# Solving the United Kingdom’s productivity puzzle in a digital age

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New research explains why the United Kingdom has been experiencing historically low productivity growth and what can be done to return to long-run averages.

**Declining labor-productivity growth** characterized many advanced economies after a boom in the 1960s, but since the mid-2000s that decline has accelerated. Against that backdrop, the United Kingdom stands out as one of the worst productivity performers among its peers. Its absolute level of productivity has persistently ranked toward the bottom of a sample of advanced economies. Moreover, in the aftermath of the crisis, the United Kingdom, along with the United States, recorded one of the lowest productivity-growth rates and steepest declines in productivity growth, falling by 90 percent. Between 2010 and 2015, UK productivity growth flatlined at 0.2 percent a year, far below its long-term average of 2.4 percent from 1970 to 2007.

Boosting productivity growth is important for all advanced economies as they navigate potential economic headwinds, such as an aging population and an ongoing shift to low-productivity services, but particularly for the United Kingdom, with an uncertain outlook for trade and investment after Brexit.

Sidebar

## Our methodology

Our analysis builds on recent productivity research at the McKinsey Global Institute (MGI), McKinsey & Company’s London and Dublin offices, and the McKinsey Center for Government. In 2017, MGI launched a research effort investigating the productivity-growth slowdown since the mid-2000s across major European countries, including the United Kingdom, and the United States. That research culminated in the publication of *Solving the productivity puzzle: The role of demand and the promise of digitization*. The report found that the waning of a productivity boom—fueled by information and communications technology, outsourcing, and restructuring that began in the 1990s—and financial-crisis aftereffects, including weak demand and uncertainty, dragged down productivity growth by 1.9 percentage points on average, from 2.4 percent to 0.5 percent, across the United States and Western Europe for the period of 2010 to 2014 compared to the period of 2000 to 2004. It concluded that as financial-crisis aftereffects continue to recede and more companies incorporate digital solutions, productivity growth has the potential to recover across countries. Further, it calculated that the productivity-growth potential from both digital and nondigital opportunities could be at least 2 percent per year over the next decade. However, realizing this opportunity would require a combination of supportive government policy and action by companies. In addition, recent research by McKinsey’s London and Dublin office has highlighted the importance of management skills, innovation

diffusion, and regional variations to understanding the productivity puzzle, while the McKinsey Center for Government has identified vast opportunities from unlocking productivity improvements in the public sector.

In this discussion paper, our sample of five advanced economies includes France, Germany, Spain, the United Kingdom, and the United States. We focus on explanations for and policy implications of the productivity-growth slowdown between 2000–2005 and 2010–15 by disaggregating productivity growth and by analyzing the reasons behind the patterns that emerge. We compare the turn of the century (2000–05)—a period before the start of the recent productivity-growth slowdown—with the postrecession years (2010–15), a somewhat stable period a decade later though encompassing the double-dip recession in Europe. While we are aware that choosing specific years involves a degree of arbitrariness, after assessing the pros and cons of multiple different periods, we concluded that concentrating on the period following the crisis allowed us to isolate different factors at the sector level across many different countries more easily. Unless otherwise stated, we rely on data from the 2017 release of EU KLEMS, a statistical and analytical project financed by the European Commission that focuses on productivity and growth, in order to draw out sector-level insights. Given the focus on productivity growth, we do not elaborate on the underlying reasons for the United Kingdom's low absolute level of productivity, but we draw attention to these factors where they are also relevant to the productivity-growth decline. As a result, the paper does not cover in detail, for example, issues of inequality, workforce diversity, infrastructure, supply chains, skills mismatches, management practices, regional productivity differences, innovation diffusion, or firm-level evidence (for example, the role of small and medium-size enterprises). Of course, some of the reasons for low productivity levels do point to potential actions for boosting future productivity growth, and we capture the most important of these in the recommendations section of the paper.

In a new paper, *Solving the United Kingdom's productivity puzzle in a digital age* (PDF–749KB), we identify key reasons for the United Kingdom's recent weak productivity performance by analyzing cross-country, regional, and sectoral patterns as well as other decompositions of aggregate statistics (see sidebar, "Our methodology").

We find that four phenomena—financial sector boom and bust, employment growth, investment decline, and uneven digitization—explain the UK's larger decline in labor-productivity growth. Across all the countries we analyzed, we identify the potential for at least 2 percent productivity growth a year over the next ten years. However, capturing that potential in the United Kingdom will take time and require policy makers and businesses to take decisive action in key areas. These include skill building for the existing and future workforce and managers; accelerating adoption of digital technologies through better information, access to finance, collaborations, and a favorable policy environment; and promoting additional investment and exports.

1. What happened to the United Kingdom's productivity growth after the crisis
2. Why the United Kingdom's productivity growth slowed so much
3. What can be done to promote productivity growth in the UK

1

## What happened to UK productivity growth after the crisis

The United Kingdom went into the financial crisis with low labor-productivity levels compared to peers, about 20 percent lower than for Germany and France and in line with Italy, and this remains the situation today. Indeed, during the crisis, the decline in productivity growth in the United Kingdom was more severe than in Europe (Exhibit 1). Between 2010 and 2014, UK productivity growth averaged –0.2 percent a year. Since 2014, the productivity picture has improved somewhat, and from 2014 to 2017 productivity growth averaged 0.9 percent a year. Despite this improvement, UK productivity growth remains below that of European peers such as France and Germany.

Exhibit 1
The United Kingdom's productivity-growth slowdown was broad-based across regions and sectors. Every single UK region saw a productivity-growth slowdown relative to the period before the crisis. This suggests that, even though productivity levels between regions and local areas in the United Kingdom are very different, the underlying reasons for the productivity slowdown were common across geographies. The decline was also broad-based across sectors, with 83 percent (24 of 29 sectors) experiencing a productivity-growth slowdown. While this was in line with the United States, the slowdown across sectors in the United Kingdom is broader-based compared to its European peers.

Although the slowdown was broad-based, finance and manufacturing had an outsize impact relative to their share of the economy in the United Kingdom as did a drop in total-factor productivity (TFP) growth. Despite making up less than 20 percent of UK value added and employment, the decline in productivity growth in these sectors combined accounted for nearly half of the productivity-growth slowdown. This reflects the fact that these two sectors were the largest contributors to a wave of particularly strong productivity growth pre-crisis and saw a particularly dramatic slowdown post-crisis. We also find that declining TFP growth, which reflects the efficiency that inputs including labor, capital, energy, materials, and purchased services are combined to produce output was a discernible drag that either did not occur at all in other countries or did not occur to the same extent.

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## Why UK productivity growth slowed so much

We find that four phenomena explain the UK's larger decline in labor-productivity growth: financial sector boom and bust, employment growth, investment decline, and uneven digitization.

## The boom–bust cycle in finance played a more significant role in the UK productivity-growth slowdown than in Europe or the United States

Annual financial-sector productivity growth slowed 6.1 percentage points in the United Kingdom in the post-crisis period compared with the pre-crisis period, more than double the slowdown in the US financial sector. Even in the United States, which also experienced a significant boom–bust cycle, the financial sector accounted for only about 10 percent of the productivity-growth slowdown, compared to 20 percent in the United Kingdom.

The outsize impact of finance in the case of the UK productivity-growth slowdown is partly due to the extent of the boom ahead of the financial crisis. In the period 2000 to 2005, productivity growth in the financial sector in the United Kingdom was on average 5.4 percent a year, compared with 2 percent in the economy as a whole. This boost was associated with accelerating value-added growth as loan and deposit volumes grew, helped by leverage.

Then came the crisis, and with it a significant demand shock to the UK financial sector. The result was a severe decline in productivity growth to an annual average of –0.7 percent a year in the 2010 to 2015 period. When loan and deposit volume growth fell, UK banks could not readily reduce hours worked to match that decline. High fixed costs in banking, such as IT infrastructure and branch networks, make it hard to reduce staff quickly in the face of declining loan and deposit volumes. For example, loan volume growth dropped from a rate of 12 percent pre-crisis to –1 percent post-crisis, but from 2010 to 2015, UK banks reduced hours worked by only 0.2 percent a year. In addition, banks needed to add staff in response to regulatory changes, particularly in areas involving risk and compliance.

The outsize role of finance in the UK productivity-growth slowdown also helps explain the large drop in the UK's TFP growth, a drop that was not common in peer countries. We calculate that the financial sector accounted for about one-third of the total decline in TFP growth, manufacturing a quarter, and the information and communications sector another quarter.

## As demand recovered, growth in hiring was far ahead of European peers and exceeded pre-crisis rates, pointing to an employment puzzle

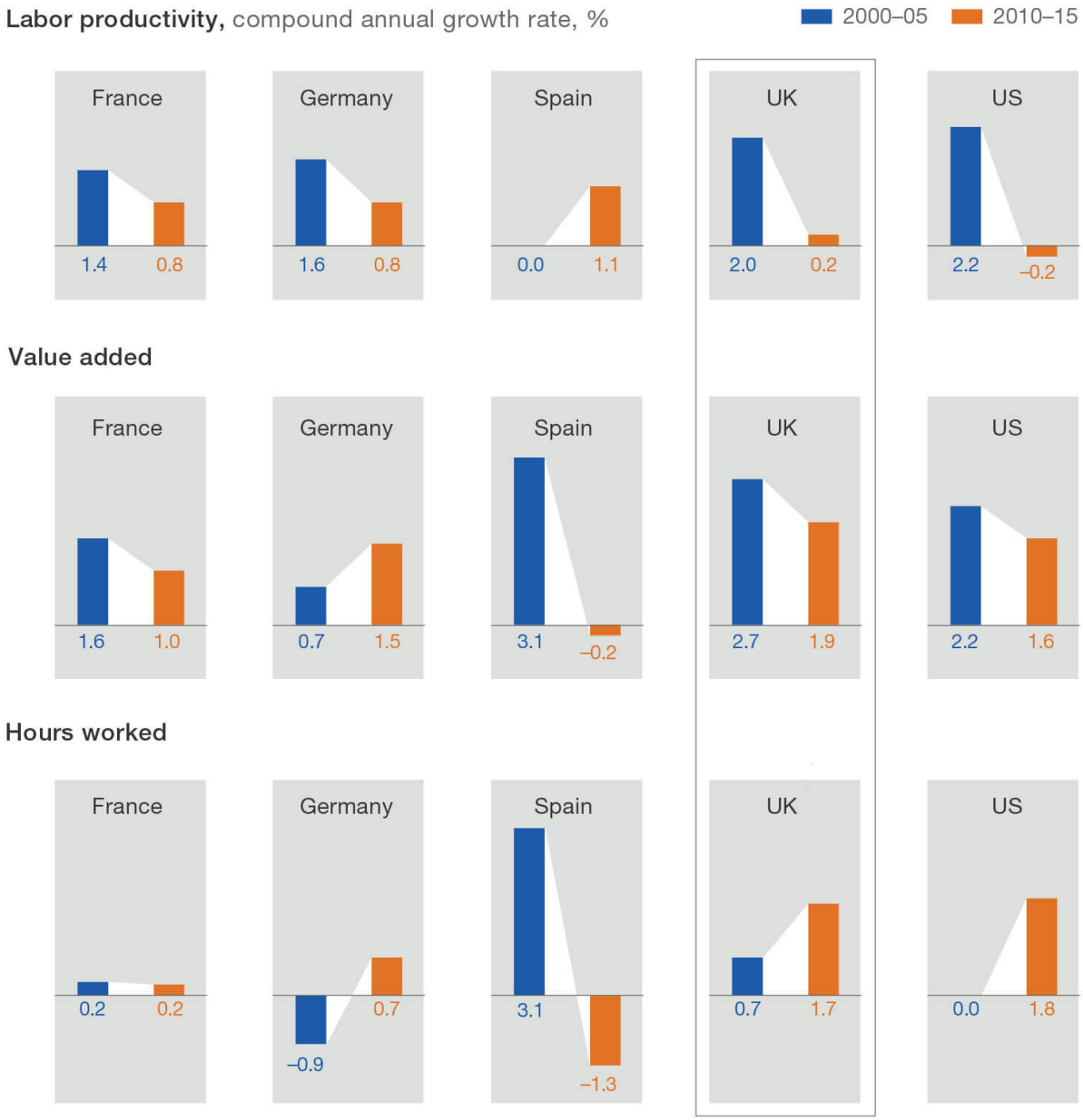
UK firms hired labor nearly as fast as output grew across regions and sectors, rather than investing in capital or improving efficiency. This focus on employment over investment acted as a broad-based drag on productivity growth. Why did UK firms add hours at such a high rate while demand growth recovered only moderately? We believe explaining this "employment puzzle" is key to understanding the UK productivity-growth slowdown.

The increase in hours worked growth reflected not merely a rebound from the financial crisis but additional hiring, especially among the young and old. Today the UK employment rate stands at a 50-year high. Hours-worked growth in the period after the financial crisis was about three times the average rate of our sample of advanced economies (Exhibit 2). Both labor supply and demand factors contributed to this employment puzzle. An expansion in labor supply, with more people willing to work for lower wages, may have been influenced by policy initiatives such as new apprenticeships, an increase in the state pension age, and rising university tuition fees. In an environment of increased employment

and flexibility of the labor market, wage growth was also slow. This in turn encouraged companies to hire labor instead of investing in capital—especially in the post-crisis environment of uncertainty.

Exhibit 2

Recent flat productivity growth in the United Kingdom is associated with falling value-added growth and exceptionally strong hours-worked growth.




McKinsey&Company | **Source:** EU KLEMS (2017 release); McKinsey Global Institute analysis

## UK investment was low relative to peers ahead of the crisis and declined further after, particularly in equipment and structures

After the crisis, as companies met growth in demand through increased hiring, investment fell due to a combination of low demand, overcapacity, and uncertainty, creating a job-rich but investment-weak recovery. Capital-services-per-hour growth in the United Kingdom fell

even further as the growth in hours worked diluted the available capital base per hour worked. Gross fixed-capital formation in the United Kingdom was low relative to other countries going into the financial crisis and fell further in the aftermath.

Breaking down investment into components, we find that investment as a share of gross value added fell in equipment and structures while investment increased in intangibles such as software and R&D. Equipment investment is one of the key drivers of the overall low levels of investment in the United Kingdom compared with other countries, both pre- and post-crisis. This is particularly relevant because of equipment's role in automation. Indeed, weak equipment investment played a key role in declining productivity growth in manufacturing. We find that the manufacturing sector accounted for about half of the decline in equipment investment between the pre- and post-crisis periods.

## The UK is digitizing, but there are significant gaps in adoption and the benefits are not yet materializing at scale

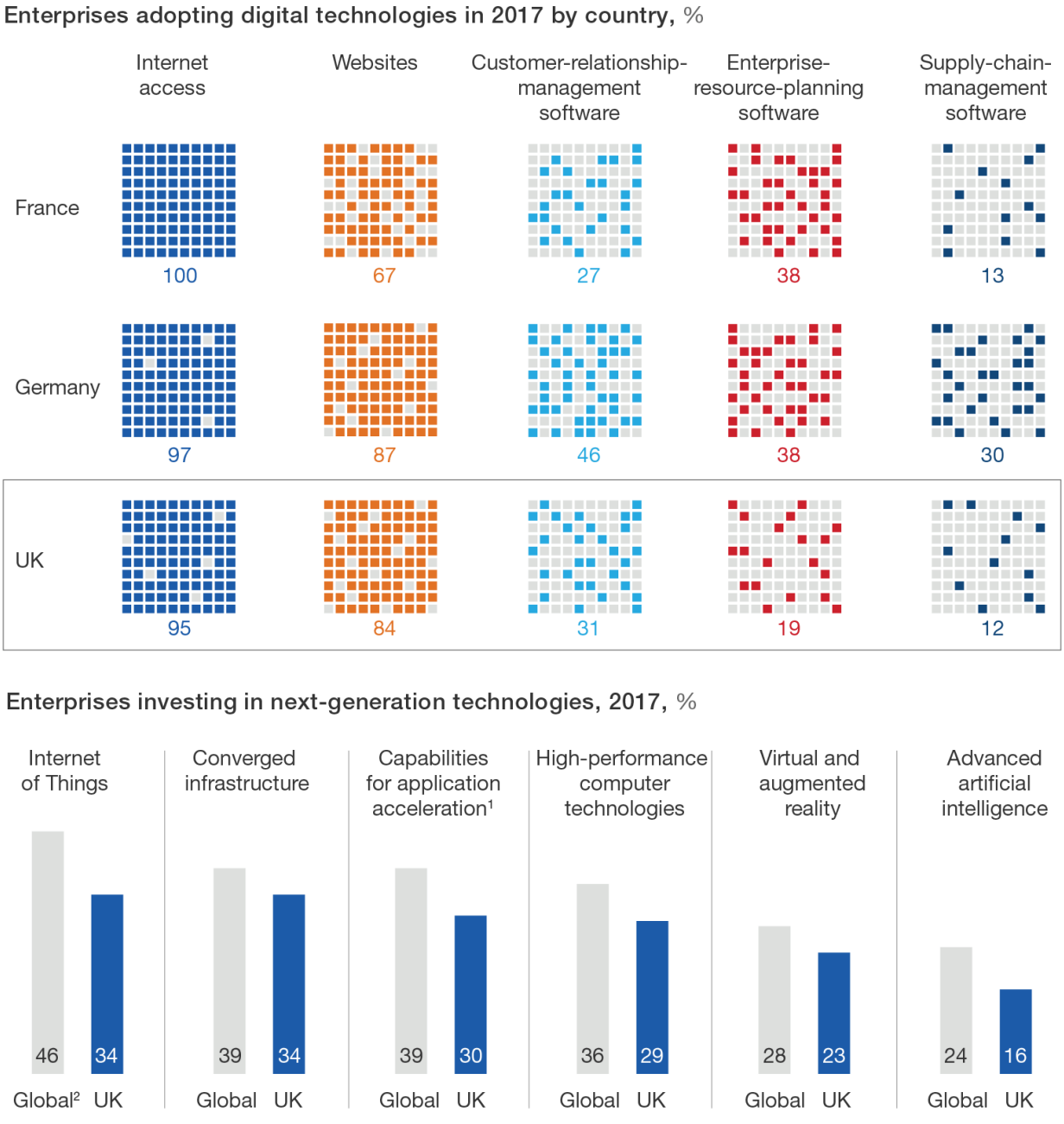
Digitization is underway in the United Kingdom, which ranks among the top digitizing nations. According to MGI's digital ranking, the United Kingdom is operating at 17 percent of its digitization potential, compared to 18 percent for the United States and 12 percent on average for Europe. In surveys of UK firms, we find that the majority, 52 percent, believe that digitization will have a "moderate" to "very positive" impact on their business.

Despite this optimism, the benefits of digitization are not yet evident in UK productivity numbers. In part, this is because digitization takes time and is not yet at scale. In retail, for example, we find online sales are twice as productive as offline but currently make up only 14 percent of total sales in the United Kingdom. That outstrips peer countries, but significant potential exists to scale up online sales further. For example, when we spoke with an executive at a leading UK retailer, they noted that realizing the full productivity benefits of online retail requires retailers to transform their supply chain end-to-end, not just on the front end.

When we look beyond the United Kingdom's relatively strong headline performance on digitization metrics, we find the country has been particularly good at digitizing some parts of the value chain, but there are gaps in the digitization of some core business processes, such as customer-relationship management and supply-chain management, and in investment in next-generation technologies like the Internet of Things and advanced artificial intelligence (Exhibit 3). The United Kingdom also lags in robotics adoption. These aspects of digitization may be the most important ones to jump-start productivity, as they involve redesigning and transforming processes or entire businesses and are likely to result in significant labor savings for a given amount of output.

Exhibit 3

The United Kingdom has gaps in value-chain integration of digital technologies and lags behind in terms of investment in some next-generation technologies.




[1]Such as database, virtual desktop infrastructure, etc.
[2]Includes Australia, Brazil, China, France, Germany, India, Italy, Japan, Mexico, Netherlands, New Zealand, Saudi Arabia, Singapore, South Africa, United Arab Emirates, United Kingdom, and United States.

**Source:** UK Digital Strategy 2017, Department for Digital, Culture, Media and Sports, March 2017; Eurostat; *Realizing 2030: A divided vision of the future*, Dell, 2018; "UK lags behind Europe in technology investment," *Digitalisation World*, March 2018; McKinsey Global Institute analysis

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The challenge of adoption may be even harder this time around because of the broad range of uses of digital that not only help improve current processes but fundamentally transform business models and operations. "Lack of skills" is an important barrier to business investment in technology in the United Kingdom, while according to McKinsey Global Surveys, "lack of management and/or technical capability to execute investments" is a key reason that UK companies do not invest in all attractive opportunities. Our surveys

also show fear of technological obsolescence as a key barrier.

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## What can be done to promote productivity growth in the UK

Productivity in the years to come will be more important for the United Kingdom's future economic growth and living standards than ever before. Labor supply is unlikely to expand indefinitely, and demographic shifts, specifically an aging population, mean that about 90 percent of future growth will need to come from productivity to keep pace with historical GDP growth rates. Moreover, uncertainty and transition costs due to Brexit and other geopolitical developments may dampen growth prospects. However, based on our analysis of the causes of the productivity-growth slowdown, the United Kingdom has an opportunity to boost productivity growth through a focus on education and skills (to make the most of the high workforce participation in the United Kingdom), further accelerating the adoption of digital technologies (to capture their full potential), and supporting investment and exports to build broad-based resilience for the future (to mitigate against boom/bust cycles and uncertainty).

First and foremost, the United Kingdom needs to put in place an education-and-skills system—for managers, the existing workforce, and young people still in education—that meets the needs of a fast-changing digital economy. Given the unprecedented increase in employment, management skills are more important than ever for productivity. Poor management practices also make it less likely that a firm will invest in and adopt information and communications technology and digital technology effectively. When it comes to existing staff, roughly 80 percent of the United Kingdom's 2030 employees are already in the workforce today, and around 30 percent of them may need to switch occupational categories in order to remain employed by 2030. This points to the central importance of retraining and skill-building programs for existing workers. And those yet to enter the labor market will need both basic skills, an area where the United Kingdom remains behind comparable countries, and the skills to work alongside machines.

Secondly, closing adoption gaps in digital and next-generation technologies could boost productivity growth significantly. However, this will require better, trusted information provision, given that a lack of awareness of new technologies has been identified as a key barrier to adoption. Similarly, access to finance for innovation adoption may need reform: there is evidence, for example, that even in the United States, banks are more reluctant to lend money to support investment in intangible capital, including the adoption of technology. Collaborations between academia, IT companies, disruptive start-ups and scale-ups, and existing businesses can also help codevelop and implement digital solutions to problems faced by companies.

Lastly, policy makers can mitigate boom-and-bust cycles as well as uncertainty from Brexit and broader geopolitical developments by actively promoting broad-based investment and exports. For example, research has found that between 10 and 15 percent of UK firms are

latent exporters: they share the characteristics of exporting companies but are not currently exporting. Identifying and actively supporting these firms to start exporting could further boost the country's productivity growth and economic resilience.

To be sure, designing policies in these areas is challenging, and successful productivity-boosting initiatives require careful thought, research, experimentation—and persistent execution. For example, it is well understood that enhancing employees' skills is critical for driving productivity growth and maintaining high levels of employment in an era of rapid technological change. Yet what is less clear is the most effective way to achieve that. What kind of education system better equips young people for the workplace of the future? When retraining workers, are government or private-sector programs more effective? How can reskilling and upskilling be delivered affordably and at scale? How can firms overcome change resistance and inertia in adopting new practices and technologies? While detailed answers to these questions are beyond the scope of this discussion paper, we provide examples of policies that have worked in the United Kingdom and other countries as well as steps companies have taken that merit further consideration in the quest to accelerate UK productivity growth (Exhibit 4).

Exhibit 4

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The United Kingdom's poor productivity performance since the financial crisis has raised alarm, particularly at a time of heightened uncertainty and changing demographics. However, we find that advanced economies like the United Kingdom have the potential for at least 2 percent productivity growth a year over the next ten years if policy makers and companies provide supportive action. In particular, we believe that a focus on improving workforce skills, accelerating digital adoption, and promoting investment and exports is key and, indeed, in some areas, relevant initiatives are already underway. A united and sustained commitment by business and policy makers to accelerate productivity growth is necessary to boost the odds of the United Kingdom realizing its full productivity potential.

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