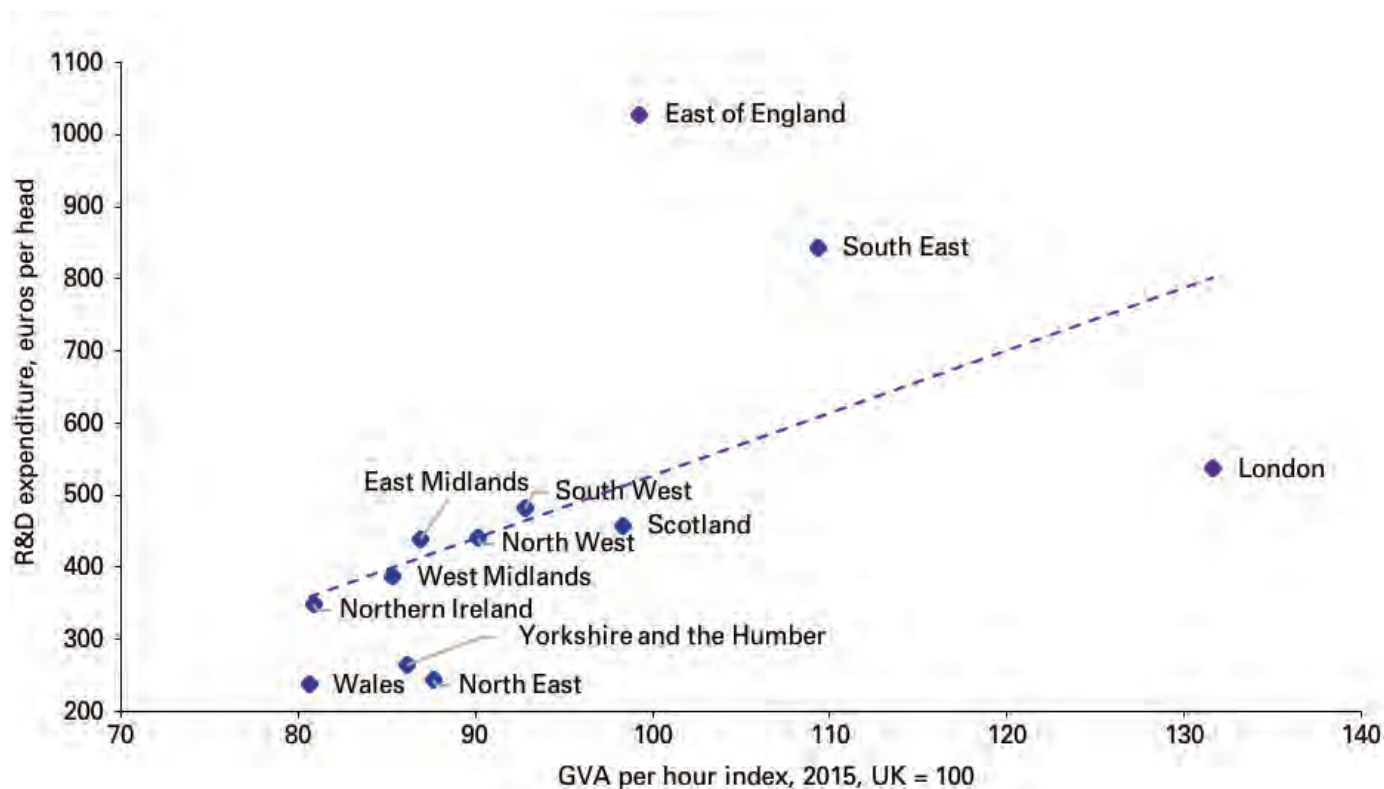
South East. However, compared to the previously observed period between 2011/12 and 2015/16, regions such as Yorkshire, Wales, Scotland, South West and the West Midlands all recorded stronger growth rates in the number of FDI projects compared to London.

Brexit is likely to make these two routes to better productivity performance harder, at least in the medium term, increasing the importance of other drivers of productivity.

Likewise, innovating companies tend to boast higher levels of productivity, as well as having a positive impact on other companies in their region. That might involve improving the quality – or reducing the production costs – of existing products, or widening the product offering¹². In the UK, the most commonly used measures of innovation – research and development (R&D) expenditure and patent count¹³ – show that the South East and the East of England, and East Anglia in particular, outperform the rest of the country, while the North East, Yorkshire and Wales have some ground to make up in this respect.



Figure 3: Regional R&D expenditure versus productivity performance



Source: Eurostat, 2017, ONS, 2017

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6 N Bloom, C Genakos, R Sadun, and J Van Reenen (2012): *Management Practices across Firms and Countries*, *Academy of Management Perspectives*. To evaluate management practices, the authors use an interview-based methodology developed in Bloom and Van Reenen (2007). Their evaluation tool defines scores from 1 ("worst practice") to 5 ("best practice") and measures management practices in surveyed companies in three key areas: monitoring within companies, setting and tracking targets and providing right incentives to employees.

7 ONS: *Management practices and productivity among manufacturing businesses in Great Britain: Experimental estimates for 2015*

8 Department for Business, Energy and Industrial Strategy, *Business Population Estimates for the UK and regions, 2016*.

9 N Bloom, C Genakos, R Sadun, and J Van Reenen (2012): *Management Practices across Firms and Countries*, *Academy of Management Perspectives*.

10 See *Annual Business Survey by Export and Import Activity (excluding the financial sector)*, provisional 2016 data by ONS.

11 For example, Haskel, Pereira and Slaughter (2007): *Does Inward Foreign Direct Investment Boost the Productivity of Domestic Firms*, *Review of Economics and Statistics*

12 See Hall, Mairesse, and Mohnen (2009): *Measuring the Returns to R&D*, *Elsevier Handbook of the Economics of Innovation*, and B Hall (2011): *Innovation and productivity*, *NBER Working Papers*.

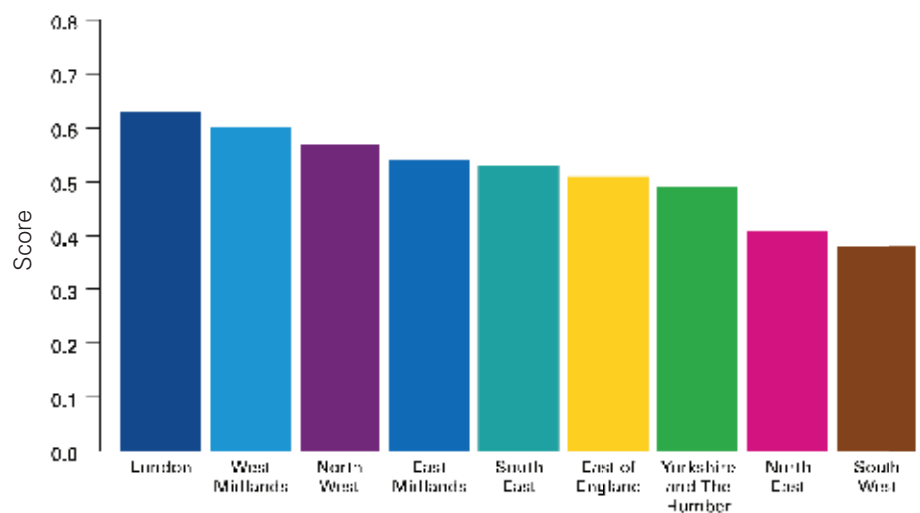
13 As measures of innovation, both are imperfect and suited more to manufacturing companies. R&D spending is denominated in comparable units but does not disclose innovation success, while patent counts are inherently very noisy and the extent of their innovation coverage varies by sector.

4.2 Infrastructure

Good quality infrastructure helps to boost the total economic output of a region, as well as its productivity. Enhanced transport links enable companies to source the best inputs for their production and increase their target market. They also generate benefits associated with agglomeration effect, including increased knowledge sharing and best practice among companies. Academic research¹⁴ suggests that a twofold increase in the size of a city or a region yields higher labour productivity in the range of 3-8%.

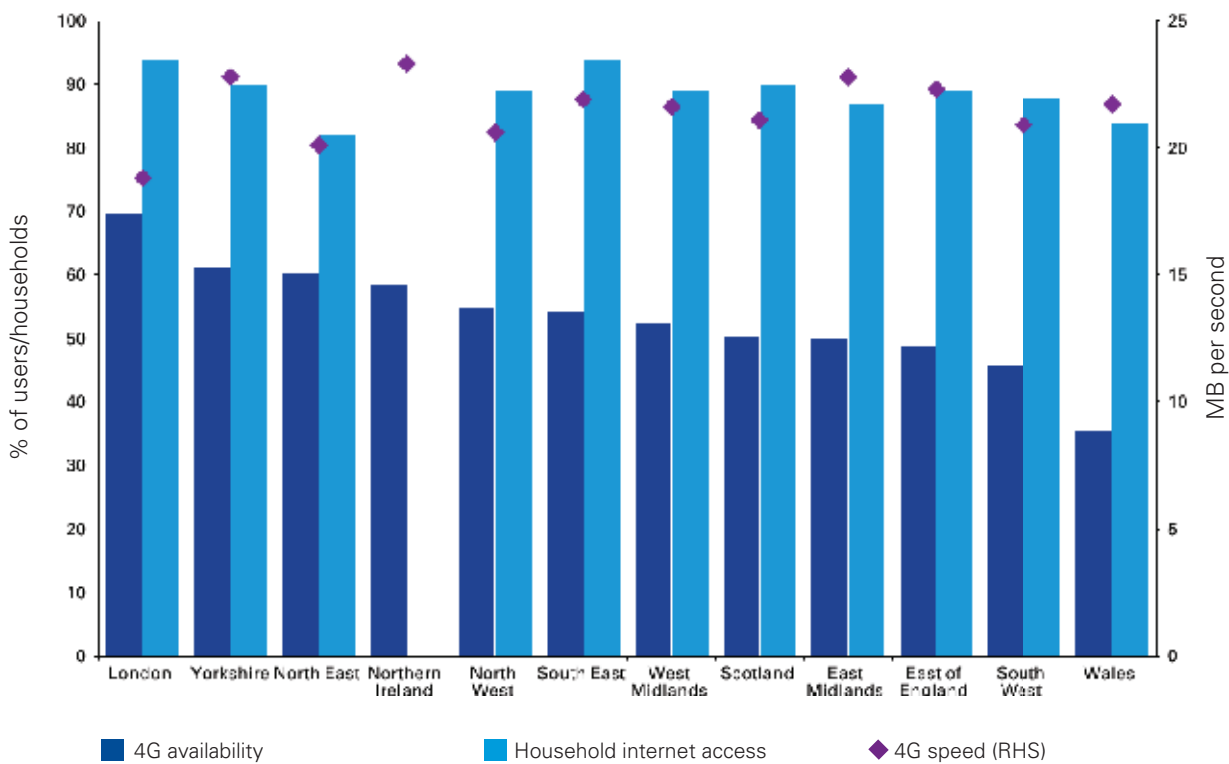
Among English regions, the South West and North East are most in need of better infrastructure, in terms of links to major road junctions, rail stations and airports (classified as national or regional hubs), as captured by the Department of Transport's connectivity scores highlighted in Figure 4 opposite.

Figure 4: Regional transport connectivity in England



Source: Department of Transport, 2015 (based on 2013 data).

Figure 5: Digital infrastructure across regions



Source: ONS, 2017, OpenSignal, 2016

Improving telecommunication infrastructure is crucial, given the changing nature of work and our increasing dependence on technology. Regional variations in the availability and quality of digital infrastructure are outlined in Figure 5

above. In London, for example, 94% of households have internet access and 4G accessibility rate is high at 70%, as measured by the proportion of time users can connect to a 4G network. However, 4G speed in London is the lowest of all regions,

while in the East Midlands only 87% of households have internet access and 4G accessibility rate is 50%, although 4G speed is second highest in the country.

4.3 Skills and education

Equally vital are the skills level of the labour force – a major driver of labour productivity¹⁵. We increasingly hear from our clients across the UK that a lack of the necessary skills and education is demonstrably hindering advances in productivity.

Workers with a higher level of skills are able to undertake more complex tasks and perform with greater efficiency than those with less-developed skills. Moreover, skilled workers tend to encourage innovation and are better at adapting and responding to changing work environments. Companies' access to a larger pool of highly skilled workers can improve their productivity¹⁶.

The skills make-up of the UK, much like labour productivity, varies greatly across regions. Half of London's working age population is classified as highly skilled, i.e. has competencies of Level 4 and above under the National Vocational Qualifications (NVQ) framework. Meanwhile, the North East, Yorkshire and the Humber and Northern Ireland each have a share of only 30% of high-skilled workers. However, the industrial make-up of each region definitely shapes the demand – and ultimately the make-up – of the skills available to employers. In London, for example, where 16% of total output is generated by relatively complex financial services, there is a requirement for more highly skilled workers than in most other regions.

While attracting top talent will depend to a large degree on the types of industry in each region, improving basic skills, such as the numeracy and communication abilities of school and college leavers, is seen by many UK businesses as pivotal for boosting regional productivity. At a national level, 62% of UK businesses are dissatisfied with school and college leavers' business and customer awareness, and just over half expressed dissatisfaction with their analytical skills. Moreover, over a third of UK businesses were not satisfied with the basic literacy and numeracy skills of school and college leavers¹⁷.

Employers' satisfaction with their younger recruits is not always in line with each region's average GCSE scores¹⁸ (see Figure 6 below), suggesting that the schools' curriculum may not be covering some of the basic skills most valued by employers. However, there does seem to be a positive correlation between average GCSE scores and productivity, as measured by GVA per hour worked, pointing at its potential importance as one of the drivers of productivity.

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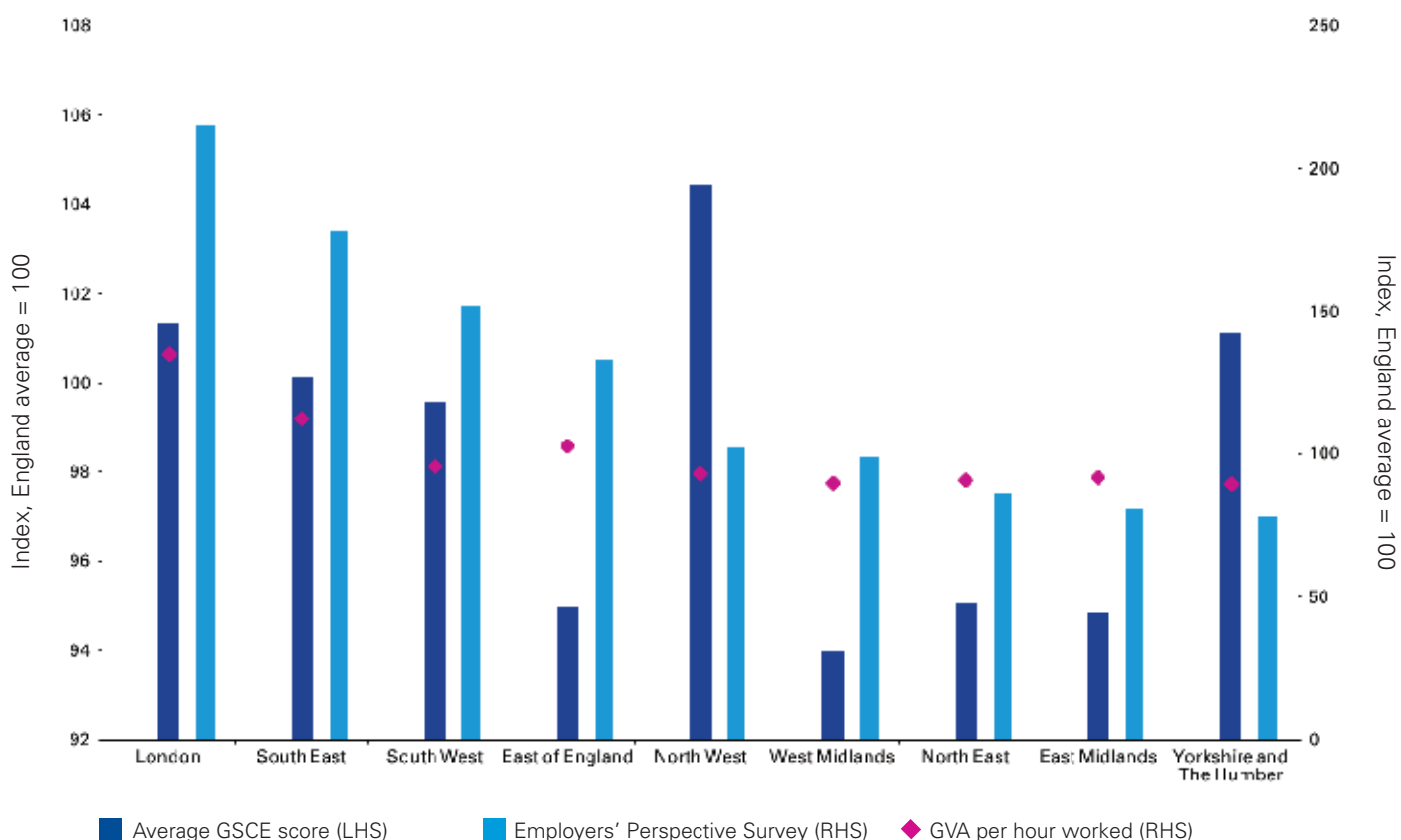
¹⁵ For example, for the UK see: Department for Business Innovation and Skills, *UK Skills and Productivity in an International Context*, 2015; P Tamkin, L Giles, M Campbell, J Hillage (2004): *The Contribution of Skills to Business Success*, Sector Skills Development Agency

¹⁶ See Webber, D. J., Hudson, J., Boddy, M. and Plumridge, A. (2009): *Regional productivity differentials: Explaining the gap*, *Papers in Regional Science*, 88 (3). pp. 609-621. Available from: <http://eprints.uwe.ac.uk/15908>

¹⁷ CBI/Pearson, *Skills and Education Survey: Helping the UK Thrive*, 2017

¹⁸ We compare the average uncapped GCSE scores for the 2013/2014 school year, as these would correspond to results of 16-year-old leavers who are the subject of the ONS's *Employer Perspectives Survey* and are entering the labour market/affecting labour productivity in the following two years. Data is only available for England, due to devolution of educational policies. In 2014/2015, average GCSE score has been replaced with Average Attainment 8 score per pupil indicator as the main measure of secondary accountability system. Since 2014/2015, schools are also rated with Progress 8 scores which measure the progress their pupils make relative to the national average.

Figure 6: Regional education performance



Source: Employer Perspective Survey- ONS, average for 2014 and 2016 representing employers' satisfaction with 16-18-year-old recruits (as a difference between percent of employers assessing their workers as well vs. poorly prepared for work). Average GCSE score – Department of Education, 2013/14. GVA per hour worked- ONS, 2015 data.

Regions should therefore focus on improving both the quality of education and work readiness skills of their population.



5 The picture, region by region

The performance of UK regions varies widely in terms of their overall level of productivity, as well as the strength of key productivity enablers examined in Chapter 3 above. These include the quality of infrastructure, education and skills, and a range of company level characteristics such as management quality. Performance is also relatively diverse within the regions, with pockets of excellence associated with specific companies or an industry cluster often representing an opportunity to leverage knowledge and dynamism in the rest of the region.

In this section, we use the regional groupings that can best accommodate the data available and best match regional government boundaries to provide a summary of regions' performance. We highlight the issues that may be best addressed to help boost productivity in each region. Insights for each region incorporate

findings from both comparable regional data and from our KPMG teams on the ground.

To give a clear picture of how – and in which ways – productivity levels differ across the country, we have ranked the regions in terms of how they compare like for like against the rest of the UK. We have, however, ordered them in this report according to geographical location rather than numerical ranking, again to allow for a sense of how a region rates alongside its immediate neighbours.

5.1 The North East

Region's productivity rank: 8/12

Priorities for improving regional productivity:

- Transport infrastructure is the overriding priority here. The focus should be on improving connectivity, particularly with the Northern Powerhouse region, to which the North East is critical, but often poorly connected. This should be done through the timely delivery of rail electrification plans and, more broadly, through support and investment in the Northern Powerhouse Rail initiative, including incentivising private investment.
- Intra-regional public transport improvements are needed: that includes greater numbers of buses and additional routes outside of city centres, linking small towns to regional business hubs.

KPMG's view from the ground:

- Transport presents real challenges in the North East, with poor connections within the area requiring people to relocate – so limiting the pool of available local talent.
- There is a shortage of skilled labour, with a mismatch between the skills school leavers possess and the jobs that actually exist today – and, above all, that will exist tomorrow, particularly with the unstoppable rise of digital technology.

The current situation in the North East

The region's specialisation opportunities have concentrated in advanced manufacturing. The most productive areas in the region include Hartlepool and Sunderland, with the latter hosting Nissan's car manufacturing plant, while the former is a centre for petrochemical and steel activities. However, the region has enjoyed an above-average productivity (i.e. compared to UK average) in only five of its sectors, which together account for just 15.7% of the region's GVA. Productivity has been very low in the remaining sectors, including higher value-added ones such as pharma, where activity has focused on production and low-skill tasks which generate lower value-added compared with R&D and more strategic tasks.

More detailed data is available in the table opposite, together with suggested actions.



Table 1: Comparable data on North East productivity enablers¹⁹

	Current state	Suggested actions
Company characteristics	<ul style="list-style-type: none"> – The second lowest expenditure in euros per capita on R&D in the UK – The average number of patents per million inhabitants from 2008 to 2012 was 160, around 7 times lower than the count for South East England – Only 4% of non-financial companies are exporters, compared to nearly 12% in London – Only 3% of all inward FDI projects in the UK have been recorded in the North East between fiscal year 2012/13 and 2016/17 – only a 1% increase compared to a previous four-year period. 	<ul style="list-style-type: none"> – Establishing external mentoring schemes by multinationals operating in the region and companies at the frontier of innovation. These would demonstrate management best practice to assist companies that are unable to follow international standards as result of not being integrated in international supply chains – Attracting FDI could boost a transfer of technology and best foreign managerial practices to domestic companies.
Infrastructure	<ul style="list-style-type: none"> – While 4G accessibility is good (60.3%), the quality of the 4G network is the second worst in the country, and only 82% of households have internet access – the lowest share in Great Britain – The Department for Transport's connectivity indicators point to poor connectivity to main road junctions, rail stations and airports. 	<ul style="list-style-type: none"> – Investing in transport infrastructure is imperative for the improvement of inter-regional connectivity, primarily with the North West (i.e. Trans-Pennine connectivity).
Skills and education	<ul style="list-style-type: none"> – Businesses are dissatisfied with the quality of school and university leavers and the skills they possess. Compared to the national average of 21%, the net satisfaction with 17-18-year-old school leavers was 15% – The secondary education attainment score (Average Attainment 8 score) was the lowest in the UK according to provisional 2016/2017 results. Moreover, in 2015/2016 14.8% of schools met Department of Education's "coasting definition" – which indicates additional support to schools might be needed. This is compared to 11.3% such schools in England as a whole. 	<ul style="list-style-type: none"> – Encouraging work experience programmes and improving pupils' motivation from an early stage in education – Improving secondary school attainment.

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¹⁹ Innovation data sources: Eurostat: Total intramural R&D expenditure (GERD) by NUTS 2 regions; Eurostat: Patent applications to the EPO by priority year by NUTS regions, 2017; Department for Business, Energy and Industrial Strategy: Business Population Estimates for the UK and regions, 2016; ONS: Annual Business Survey by Export and Import Activity, 2017.

Digital infrastructure source: Which? and Open Signal: State of Mobile Networks: UK, October 2016;

Infrastructure sources: CBI: Infrastructure Survey, 2017; Department of Transport: Experimental Connectivity Statistics (Connectivity Indicator Scores), 2015.

Skills and education sources: Employer Perspective Survey- ONS, 2016. Labour Force Survey - ONS, 2017, Key Stage 2 and 4 statistics – Department of Education, 2017

In 2014/2015, average GCSE score has been replaced with Average Attainment 8 score per pupil indicator as the main measure of secondary accountability system. Since 2014/2015, schools are also rated with Progress 8 scores which measure the progress their pupils make relative to the national average.

5.2 The North West

Region's productivity rank: 6/12

Priorities for improving regional productivity:

- Infrastructure is a top priority in the North West, focusing on continued upgrades of the Trans-Pennine rail network. Within the region, Local Enterprise Partnerships, Combined Authorities and Local Transport Authorities should lead on devising and investing in reliable public transport links to enterprise zones and metropolitan areas such as Manchester and Liverpool. Making public transport a viable alternative for commuters who use the M60 around Manchester would help to alleviate road congestion.
- Smaller towns in the region need better links to growing metropolitan areas such as Manchester and Leeds in order not only to increase the pool of available labour, but also to provide better employment opportunities for residents in areas where such opportunities are relatively scarce.
- Improved transport links across the North will provide prospective managers with the opportunity to develop their careers within the North without the personal disruption caused by the need for constant relocation.
- Improvement of digital infrastructure is particularly important in order to support the growth of the technology sector in Manchester.
- The region should also leverage the strength of its universities. We see great opportunities for them to work closely with both businesses and the public sector to address the North West's skills issues, building on projects that are already in progress.

KPMG's view from the ground:

- Greater emphasis is needed on providing the requisite training not just for the jobs of today – but above all, for the jobs that are likely to exist tomorrow, driven by an ever greater use of technology in the workplace.



The current situation in the North West

The most productive area in the region was Cheshire East in 2015, which generated 17% higher GVA per hour than the UK average. The region benefits from having above-average labour productivity in manufacturing. The sector accounts for 15% of its economy (compared to 10% for the UK as a whole), as the region hosts advanced manufacturing, aerospace, and pharmaceutical clusters that include companies such as Bentley Motors and Astra Zeneca. Further opportunities for specialisation lie in the creative and media industries already boosted by the Media City development in Salford. The next step to improving aggregate productivity may come from advancing the performance of workers in services, which account for around 75% of the GVA created.

More detailed data is available in the table opposite, together with suggested actions.

Table 2: Comparable data on the North West productivity enablers

	Current state	Suggested actions
Company characteristics	<ul style="list-style-type: none"> – Performs below the UK average on R&D expenditure and patent count, but outperforms the rest of the North of England – Some 7.2% of non-financial companies are exporters – lower than 8.1% national average and far lower than London – Some 34% of all workers are employed in small businesses with up to five workers, compared to 30% national average – Only 7% of all inward FDI projects in the UK have been recorded in the North West between fiscal year 2012/13 and 2016/17 – only a 5% increase compared to a previous 4-year period. 	<ul style="list-style-type: none"> – Schemes to provide managerial assistance to smaller companies could be enhanced – Support schemes to encourage exports and innovation across the region, as well as FDI.
Infrastructure	<ul style="list-style-type: none"> – 4G accessibility is significantly worse than in London (54.8% compared to 69.7%), and the average 4G speed is the third lowest in the country – The region's DfT connectivity score is the third highest, after London and West Midlands. Connectivity to London should increase following the completion of HS2. 	<ul style="list-style-type: none"> – Improving inter-regional connectivity with the rest of the North is imperative in order to reap the benefits of agglomeration. Relatively bad inter-regional connectivity is exemplified by the travel times between Manchester and Leeds – currently 54 minutes by train for a journey of 55 km. By contrast, the journey between Cambridge and London, 97km apart, lasts 50 minutes.
Skills and education	<ul style="list-style-type: none"> – Employers express relatively high dissatisfaction with the skills of university leavers. Some 9% of such workers are assessed as very poorly prepared for work (compared to 2% as a national average) – Some 16.9% of schools were assessed as potentially in need of additional support (i.e. met the "coasting definition" of having a Progress 8 score below -0.25) in 2015/2016, the second worst result in England after the East Midlands. Average secondary education attainment per pupil was fifth best in the country according to provisional 2016/2017 results. 	<ul style="list-style-type: none"> – Encouraging higher-education leavers to enrol for work experience schemes prior to joining the labour force: employers complain about lack of 'required skills or competencies' – Improving the quality of state-funded secondary schools.

5.3 Yorkshire and The Humber

Region's productivity rank: 10/12

Priorities for improving regional productivity:

- Infrastructure is the leading priority in Yorkshire, with support and funding particularly vital for projects such as a high-speed rail link connecting Leeds and Manchester. More broadly, improving rail links to Leeds is imperative, to help tackle congestion on roads such as M1 and M62.
- Likewise, improving public transport road and rail links to employment centres such as Sheffield City Region Enterprise Zone needs to be urgently addressed. Further improvements in public transport road and rail links to employment centres such as Enterprise Zones and the Advanced Manufacturing Park will help open up the labour market, particularly for younger employees and apprentices.

KPMG's view from the ground:

- The development of digital skills is an urgent priority: our clients are particularly concerned about the shortages of school leavers with appropriate skills for roles in the digital economy.
- Infrastructure needs urgent improvement in order to bolster productivity in the North. Investment should be made both in inter-regional links and in intraregional links. Local transport inefficiencies lengthen commuting times and severely limit the labour supply – and the quality of management – available to businesses.

The current situation in Yorkshire and The Humber

Yorkshire and the Humber has a broadly similar sectoral mix to the North West, with a slightly higher share of agriculture and financial services in the total output. However, the region has a substantially lower share of transport manufacturing than in the North, and services activities in the region have been in lower value-added activities compared to London and the South East.

More detailed data is available in the table opposite, together with suggested actions.



Table 3: Comparable data on Yorkshire and the Humber productivity enablers

	Current state	Suggested actions
Company characteristics	<ul style="list-style-type: none"> – The region falls behind the rest of the UK on both measures of research and innovation: its R&D expenditure is 80% lower than national average and patent count 68% lower – 7.5% of non-financial companies are exporters, below the Great Britain average of 8.1% and below London and the South West, at 11.6% and 11.3% respectively – Although only 5% of all UK inward FDI projects recorded between FY 2012/13 and 2016/17 were located in the region, Yorkshire recorded the strongest growth rate (20%) of all UK regions in the number of FDI projects compared to the preceding four-year period – The share of small businesses and the proportion of workers employed by them are, however, in line with national averages. 	<ul style="list-style-type: none"> – Focusing more on fostering innovation and encouraging higher value-added activities, rather than on programmes enforcing best managerial practices, given the statistics on the size of companies in the region – Supporting schemes to encourage exports and FDI.
Infrastructure	<ul style="list-style-type: none"> – The region has the third lowest transport connectivity score, according to the DfT – It is the second best performing region in terms of speed and availability of 4G signal. 	<ul style="list-style-type: none"> – Improving the inter-regional transport connectivity should be a priority above digital infrastructure investment, given the encouraging data on 4G networks and the weaker performance on transport connectivity.
Skills and education	<ul style="list-style-type: none"> – Even though Yorkshire and the Humber falls short in terms of average Key Stage 4 and Key Stage 2 test scores, surveys show that employers are relatively satisfied with the quality of school leavers – On the other hand, only 14% of university graduates are described as very well prepared for work, compared to a national average of 19% – While employers are relatively satisfied with the job preparedness of their young recruits, GCSE results were slightly below national average. The region recorded the third worst secondary school attainment score per pupil according to provisional 2016/2017 results. 	<ul style="list-style-type: none"> – While young recruits do well when employers are questioned about their motivation, experience and readiness for work, the level of educational attainment, as measured by GCSE and Key Stage 2 scores, is very low – Encouraging mentoring schemes organised by local businesses and targeted at schools in the region would help even further improve pupils' work readiness – Improving primary and secondary educational attainment is necessary to unlock productivity growth.

5.4 The East Midlands

Region's productivity rank: 7/12

Priorities for improving regional productivity:

- Upskilling the existing workforce is the most urgent challenge this region currently faces.
- Education is another major area of concern: secondary and primary educational attainment both need to be improved, requiring an increase in the number and scale of initiatives such as the UK-wide £75 million Teaching and Leadership Fund announced in February 2017.
- Poor IT connectivity needs to be addressed urgently, via regional investment.

KPMG's view from the ground:

- Part of the skills challenge revolves around the need to attract graduate employers to the region – a task made even more difficult by poor IT connectivity and a lack of suitable office space, as well as transport issues which limit the labour supply.
- The financial services sector, in particular, is under-represented in the East Midlands. Likewise, Derby, Leicester and Nottingham all face difficulty in bringing professional services and knowledge-based businesses from elsewhere.
- Road and rail connectivity to the rest of country is often very poor from this region. Journey times (by road or rail) and frequency of rail services between East and West need improving, and extending the A42 motorway to East Midlands Airport would make a big difference.
- The agricultural and food processing industries of Lincolnshire are likely to be hard hit by Brexit if EU workers stay away, requiring employers to be proactive in order to retain their skilled workforce.



The current situation in the East Midlands

The most productive areas in the region are Derby, South Nottinghamshire and Leicestershire. The region's manufacturing sector generates 17% of total GVA, and is dominated by transport, machinery and basic metals industries, with factories like Rolls-Royce located in Derby and Siemens in Lincoln. The region is the third most rural area in the England, with large pockets of low productivity beyond the centre of economic activity in the Nottingham/Derby/Leicester triangle.

More detailed data is available in the table opposite, together with suggested actions.

Table 4: Comparable data on the East Midlands productivity enablers

	Current state	Suggested actions
Company characteristics	<ul style="list-style-type: none"> – The region spends slightly less in terms of R&D expenditure and patent count than some other areas, but it is outperforming the West Midlands, Yorkshire and the North East, and non-England regions barring Scotland – 8.6% of non-financial companies are exporters, slightly above the 8.1% of the Great Britain average – Only 4% of all inward FDI projects in the UK have been recorded in the East Midlands between fiscal year 2012/13 and 2016/17 – an 8% increase compared to a previous four-year period. This is lower than in West Midlands and Yorkshire, but higher than in the North East and North West. 	<ul style="list-style-type: none"> – Assessing whether small, family-owned companies may need managerial assistance, although a breakdown of companies by exporting activity and size does not necessarily indicate a potential need for bolstering managerial practices – Creating a more favourable environment for attracting FDI and thus boosting the rise in FDI projects to above 10%, as seen in West Midlands.
Infrastructure	<ul style="list-style-type: none"> – According to CBI surveys, 59% of businesses in the East Midlands are dissatisfied with the infrastructure in their region, compared with the national average of 54% – Although the quality of the 4G network is among the top three in the country, availability falls behind best performers (49.9% compared to 69.7% estimated for London in 2016). 	<ul style="list-style-type: none"> – Improving the intra-regional links between Nottingham, Derby, Leicester and Coventry – Increasing investment in inter-regional links between each of the main urban areas and the West Midlands, principally Birmingham.
Skills and education	<ul style="list-style-type: none"> – Few employers find that the 16-year olds they hired for their first jobs are well prepared, predominantly due to lack of work experience (27%) – The quality of further education colleges and university graduates was assessed to be in line with the national averages – The average GCSE attainment is amongst the lowest in England, with average secondary school attainment per pupil 1.9% below the English average in 2016/2017. Some 22.6% of secondary schools were assessed as potentially in need of additional support, based on their Progress 8 scores. This is significantly above the 11.3% average for England as a whole – Performance at Key Stage 2 for 11-years old is the third lowest in England in 2017. 	<ul style="list-style-type: none"> – Increasing investment in training programmes, basic skills improvement, and promotion of work experience schemes will improve the quality of school leavers – Improving the quality of state-funded secondary and primary schools.

5.5 The West Midlands

Region's productivity rank: 9/12

Priorities for improving regional productivity:

- Skills and education are priority issues in this region. Local government needs to work in tandem with higher and further education institutions to improve educational attainment, in line with local business needs. The devolution of education funding control, allowing for the retention of part of the unspent levy locally, may support this goal. Significant investments such as the Engineering Skills and Training Centre in Hinckley, or the advanced manufacturing and design centre at Stafford College, are very welcome – but need to be accompanied by an effective career guidance to incentivise prospective students.

KPMG's view from the ground:

- As well as the need to boost skills and education levels, housing is another vital component in unlocking productivity in the West Midlands. However, regional infrastructure investment should be linked to housing plans, ensuring new housing can increase labour supply in places such as the Black Country, and transport plans to connect housing to jobs.
- West Midlands will benefit from £8bn investment in regional infrastructure, driven by the HS2 project, with the West Midlands Combined Authority and the Mayor driving forward ambitious plans for growth.
- In terms of individual sector performance, the presence of carmaker JLR and its supply chain in the region has supported West Midlands' exports, while the importance of the Financial Services sector is growing. A strong and vibrant professional services sector adds to this growing knowledge-based economy.

The current situation in the West Midlands

The West Midlands attributes some 15% of its GVA to manufacturing, particularly basic metals and transport equipment. The best performing areas in the region are Warwickshire and Solihull. The latter benefits from hi-tech manufacturers such as Jaguar Land Rover and aerospace firm Moog. Warwickshire benefits from a successful agglomeration of tech start-ups in the TechUK cluster around Warwick University with the region now home to the highest number of start-ups outside of London. As with the North of England, advanced manufacturing and engineering are areas of strong performance, but the majority of the local economy is dominated by low value-added service sector jobs.

More detailed data is available in the table opposite, together with suggested actions.

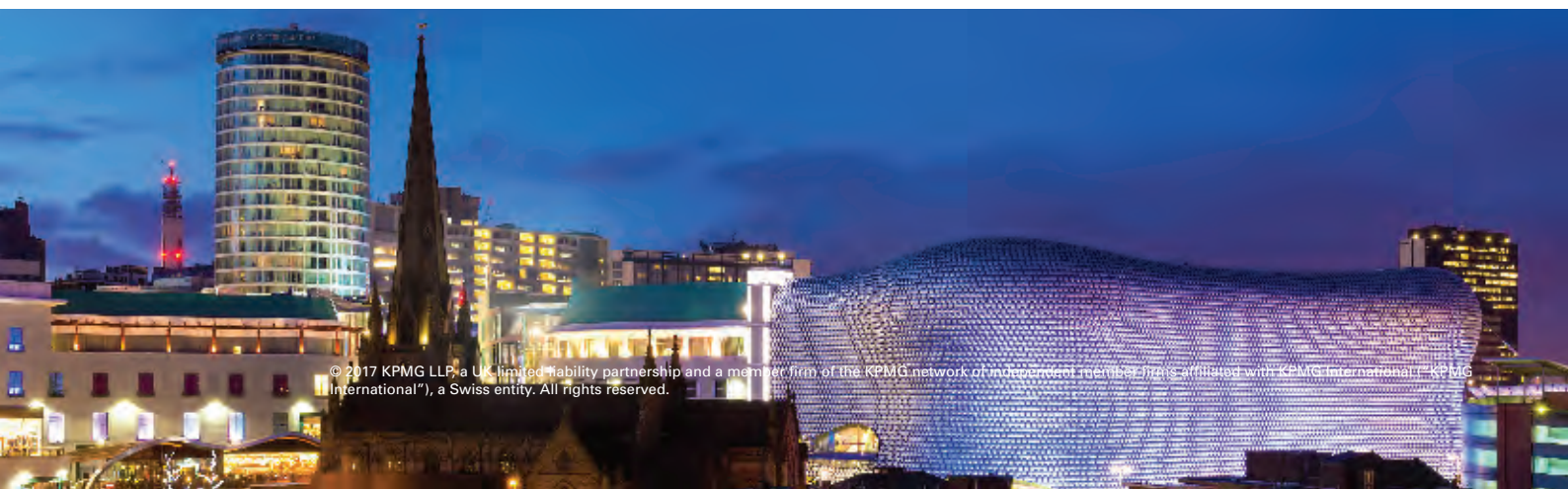


Table 5: Comparable data on West Midlands productivity enablers

	Current state	Suggested actions
Company characteristics	<ul style="list-style-type: none"> – A similar performance to the East Midlands in terms of innovation metrics (347 patents per million inhabitants on average, from 2008 to 2012, compared to 375 in East Midlands and 1183 in the South East) – In terms of the share of workers employed in small companies, the region, like the East Midlands and Yorkshire, seems to be in a more favourable position than the North East and North West – Although only 7% of all UK inward FDI projects recorded between FY 2012/13 and 2016/17 were located in the region, West Midlands recorded a relatively strong growth rate of 11% in the number of FDI projects compared to the preceding four-year period. 	<ul style="list-style-type: none"> – Assessing whether small, family-owned companies need managerial assistance, although breakdown of companies by exporting activity and size does not necessarily indicate a particular potential need for bolstering managerial practices.
Infrastructure	<ul style="list-style-type: none"> – Due to its favourable geographical position, the region has the second best connectivity score, according to DfT's measures – 4G accessibility is much lower than in London, and only 89% of households have access to internet. 	<ul style="list-style-type: none"> – Improving the digital infrastructure should be a priority. Apart from lower percentage of households with internet access compared to the Capital, London's users are able to access 4G connection 69.7% of time whereas that is true only 52.3% of the time in the West Midlands.
Skills and education	<ul style="list-style-type: none"> – Some 51% of businesses surveyed in 2016 stated that the 16-year-old school leavers they had recruited in the last two to three years had been poorly or very poorly prepared for work – A total of 27% of employers identified motivation and work experience as the major skills lacking among 16-year-olds, while 3% of employers found that it was poor literacy and numeracy skills – The region fares poorly when employers assess the job preparedness of 17-18 year old recruits: net satisfaction stands at 14%, compared to the national average of 21% – Together with Yorkshire and the Humber, the region performed worst at Key Stage 2 assessment for 11 year olds in 2017. 	<ul style="list-style-type: none"> – Encourage educational institutions and the National Career Service to bolster the motivation of school leavers – Enhance work experience schemes – Increase the overall skills level by promoting collaboration between advanced manufacturing businesses, educational institutions and the National Career Services – Improve the quality of primary education.

5.6 The East of England

Region's productivity rank: 3/12

Priorities for improving regional productivity:

- Improving intra-regional rail links to unblock road congestion particularly around the Cambridge area, as well as rail links to the South East and London.

KPMG's view from the ground:

- Cambridge has historically been a very successful centre for embryonic innovative companies to achieve their potential. However, the increase in home grown business and the influx of 'new joiners' has put an increasing pressure on the region's roads, the demand for housing (and the consequential price inflation) and on human resources.
- A number of other cities in the region are growing fast, such as Norwich, where the University is becoming a hub for innovative businesses working in nutrition, green tech and Fintech. Yet the city and Norfolk overall remain relatively isolated and improved communication bandwidth should be a top priority.
- The food production sector, with its reliance on foreign labour, stands to be heavily affected by Brexit and its impact on the free flow of labour and goods, as well as growers' subsidies.

The current situation in the East of England

The East of England has an above-average productivity in all but three sectors, which make up only around 15% of its GVA. The region has a slightly higher share of manufacturing than London and the South East, dominated by high value-added pharmaceuticals, metals and transport equipment. The best performing area in the region is East Anglia, where there are advanced clusters around the University of Cambridge, operating in research and development, software consultancy, high value engineering, creative industries and pharmaceuticals. The sectoral mix is conducive for high labour productivity.

More detailed data is available in the table opposite, together with suggested actions.



Table 6: Comparable data on East of England productivity enablers

	Current state	Suggested actions
Company characteristics	<ul style="list-style-type: none"> – The East of England leads in terms of R&D expenditure and is second on the patent count (after the South East). Its profile, in terms of company size, is in line with (if not slightly larger than) the national average – Only 5% of all inward FDI projects in the UK have been recorded in the East of England between fiscal year 2012/13 and 2016/17; substantially lower than 39% in London and 11% in the South East. 	<ul style="list-style-type: none"> – Although the environment – in terms of innovation and companies characteristics – is conducive for high labour productivity within established clusters, more business mentoring may be required beyond the centres of excellence.
Infrastructure	<ul style="list-style-type: none"> – The region has the third lowest 4G availability in the UK – only 48.9% of the region's area, compared to 69.7% in London – Based on DfT's transport connectivity scores, the region performs worse than the Midlands, the North West and London. This translates into longer driving times to major road junctions, rail stations and airports than in the aforementioned regions. 	<ul style="list-style-type: none"> – Improving intra-regional rail links to unblock road congestion particularly around the Cambridge area, as well as rail links to the South East and London.
Skills and education	<ul style="list-style-type: none"> – Businesses in the East are not satisfied with the quality of school leavers. Some 16% of businesses in the region found that 16-year old school leavers are very poorly prepared for work, a significantly higher proportion than in the North East, South East and West Midlands – Businesses are also not satisfied with 17-18-year old recruits, regardless of whether they are from further education colleges or elsewhere – Despite the relatively large percentage of employers dissatisfied with their young recruits' basic skills and motivation, educational attainment in the East is relatively good. Only 6.6% of schools were assessed to be below the minimum progress level for secondary schools in the 2015/2016 school year, while the region' recorded the third best secondary school attainment score in England and fourth highest results for 11 year olds at Key Stage 2 assessments in the 2017. 	<ul style="list-style-type: none"> – Fostering work experience schemes, and engaging educational institutions and the National Career Service to bolster the motivation of school leavers – Given the positive educational outcomes as measured by GCSE scores and Key Stage assessments, the focus of policy-makers in the region should be on advancing the basic skills of young workers, rather than improving educational attainment.

5.7 London

Region's productivity rank: 1/12

Priorities for improving regional productivity:

- Tackling the problems caused by **road congestion is a major priority for the capital** – for example, through broadening the introduction of congestion charges.
- **Upgrading the digital infrastructure** should be urgently addressed, including the speed and reliability of the internet and 4G mobile networks.

KPMG's view from the ground:

- London's productivity is driven partly by "non-Londoners", which historically has boosted London's relative standing. Commuters from outside London have taken advantage of the strong transport links, and HS2 will further increase that.
- However, road congestion is critical, and many London rail stations need an overhaul in order to accommodate increasing rail capacity. Intra-London road connectivity also needs improving, where priorities are building a

new crossing between Greenwich and Newham (at Gallions Reach), and a new Lower Thames crossing to reduce congestion on the existing Dartford Crossing.

- London has continued to be a magnet for companies setting up operations in the UK, from innovative technology businesses to European and Global HQs, with a positive impact on the productivity levels. A constant challenge to London employers around the cost and availability of housing for their workers, but the addition of some uncertainty in relation to Brexit will create inevitable pressure points on the availability of foreign workers and the appetite for new foreign investment, which in turn will create new risks to London's lead position around productivity in the UK.
- London-based businesses should offer more apprenticeships, as a way of getting more workers properly trained and into lasting jobs.

The current situation in London

London's economy is dominated by higher value services. Professional and administrative activities, financial services, and information and communication services together make up around 50% of total output – significantly higher than the UK average. The financial sector, based in the City of London and Canary Wharf (Tower Hamlets), has a particularly high level of productivity. London has only 2% of its output generated by manufacturing – compared to a national average of 10%. Sectoral mix is conducive for high labour productivity, although overreliance on the financial sector is a risk exacerbated by the ongoing Brexit negotiations.

More detailed data is available in the table opposite, together with suggested actions.



Table 7: Comparable data on London productivity enablers

	Current state	Suggested actions
Company characteristics	<ul style="list-style-type: none"> – London falls behind the South East and East of England on the R&D and patents count – It is well integrated into international supply chains, leads on the number of recorded FDI projects and on the share of non-financial businesses which are exporters, and thus most likely to have access managerial best practice among the regions. 	<ul style="list-style-type: none"> – Fostering innovation, as data suggests the region is already a leader in managerial best practice. While it is understandable that London is lagging on the number of patent counts – given that the metrics is better tailored to capture innovation in the manufacturing sector – R&D expenditure within the fast-paced developing hi-tech sector should be supported – Despite having the largest share of UK's inward FDI projects, the region recorded only 9% growth in the number of FDI projects from the four-year period between FY 2011/12-2015/16 and FY 2012/13-2016/17. In light of Brexit, London may need to work even harder to increase the number of FDI projects it attracts.
Infrastructure	<ul style="list-style-type: none"> – Best links to major rail and airport hubs and road junctions, according to the DfT – Businesses surveyed by the CBI are relatively satisfied with the infrastructure, but stress the need to tackle traffic congestion. 	<ul style="list-style-type: none"> – Improving international links and tackling congestion on roads, tube and rail lines – Upgrading digital infrastructure: according to 2016 data, London has the worst quality of 4G network in the UK.
Skills and education	<ul style="list-style-type: none"> – Although London outperforms the rest of England when it comes to primary and secondary education attainment results, businesses are on average not satisfied with the quality of school leavers. 22% of business – higher than in all other English regions except the East and East Midlands – find that 16-year olds are very poorly prepared for work – London pupils achieved an average secondary school attainment score of 48.6 in 2016/2017, above the English average of 45.9. Only 3.2% of secondary schools were assessed as below the minimum progress level in 2015/2016, with Inner London schools on average performing better than Outer London schools (2.1% versus 3.8%, respectively). 	<ul style="list-style-type: none"> – Encouraging educational institutions and National Career Service to bolster the motivation of school leavers, and fostering work experience schemes – Improving secondary education in some areas outside of Inner London. Although London pupils have on average achieved the best GCSE results, there are Outer London areas where quality of secondary schools and educational attainment are below the average for England. For example, 26.7% of secondary schools in Bexley were assessed as potentially in need of additional support in 2015/2016.

5.8 The South East

Region's productivity rank: 2/12

Priorities for improving regional productivity:

- The region should prioritise further investment in housing supply to prevent shrinkage of the available labour pool.
- Timely delivery of infrastructure projects such as rail electrification and Crossrail is essential to maintain good links to London. Likewise, continued support for the East-West rail is crucial for improving inter-regional links outside London.

KPMG's view from the ground:

- The South East continues to invest in the development of technology, including the training and development of a highly skilled workforce. However, the economy and productivity of the South East are inextricably linked with that of London.
- Projects such as the electrification of the rail lines and Crossrail should enhance connectivity to London. Longer term projects such as the third runway at Heathrow and the North-South Crossrail line could provide a further boost, but need to be delivered within a meaningful timeframe to improve productivity in the medium term.
- Due to the international dimensions of the South East's economy, it faces some Brexit uncertainty, both given the degree to which it relies on exports, and in relation to the availability of a skilled international workforce.
- Attracting a suitable local workforce overall is increasingly difficult because of the lack of affordable housing. Increasingly we are seeing longer commuting journeys as employees travel from outside the region.



The current situation in the South East

The South East broadly has a very similar industrial structure to the East of England, with the exception of a slightly lower share of manufacturing and a higher share of the information and communication sector. The latter boosts the best performing areas in the region: Berkshire, East Surrey, North Hampshire and West Kent. Many high technology companies are located near the M3 in Surrey and the M4 in Berkshire. Hence, the sectoral mix is conducive for high labour productivity and, like London, the region has higher than national average productivity in all but two sectors: mining and quarrying and agriculture – which make up less than 1% of total output.

More detailed data is available in the table opposite, together with suggested actions.

Table 8: Comparable data on South East productivity enablers

	Current state	Suggested actions
Company characteristics	<ul style="list-style-type: none"> – The South East is the UK leader in patents count, driven mainly by the advanced manufacturing and high-tech sectors – The region is relatively well integrated into international supply chains, as it has a share of 10.9% of exporters among non-financial companies operating in the region – above the Great Britain average of 8.1%. It has the second largest share of the UK's inward FDI projects (11%), after London. 	<ul style="list-style-type: none"> – The region's companies are highly integrated in global supply chains and account for a large share of the UK's total innovation activity. Hence, this driver provides a strong boost to the region's productivity – The region recorded only 5% growth in the number of FDI projects from the four-year period between FY 2011/12-2015/16 and FY 2012/13-2016/17, a potential focus area.
Infrastructure	<ul style="list-style-type: none"> – The poor quality of inter-regional links are the infrastructure priority for businesses in the region, according to CBI's infrastructure surveys – in particular links to the West and East England – The region performs worse than the Midlands, London and North West on its DoT's transport connectivity score. 	<ul style="list-style-type: none"> – Apart from investing in better inter-regional links, priorities should be tackling congestion and improving the quality of links to London, as well as rail capacity upgrades at peak times.
Skills and education	<ul style="list-style-type: none"> – The South East closely follows London when it comes to average test scores for pupils at both Key Stage 2 and Key Stage 4 – Average secondary school attainment score per pupil was 47.2 in 2016/2017, above the average for England at 45.9. It was the second best result in England, after London – 9.8% of secondary state-funded schools were assessed as below the minimum progress standard in 2015/2016, but areas such as Isle of Wight are big outliers, with 60% of schools identified with Progress scores below -0.25 and assessed as potentially in need of additional support – The region's employers are on average more satisfied with the quality and skills of school leavers than in the rest of England. 	<ul style="list-style-type: none"> – Given the favourable rankings of pupils' performance in Key Stage 2 and 4 assessments, as well as relatively positive feedback on the job readiness of school leavers and graduates by employers, skills quality is currently supportive of high productivity – The quality of secondary education is, however, fairly uneven in the region, and areas such as the Isle of Wight should be supported in improving educational attainment.

5.9 The South West

Region's productivity rank: 5/12

Priorities for improving regional productivity:

- The focus should be on infrastructure: further investments, for example, need to be made in extending the electrification programme to include suburban rail service in Bristol, Gloucestershire and Somerset, as well as improve links to Bristol airport.

KPMG's view from the ground:

- The South West is one of the most economically diverse regions in the UK, ranging from Bristol right through to some of the most deprived areas in the UK.
- Transport infrastructure is a major concern for the region, with the road and rail network requiring significant intraregional and interregional investment. Whilst devolution of some powers and money to the West of England Combined Authority will improve the speed of decision-making and help focus on certain projects, it will not address the needs of the wider South West, which must have regard to local, national and international considerations.
- While the region's economy is very diverse, aerospace, specialist engineering and nuclear (built around the £20bn Hinkley development) stand out as sectors ripe for focus and investment. A national industrial strategy should recognise and support their further development.

The current situation in the South West

The best performing areas in the South West in terms of productivity are Swindon, Bristol and Bath in 2015, while Cornwall falls somewhat behind. The region has high intra-regional divergences: while Bristol houses aeronautics businesses and Bath and Swindon are boosted by telecommunications, information technology and electronics businesses, Devon is oriented towards agriculture and Cornwall is focused on tourism – both low value-added sectors.

More detailed data is available in the table opposite, together with suggested actions.



Table 9: Comparable data on South West productivity enablers

	Current state	Suggested actions
Company characteristics	<ul style="list-style-type: none"> – The South West is a strong performer in terms of patents count, and has an above national average R&D expenditure – The area has a high share of small and medium-sized companies, as well as self-employed workers – Although only 4% of all UK inward FDI projects recorded between FY 2012/13 and 2016/17 were located in the region, South West recorded a strong growth rate (14%) in the number of FDI projects compared to the preceding four-year period. 	<ul style="list-style-type: none"> – Bolstering managerial practices - given the relative prevalence of small companies - and encouraging those organisations, such as Engine Shed, which support early stage businesses – Make better use of Growth Hubs to support the SME market.
Infrastructure	<ul style="list-style-type: none"> – The region is ranked last of all other England regions by the DfT's on its transport connectivity to major rail and air hubs – Poor digital infrastructure, as 4G accessibility is only worse in Wales. 	<ul style="list-style-type: none"> – Improving intraregional road and rail links, particularly around Bristol, including the connection to Bristol airport – Improving links to London is important, and would be delivered with the electrification of the rail network between London and the South West – Improving digital infrastructure with the aim of better integration of rural communities.
Skills and education	<ul style="list-style-type: none"> – Performance of pupils from the South West at Key Stage 2 assessment was in line with the English average in 2017 – Average secondary school attainment per pupil was 45.9 in 2016/2017, in line with the average for England. It was the fourth best result in England, after London, the South East and the East – The region's employers are on average more satisfied with the quality and skills of school leavers than in the rest of England, and particularly with university graduates. 	<ul style="list-style-type: none"> – Given the favourable rankings of pupils' performance in Key Stage 4 assessments, as well as the relatively positive feedback on job readiness of school leavers and graduates by employers, attention could focus on primary education to ensure continued positive results at later stages.

5.10 Wales

Region's productivity rank: 11/12

Priorities for improving regional productivity:

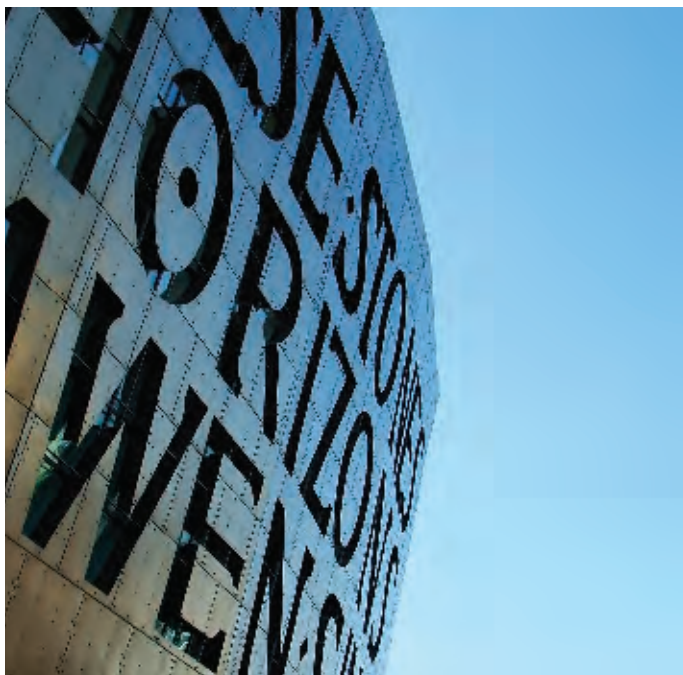
- Improving educational attainment and skills is essential – in the light of local employers' relative dissatisfaction with even basic levels of literacy and numeracy – if the region is to boost its productivity. Devising and funding an alternative to the now scrapped Schools Challenge Cymru programme should therefore be a priority.

KPMG's view from the ground:

- Although only a small proportion of Welsh companies export, the region is the second most dependent on trade with the EU, as measured by exports as a share of Gross Value Added. Initiatives to assist more companies to tap export markets, and to support existing exporters to the EU with the transition to Brexit, will be very valuable. Wales' relative dependence on the public sector

makes it vulnerable to potential tightening in public sector spending, especially in light of the expected loss of EU funds. Promoting Foreign Direct Investment more vigorously may be able to bridge some of the funding needs, and help to shift the industrial mix towards higher productivity industries.

- Future infrastructure plans, including M4 relief road, Tidal Lagoon, City Deal (Swansea and Cardiff), Cardiff metro, and the large scale residential housing plans in Cardiff under LDP, will go some way towards easing congestion and improving the quality of living and employment opportunities.
- More needs to be done to improve transport and telecommunications infrastructure, as well as to raise skills level, in order to attract more business to Wales and improve the performance of existing businesses.



The current situation in Wales

The sectoral mix in Wales is not conducive to high labour productivity. A quarter of the economy's output is generated by traditionally less productive public sector services (e.g. education, health, social work, administration), compared to below 20% on average nationally. Wales has a broadly similar industry mix as the North East, with a slightly higher share of public sector and manufacturing in its output, where the latter is boosted by car manufacturing plants. The region lacks high value-added service sector activities, and the gains from manufacturing production are concentrated in East Wales, while West Wales and the Valleys are among the most economically deprived areas in the UK.

More detailed data is available in the table opposite, together with suggested actions.

Table 10: Comparable data on Wales productivity enablers

	Current state	Suggested actions
Company characteristics	<ul style="list-style-type: none"> – Only 4.2% of non-financial companies located in Wales export – R&D expenditure is half the amount of the UK average and the region has three times less patents count than the national average – Although only 4% of all UK inward FDI projects recorded between FY 2012/13 and 2016/17 were located in the region, Wales recorded a strong growth rate (17%) in the number of FDI projects compared to the preceding four-year period. 	<ul style="list-style-type: none"> – The higher share of smaller companies in the region may benefit from business mentoring and other schemes to improve managerial practices and encourage innovation and exports.
Infrastructure	<ul style="list-style-type: none"> – Wales has the worst 4G coverage and the second lowest share of households with internet access in the UK, after the North East – Wales does not have areas large or densely populated enough to significantly benefit from agglomeration effects. 	<ul style="list-style-type: none"> – Connecting North Wales to the Northern Powerhouse and South Wales to the South of England is imperative – Improving the digital infrastructure.
Skills and education	<ul style="list-style-type: none"> – The majority of employers (51%) stated that their 16-year-old recruits are not well enough prepared for their first job, and predominantly link this to a lack of work experience – In North Wales, 10% of surveyed businesses pointed to a lack of basic numeracy and literacy skills among their young recruits – Based on PISA tests, Welsh pupils perform below the OECD average on tests of numeracy and literacy. 	<ul style="list-style-type: none"> – Improving educational attainment – Investing in basic skills training and work experience schemes.

5.11 Scotland

Region's productivity rank: 4/12

Priorities for improving regional productivity:

- The region's priority should be focused action on education and skills. This would accelerate previous progress made on improving productivity. Specifically:
 - further enhancing digital and technology skills across the workforce;
 - enhanced managerial and leadership training in both private and public sector;
 - improving numeracy and literacy skills in schools, where Scotland has in recent years fallen down the international PISA rankings.
- Improving digital infrastructure and enhancing 4G availability and network speeds is also crucial for improving productivity performance.

KPMG's view from the ground:

- Scotland's productivity is boosted by a high value oil and gas sector in the north east of the country and by a strong financial services sector. Scotland does well on innovation indicators, while the accessibility of higher education helps boost the share of skilled workers, with Scotland only outperformed by London.
- There is a shortage of housing in certain areas and there are marked differences in productivity between urban and rural areas.
- The digital infrastructure needs improving in rural areas – although access to superfast broadband is also an issue in some areas within cities. Furthermore, 4G availability is comparatively low.
- Improving intra-regional transport connectivity is essential to delivering future gains to productivity. There has been significant investment in major inter-regional transport links in recent years. Additional bus routes to improve intra-regional connectivity within Scotland would improve access to employment opportunities.

The current situation in Scotland

Scottish aggregate labour productivity is boosted by the high value-added oil sector in North Eastern Scotland, while high value-added financial services – and a burgeoning Fintech sector – dominate the economy of Eastern Scotland. Food and beverages production activities are primarily based in the Highlands and Islands area. On the whole, the region benefits from a relatively favourable aggregate sectoral mix, but intra-regional inequality is an issue, given the large proportion of rural areas.

More detailed data is available in the table opposite, together with suggested actions.



Table 11: Comparable data on Scotland productivity enablers

	Current state	Suggested actions
Company characteristics	<ul style="list-style-type: none"> – Only 6% of the region's non-financial companies are exporters, which places the region just above Wales and the North East. However, the size structure of companies is similar to the average in England, and companies are performing well on innovation indicators – Although only 7% of all UK inward FDI projects recorded between FY 2012/13 and 2016/17 were located in the region, Scotland recorded a strong growth rate (16%) in the number of FDI projects compared to the preceding four-year period. 	<ul style="list-style-type: none"> – A focus on increased exports from local companies – Further foreign direct investment is likely to increase productivity and innovation – Improved and more widespread management and leadership training to help drive innovation and productivity in both the private and public sectors.
Infrastructure	<ul style="list-style-type: none"> – Digital infrastructure indicators are not encouraging: 4G availability is far below that of London (50.4% compared to 69.7%), and the quality of the network as measured by speed is in the bottom half of all the regions. 	<ul style="list-style-type: none"> – Additional investment is required in digital infrastructure – A focus on improved connectivity and improved transport links – both within and between different regions of Scotland; and increasing air links.
Skills and education	<ul style="list-style-type: none"> – Scottish pupils' PISA test results have fallen since 2000 and are now in line with the OECD average in all three subjects tested (literacy, numeracy, science) – The excellent accessibility of higher education helps boost the share of skilled workers, with Scotland only outperformed by London – In 2016, employers assessed the quality of school and university leavers as on average satisfactory. Two thirds of employers say secondary school leavers were well or very well prepared for work, and 84% of employers said the same of university graduates. 	<ul style="list-style-type: none"> – Given the relatively positive feedback from employers on the job readiness of school leavers and graduates, the skills mix is currently supportive of high productivity – However, action to improve literacy, numeracy and science at school level will be important for ensuring future productivity – Life-long learning will be crucial in enhancing productivity in future. Digital and technology skills are in short supply at present and are a priority to address.

5.12 Northern Ireland

Region's productivity rank: 12/12

Priorities for improving regional productivity:

- Given the high percentage of workers without qualifications in the region, policy makers should focus urgently on adult learning and upskilling initiatives.
- Completing the A6 between Derry and Belfast is a major transport infrastructure project for Northern Ireland.

KPMG's view from the ground:

- Intensive efforts should be made to attract high-skilled graduates back to the area, given the high number of workers without qualifications.
- At the same time, the underachievement of many secondary school leavers should be treated as a priority.
- Urgent action should be taken to address the digital divide between urban and rural areas.
- The region should continue building on recent success stories in specialist and high growth areas such as cyber security and the film industry.

The current situation in Northern Ireland

Northern Ireland is the only region in the UK to have lower labour productivity than the national average in each of the 13 sectors we analysed. Additionally, the sectoral mix is less conducive for high labour productivity as – like Wales – it has a high share of public sector jobs, which often tend to have less scope for productivity improvement. It also has a lower share than the national average of all higher value services such as financial and information and communication, while its manufacturing sector is dominated by food and beverages.

More detailed data is available in the table opposite, together with suggested actions.



Table 12: Comparable data on Northern Ireland productivity enablers

	Current state	Suggested actions
Company characteristics	<ul style="list-style-type: none"> – The lowest performing region in terms of registered patents per population, but faring somewhat better on R&D expenditure, as between 2010 and 2014, the region has on average outperformed Yorkshire, Wales and the North East – Only 2% of all the FDI projects in the UK between fiscal year 2012/13 and 2016/17 were located in Northern Ireland. 	<ul style="list-style-type: none"> – Supporting an increase in R&D spending. Focus on maintaining world-class position in R&D in specialist and high growth sectors such as cyber security – Bolstering programmes to enhance managerial practices and leadership skills in order to deliver higher productivity.
Infrastructure	<ul style="list-style-type: none"> – The region fared the best on the measure of 4G network speed – In terms of transport infrastructure, the region is well connected to the Republic of Ireland, but not as well connected to the rest of the UK – Similarly to Wales, it is too small to make use of agglomeration effects – Northern Ireland's largest employers face some of the highest energy prices in Europe. 	<ul style="list-style-type: none"> – However, action is needed to ensure no digital divide between urban and rural areas across the region – Progress the City Deal model – Long term assurance on energy policy and funding to encourage investment in electricity infrastructure.
Skills and education	<ul style="list-style-type: none"> – Northern Ireland has a relatively low net dissatisfaction with the soft skills of lower-skilled workers, and pupils perform well in OECD educational tests – However, the percentage of those with no skills is twice the UK average – STEM related subjects are still under-supplied²⁰. 	<ul style="list-style-type: none"> – Favourable rankings in international tests, as well as relatively positive feedback from employers on the job readiness of school leavers and graduates, are currently fuelling high productivity potential – However, urgent new interventions are needed to deal with under-achievement - the proportion of school leavers who do not achieve at least five GCES's including English and Maths remains high at 34% – Funding mechanism to address skills shortages - incentivise undergraduates to study under-supplied subject areas – Attracting more high value-added industries, to counter the fact that Northern Ireland has the lowest share of highly-skilled workers in the UK – Attracting highly skilled graduates back to Northern Ireland.

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