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The Economic Case for Reimagining the State

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Contents

Our Future of Britain initiative sets out a policy agenda for governing in the age of AI. This series focuses on how to deliver radical-yet-practical solutions for this new era of invention and innovation – concrete plans to reimagine the state for the 21st century, with technology as the driving force.

01

Executive Summary

At first glance, the state of the public finances might make this moment seem like the most limiting in living memory to be forming a new government. Yet if you consider the opportunities now presented by technology, it might actually be the most exciting and expansive.

There is no doubt that the new government has received a difficult inheritance. This is not 1997. Growth is weak, taxes are at their highest level since 1950, government debt has all but tripled since 2007, public spending remains near crisis levels and public services are crumbling. Moreover, these challenges look set to grow. The new government will need to grapple with how to avoid a return to austerity planned by the previous government as well as several unfavourable structural headwinds – particularly the United Kingdom's ageing and unhealthy population – that will add further fiscal pressure in the years ahead.

Tax rises were already factored into the outgoing government's post-election plans but, as things stand, yet further rises could become unavoidable. Without a change in approach, taxes would need to rise by about 2 per cent of GDP by the end of this Parliament, 3 per cent by the end of the next

Parliament and 4.5 per cent by 2040 just to stabilise debt. These rises would increase the tax burden to a record high only to maintain public services as they are today, not to improve them. Asking the public to pay significantly more tax for limited improvements in public services is an unpalatable choice for any government.

Boosting growth is the no-regrets option to get the UK out of this quagmire and is rightly the focus of the new government. Growth has averaged just 1 per cent a year since the global financial crisis, well below its pre-crisis rate of 2.6 per cent. The Office for Budget Responsibility (OBR) optimistically assumes that growth will average just under 2 per cent a year between now and 2040. This forecast is significant because it underpins the outlook for the public finances. If instead the economy was to grow in line with what other external forecasters are predicting (1.5 per cent a year), the outlook for the public finances would look even worse. The new government will therefore have to enact significant reforms just to deliver the OBR's forecast.

One positive from the UK's woeful economic record over the past 15 years is that there is now significant scope for conventional policies to boost growth and for the UK to catch up with its peers. Among a wide range of policies, reforming the UK's antiquated planning system is a high priority that could unlock much needed infrastructure investment and help un-gum the UK's housing market. Normalising relations with the EU could also help at the margin. None of these policies will be easy to enact, but they should be pursued with vigour as they could add up to 0.5 percentage points of growth per year over the next decade and help return growth to 2 per cent.

But such is the scale of the economic challenges facing the UK that it needs another engine of growth to overcome them. The new government therefore needs to tap into the only structural tailwind that is pushing in a positive direction: technological progress. Here there are grounds for optimism. We are at the dawn of a new artificial-intelligence era of technology that is already producing large financial and productivity gains among businesses at the frontier of adoption. If these gains scale up to the wider economy, they could boost UK growth by up to 1.5 percentage points per year for a decade, according to the International Monetary Fund (IMF).

It is highly uncertain when these gains will materialise in the UK's growth statistics, but prominent economic forecasters have started to pencil in gains within this Parliament, from 2027 onwards. Higher AI-enabled growth would

make the new government's job significantly easier, raising tax revenues and creating the space for governments to choose how to spend them. Under a plausible albeit rapid AI-uptake scenario, AI-enabled growth could generate sufficient tax revenues (up to £40 billion per year within a decade and £100 billion by 2040) to offset all the extra fiscal pressure facing the UK up to 2040.

The UK is well-placed to take advantage of the coming technological wave as it probably ranks third – after the US and China – in the global AI race. However, the economic gains from AI will not occur automatically. The new government will need to lean in to support the diffusion of AI-era tech across the economy by adopting a pro-innovation, pro-technology stance, as advocated by the Tony Blair Institute for Global Change in our paper *Accelerating the Future: Industrial Strategy in the Era of AI*.

AI-era tech can also transform public services, creating a smaller, lower-cost state that delivers better outcomes for citizens. New TBI analysis suggests:

- Adoption of AI across the public-sector workforce could save around one-fifth of workforce time at a comparatively low cost. If the government chooses to bank these time savings and reduce the size of the workforce, this could result in annual net savings of £10 billion per year by the end of this Parliament and £34 billion per year by the end of the next – enough to pay for the entire defence budget.
- AI-era tech also offers significant potential to improve the UK's health services. We envisage a major expansion of the country's preventative-health-care system, including: a digital health record for every citizen; improved access to health checks online, at home and on the high street; and a wider rollout of preventative treatments across the population. This programme could lead to the triple benefit of a healthier population, a healthier economy (with more people in work) and healthier public finances (since more workers mean more tax revenues). Even a narrow version of this programme – focused only on cardiovascular disease – could lead to 70,000 more people in work and generate net savings to the Exchequer worth £600 million by the end of this parliamentary term, and £1.2 billion by the end of the next. Much larger gains are possible – worth £6 billion per year by 2040 – if medical treatments continue to advance and the programme expands to cover a wider range of conditions, including obesity and cancer.
- Introducing a digital ID could significantly improve the way that citizens

interact with government, in terms of saving them time, easing access and creating a more personalised service. A digital ID could also generate a net gain of about £2 billion per year for the Exchequer by helping to reduce benefit fraud, improve the efficiency of tax-revenue collection and better target welfare payments in a crisis. Based on international experience, we think it is achievable for the government to implement a digital ID within three years and generate cumulative net savings of almost £4 billion during this Parliament, and nearly £10 billion during the next term.

- AI could also lead to a 6 per cent boost in educational attainment by helping to improve the quality of teaching, save teacher time and improve the ability of students to absorb lesson content. These gains would take time to materialise but could eventually raise UK GDP by up to 6 per cent in the long run and create more than £30 billion in fiscal space per year.

The four public-sector use cases outlined above could create substantial fiscal savings for the new government worth £12 billion a year (0.4 per cent of GDP) by the end of this parliamentary term, £37 billion (1.3 per cent of GDP) by the end of the next, and more than £40 billion (1.5 per cent of GDP) by 2040. Equally important, adopting AI-era tech would boost long-term growth by creating a healthier and better-educated workforce, and lead to higher-quality public services and better outcomes for the public. The above figures are based on an assessment of AI's capability today – but technology is advancing exponentially. That means even larger gains are possible in the future.

AI-era technology is the only solution that can lift the UK out of its current crisis, create new possibilities and help reimagine the state for the 21st century. But to make this a reality, the government needs to change the way it operates. It needs to:

- Drive adoption of AI-era technology across the public sector by creating a new "Mission Control" at the heart of government, focused on identifying ways to harness technology to improve public-sector productivity. This should be complemented by the creation of new chief productivity officer roles in all major government departments, and a new technology and forecasting unit within the Treasury to explore how the macroeconomic gains from AI technology could evolve to ensure investment is well targeted.
- Change the incentives in the public sector to invest in long-term

transformational technological change. This will require amending the new government's fiscal rules – particularly the arbitrary debt target that threatens to constrain much-needed investment spending. It will also involve adjusting the OBR's remit by requiring it to: extend its forecast horizon from five to ten years; produce an holistic scorecard assessment of the public finances in regular reports; and to offer a risk-based assessment of the potential gains from long-term investments. Finally, the government should incentivise ministers and civil servants to take a more venture-capitalist approach to investing in new technologies. This includes changing the way that the National Audit Office reviews public investment decisions to assess risk-based outcomes across a portfolio of investments, rather than viewing individual projects in isolation.

Two qualifications are needed to the above analysis. First, the precise figures reported here depend on assumptions that are open to interpretation. The forward-looking nature of the analysis means that there is an element of speculation to it, and a range of different outcomes is possible depending on the pace of technological advancement and how policy reacts. In this paper and the four that support it, we have endeavoured to be transparent with our assumptions so that readers can interrogate and build on the findings.

Second, there are consequences to the reforms outlined above – such as reducing the public-sector workforce or reorganising health care – that may be viewed negatively. But while there may be uncertainty about the precise timing or scale of impact, what is clear is that humanity is on the brink of a technological revolution that promises to reshape the world. The challenge for the new government is to understand both the coming change and the risks and opportunities associated with it, so that the UK can harness its potential to boost growth, improve the public finances and deliver better outcomes for all.

02

The Economic Challenges Facing the New Government

LOW GROWTH

Britain has had a tough few years. Like many countries around the world, it was hit hard by the triple shock of the global financial crisis, the pandemic and the war in Ukraine. However, it added to its troubles by creating its own home-grown shock in the form of Brexit. As a result, growth has averaged just 1 per cent per year since the global financial crisis – less than half of its pre-crisis trend of 2.6 per cent.[1] Moreover, productivity growth – the chief driver of living standards – has slowed even more than headline GDP growth. It has grown by just 0.3 per cent per year since 2007, or a full 2 percentage points slower than its pre-crisis trend of 2.3 per cent (labour productivity is defined as output per hour, calculated by dividing GDP by the total number of hours worked; see links in footnotes).[2, 3] Growth has slowed in most advanced economies over this period, but the UK's slowdown has been particularly marked.

FIGURE 1

Growth has been low since 2007 and is set to remain below 2 per cent, even when based on the OBR's optimistic forecast
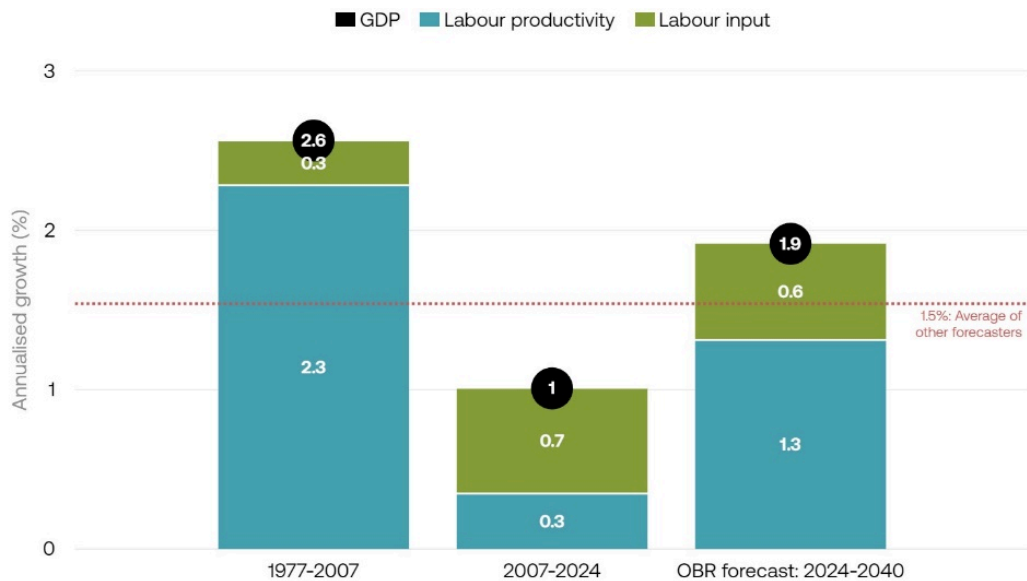
Source: OBR, ONS, the Treasury, IMF and TBI calculations

Looking ahead, the Office for Budget Responsibility (OBR) optimistically expects growth to rebound from this Parliament onwards and average 1.9 per cent a year between now and 2040.[4] If this growth were to materialise it would represent a boon for the new government as it would put the UK on a par with recent productivity growth in the United States, the productivity leader.[5] However, the OBR's forecast rests on a critical assumption that productivity growth will rise by 1.3 per cent a year, which is halfway between its pre- and post-crisis trend and has proved to be overly optimistic to date. The OBR's medium-term growth forecast is also about 0.4 percentage points faster per year than that of other independent forecasters[6] and the International Monetary Fund (IMF),[7] so the new government will likely have to enact significant growth reforms just to achieve it.

CHRONIC FISCAL PROBLEMS

The new government has also inherited a long list of fiscal problems that have been compounded by the UK's low-growth economy.

High Taxes

Last year tax receipts exceeded 36 per cent of GDP for the first time since 1950, while government revenues rose above 40 per cent of GDP to reach a 40-year high.[8] Even these elevated figures were insufficient to cover all the government's spending commitments, so the government had to borrow an additional 4.5 per cent of GDP to balance its books.[9]

FIGURE 2

# The tax burden is at its highest level since 1950
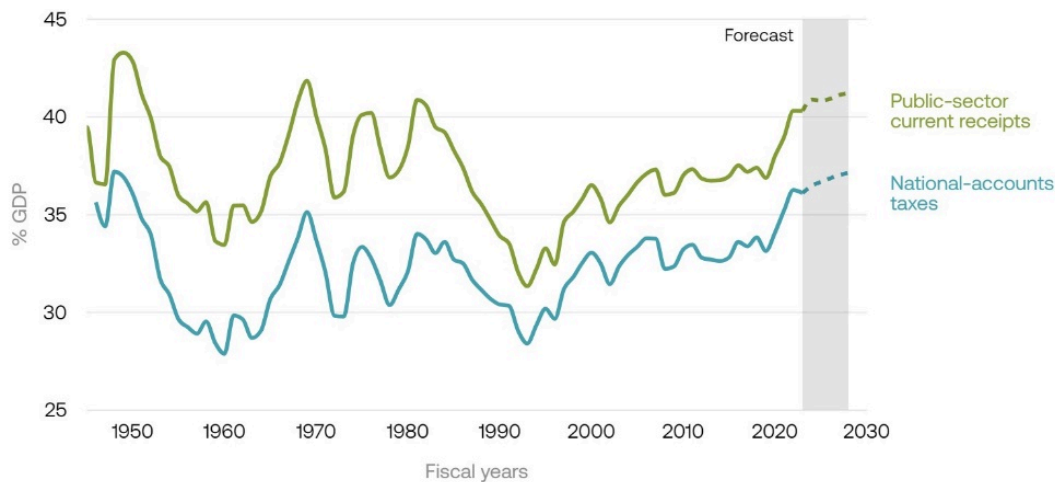
Source: OBR

Government debt has almost tripled since 2007; bailing out the country from the global financial crisis, the pandemic and the effects of the war in Ukraine has been very costly. But the situation has been made worse by the UK's lack of productivity growth, which has meant the economy has struggled to bounce back from each shock and so debt has ratcheted ever higher. Government debt is now close to 90 per cent of GDP – its highest level in 60 years – and far above the "normal" 20 to 40 per cent range that characterised the decades before the financial crisis.[10]

FIGURE 3

# Government debt is at its highest level in 60 years
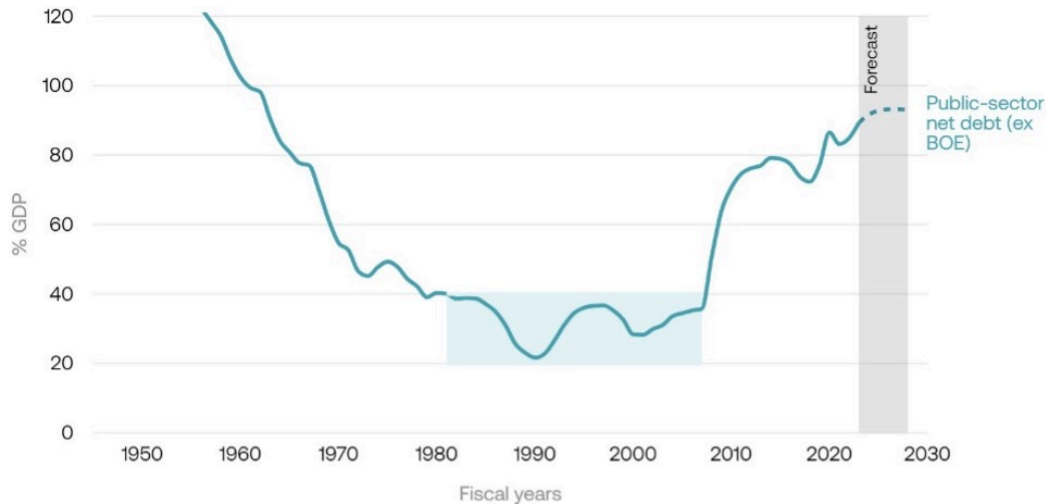
Source: OBR

High Spending

In previous decades, the UK benefitted from two structural tailwinds that kept public spending contained: a "peace dividend" that saw defence spending fall from almost 10 per cent of GDP in the early 1950s to 2 per cent in the mid-2000s; and a long-term decline in interest rates that meant UK debt interest payments fell from almost 4 per cent of GDP in the early 1980s to 2 per cent by the mid-2010s, despite a rising stock of debt.[11] Both these trends have now gone into reverse. This has exposed the underlying pressures facing the UK – particularly from health spending, which has more than doubled as a share of GDP over the past 50 years. Higher health spending relates to the UK's ageing population, public demands for more advanced forms of treatment and rising incidences of ill health. In the three months to April 2024 there were a record 2.83 million[12] people out of work because of long-term sickness. As a result of these trends and the surge in crisis-related spending, the UK has ended up with a big state by default. Last year government spending accounted for almost 45 per cent of GDP – close to the historic peaks recorded in previous crises.

FIGURE 4

Public spending remains near crisis levels
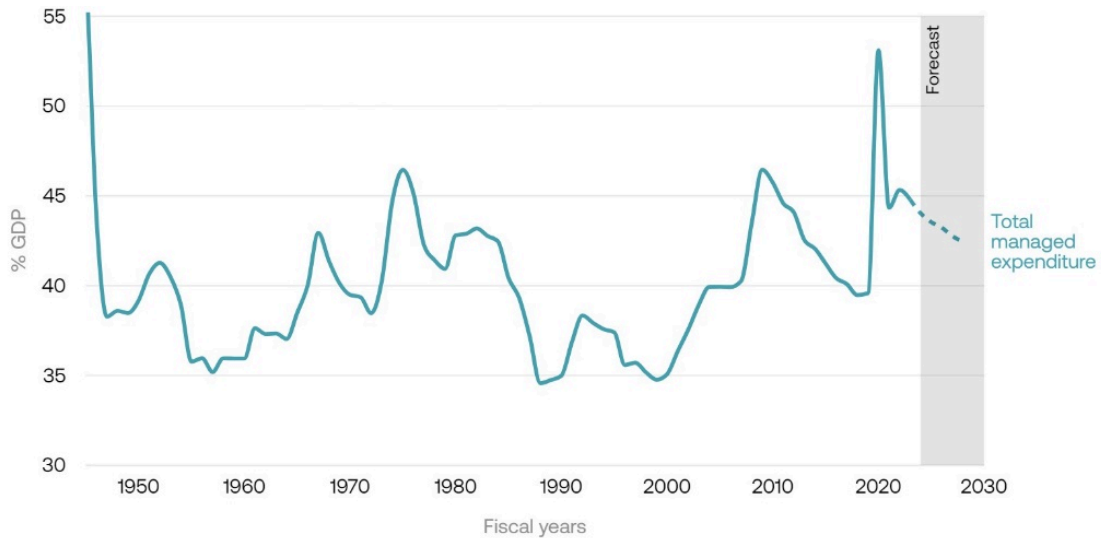
Source: OBR

Poor Public-Service Outcomes

Despite record levels of spending, public services are crumbling.

- **Health:** In April 2024, the National Health Service (NHS) waiting list stood at 7.6 million[13] – only slightly lower than the 7.8 million record reached in September 2023.[14] A mere 24 per cent of the public are currently satisfied with the way the NHS is run, which is the lowest approval rating since records began in 1983.[15]
- **Crime:** The backlog in the Crown Court reached its highest-ever level at the end of 2023 with a record 67,573 outstanding cases,[16] up 78 per cent since 2019. On average it now takes almost two years from offence to case completion in the Crown Court. UK prisons are also close to overflowing, with more than 87,000 people imprisoned[17] compared with an operational capacity of 89,000.
- **Education:** 234 schools in England[18] (about 1 per cent of the total) have confirmed cases of Reinforced Autoclaved Aerated Concrete (RAAC) that are at risk of structural failure. More than half require rebuilding programmes, with capital spending across the estate currently running at

about half of the 2010 figure[19] and many other projects long overdue. Meanwhile, about 40 per cent of universities[20] are expected to make a financial loss this year and some risk going under without government support.

- **Local Councils:** Two-thirds of councils[21] have warned that communities face cutbacks to local neighbourhood services this year – such as waste collection, road repairs, libraries and leisure services – as they struggle to plug a £6 billion[22] funding gap.
- **Inequality:** In 2022, 7.3 million people[23] in the UK were living in a state of food insecurity (up from 5.2 million in 2019), while in 2023 the UK's food banks distributed a record 3.1 million emergency food parcels[24] – a 94 per cent increase in just five years.[25]

Further Challenges Ahead

As difficult as the current situation is, the new government also faces a fiscal hangover from the previous government and several structural headwinds that will add further pressure in the future. These challenges are best seen through the prism of the tax burden: how much would taxes need to rise relative to GDP to stabilise debt?

- **A 0.9 percentage point rise in the tax-to-GDP ratio was already planned.**[26] The previous government's fiscal plans had already assumed that taxes would rise further after the election to meet their fiscal rule and ensure that debt was falling as a share of GDP in five years' time. These tax rises mainly reflect a policy choice to continue to freeze personal tax thresholds until April 2028, continuing the biggest stealth tax rise in history.
- **An extra 1 percentage point during this Parliament to avoid near-term austerity.** The previous government also assumed austerity-level cuts to some public services to stop debt rising even further. Given the state of public services, these cuts are widely seen as unrealistic. The IMF[27] has warned that the tax burden would need to rise by an additional 1 per cent of GDP during this parliamentary term (on top of the previous government's projections) to address these spending shortfalls.
- **A further 0.6 percentage point by 2040 to address the loss of emissions-related tax revenues due to the net-zero transition.** Fuel duty and other emissions-related taxes (air-passenger duty, landfill and plastic taxes, for example) are expected to fall as a source of tax revenues as the UK transitions to net zero, particularly as electric vehicles replace petrol and

diesel cars. Emissions-related taxes are expected to raise about 1.2 per cent of GDP on average during this parliamentary term, but are predicted to fall to 1 per cent of GDP by the end of the next Parliament in 2034, and halve to 0.6 per cent of GDP by 2040 (based on the OBR's long-term forecasts).[28] Other taxes would need to rise by an equivalent amount to offset this decline in revenues.

- **A further 2 percentage points by 2040 to cover extra health- and age-related spending.** The OBR's long-term forecasts already assume that spending on health care, social care, pensions and other pensioner benefits will rise in the coming years for two reasons.[29] First, demographics: the UK's ageing population means that more people will be drawing on their state pension and accessing the NHS, which will increase demand for and the cost of each service. Second: the costs of health care and pensions are expected to rise in real terms on a per person basis, as demand for more sophisticated and expensive health treatments goes up and the value of the state pension rises due to the "triple lock". Together, these changes imply government spending will need to rise by about 1 per cent of GDP between 2029 and 2034 and 2 per cent cumulatively by 2040. The tax burden would need to rise by the same amount to prevent debt from rising.

Many of these challenges are not unique to the UK but without a change in approach, taxes will need to rise by 1.9 percentage points of GDP by the end of this Parliament, 3 percentage points cumulatively by the end of the next Parliament and 4.5 percentage points cumulatively by 2040.

FIGURE 5

Higher taxes are already baked into current plans and further rises could become unavoidable
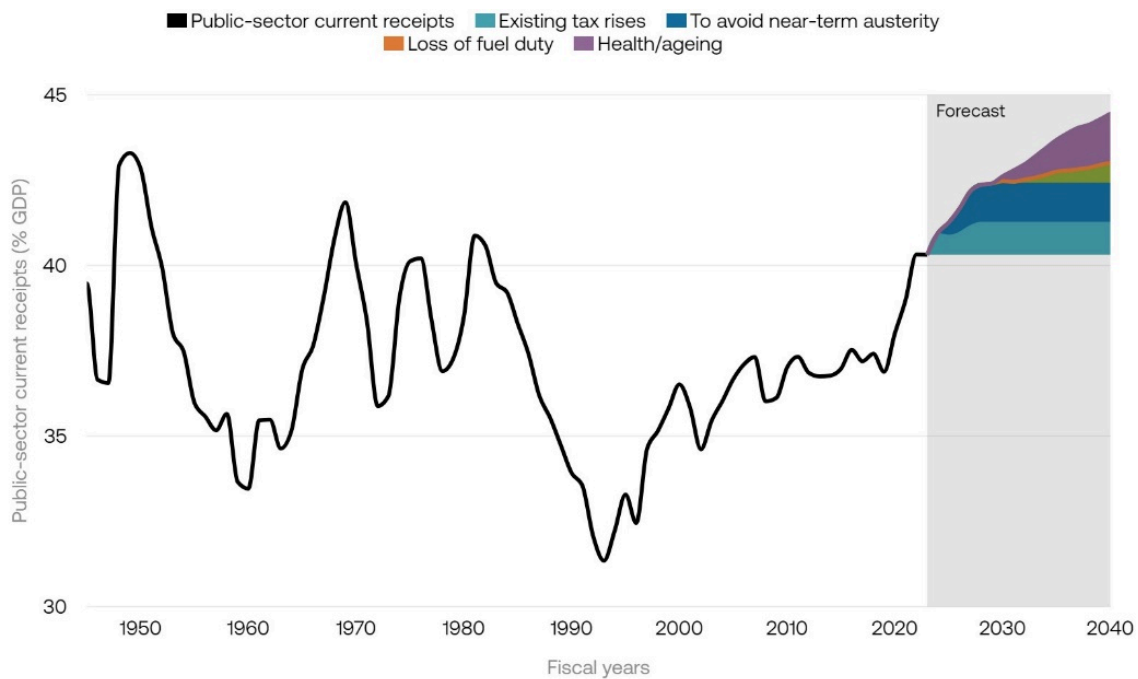
Source: OBR, ONS and TBI calculations

These rises would increase the tax burden to more than 40 per cent of GDP by 2040 and public-sector receipts to almost 45 per cent of GDP – both record highs.[30] As context, income tax currently raises 10 per cent of GDP, so if income tax shouldered all this additional revenue burden, the basic rate of income tax would need to rise from 20 per cent of income to 29 per cent by 2040.

This substantial rise in taxation would be required just to maintain public services as they are today, not to improve them. Across Europe, nine countries[31] have tax-to-GDP ratios above 40 per cent, including many Scandinavian countries, but in most cases higher taxes are linked to higher levels of public-service provision. Asking the public to pay significantly more tax for limited improvements in public services is an unpalatable choice for any government.

The Importance of Reigniting Growth

The new government is rightly focusing on economic growth as the force to get the UK out of its quagmire. Growth makes everything easier: it improves living standards, improves the public finances, creates the space to invest in better public services and avoids the need for future tax rises.

One silver lining from the UK's dismal recent growth record is that there is more potential for the country to grow by catching up with other advanced economies. In 2007, the average UK worker produced about 90 per cent of the economic value of their US counterparts per hour; that value has since fallen to 82 per cent.[32]

If the government was to release some of the handbrakes holding back the economy, the UK could plausibly return to its 2007 position relative to the US. This "catch-up" growth could add up to 10 per cent to GDP and could come from a range of sources, including several that TBI has previously advocated for:

- **Infrastructure planning reform:** The UK's infrastructure planning system is a major barrier to growth, but there is plenty that the new government can do to break down this barrier (see *Building the Future of Britain: A New Model for National-Infrastructure Planning*). Recent analysis from the National Infrastructure Commission suggests that if the UK was to improve its infrastructure governance to match best-in-class performers such as the Netherlands, GDP could be 0.3 to 1 per cent higher within a decade.[33]
- **Housing reform:** Planning restrictions have led to major housing shortages in the UK, particularly in the most productive cities. They have stifled labour mobility and weakened agglomeration effects, holding back growth. There are no UK-specific studies to quantify the scale of this loss, but research by Hsieh & Moretti found that GDP would have been 3.7 per cent higher in the United States if restrictions to housing supply in its major cities had been relaxed.[34] Planning reform alone will not be enough to bring forth a new wave of housebuilding. Lack of homebuilding capacity is another major constraint that will require government attention: the number of construction workers in the UK is at its lowest level since 2001 and is down almost one-fifth from its 2008 peak.[35] But these constraints could also be overcome in time and if the figures from the US map even roughly to the UK, the gains from unlocking housing reform could be substantial, boosting

GDP by 3 to 4 per cent over the course of a decade.

- **Normalisation of relations with the EU:** Goldman Sachs estimates that the UK economy is 5 per cent smaller than it would have been in the absence of Brexit,[36] while the OBR assumes a 4 per cent effect.[37] A full reversal of these losses may be politically unattainable during this Parliament, but there is a path to a better post-Brexit relationship in the coming years that could reverse a small amount of the damage (see *Moving Forward: The Path to a Better Post-Brexit Relationship Between the UK and the EU*).

None of these reforms will be easy to enact. Each will take political courage and endeavour and even then, some of the gains (including a full reversal of Brexit) seem unlikely to materialise in the short term. We think it is plausible that these effects could collectively boost growth by up to 0.5 percentage points a year over the coming decade. This would represent a material improvement in the UK's growth prospects, but even these substantive gains would likely only help lift them from what most external forecasters expect (1.5 per cent growth) to the OBR's upbeat growth forecast. Put another way, these reforms could help return growth to about 2 per cent a year but would unlikely be enough to offset the additional pressures facing the UK. The UK therefore cannot solely rely on conventional policy or improving the efficiency of the economy to boost its long-term growth prospects – it needs another engine of growth.

Conventional policies could boost growth by up to 0.5 percentage points a year, helping to deliver the OBR's forecast and return growth to 2 per cent

	Infrastructure planning reform	Housing-market planning reform	Full reversal of Brexit	Total potential gains	Realistic gains
Cumulative boost to GDP over a decade	0.3-1%	3-4%	4-5%	Up to 10%	**Up to 5%**
Average boost to annual growth	0.03-0.1pp	0.3-0.4pp	0.4-0.5pp	Up to 1pp	**Up to 0.5pp**
Likelihood	Possible	Possible	Minimal		

Source: OBR, ONS and TBI calculations

03 AI-Era Technology: A Gamechanger to Unlock Economic Growth

Twentieth-century government is not working in the 21st century. We need a new approach built around the one factor that can kickstart productivity growth, raise living standards and improve the public finances: technological progress.
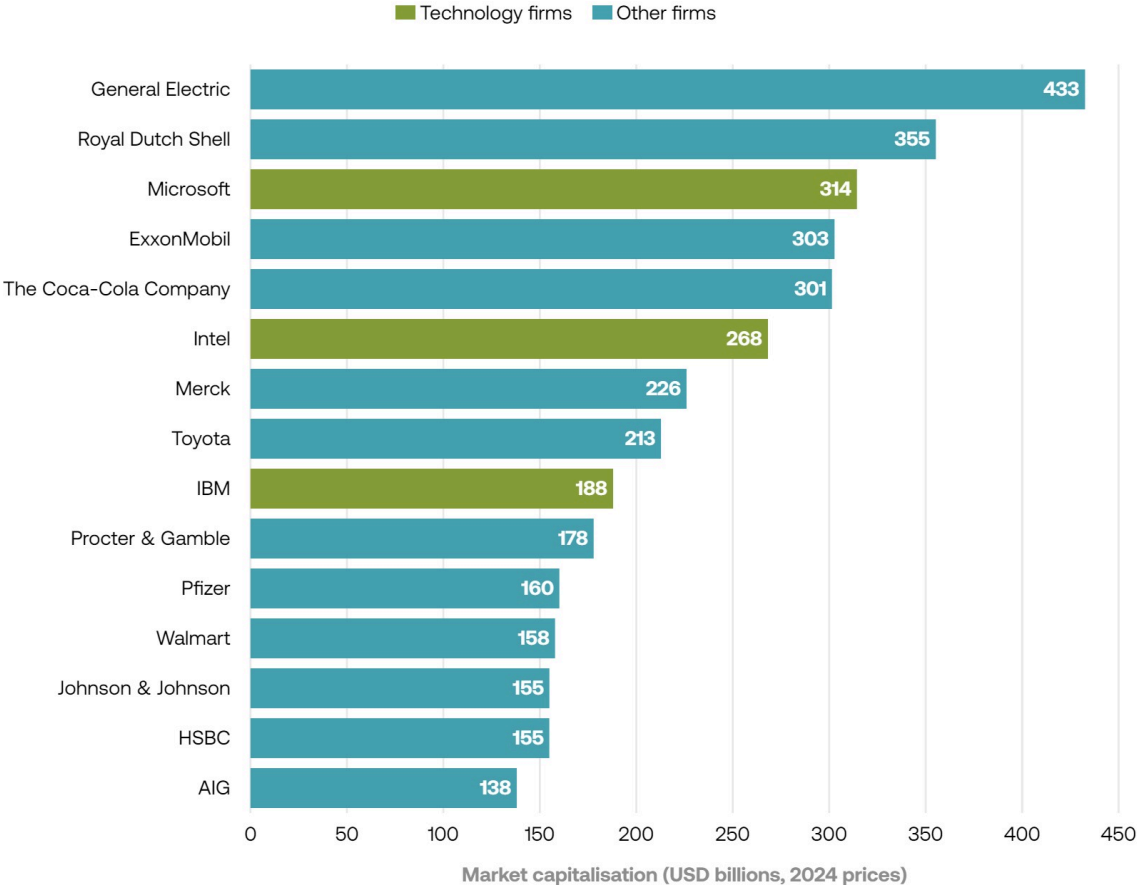
Here there are grounds for optimism. We are entering a new AI era of technology that promises to reshape the global economy. Unlike recent technological waves that have come and gone with little impact on growth, AI's transformative potential is already visible in a range of private-sector indicators.

FINANCIAL MARKETS ALREADY POINT TO A WAVE OF EARLY AI INVESTMENT

Even two years ago it was clear that the world was in the middle of a data-inspired tech revolution. This is illustrated by looking at the companies that dominated the global scene in 2022 and comparing them (and their size) with the corporate giants 25 years prior. In 1997 there were only three tech-focused companies among the top 15, two of which are now distant challengers to that list. In 2022, eight of the world's largest companies were global tech companies.
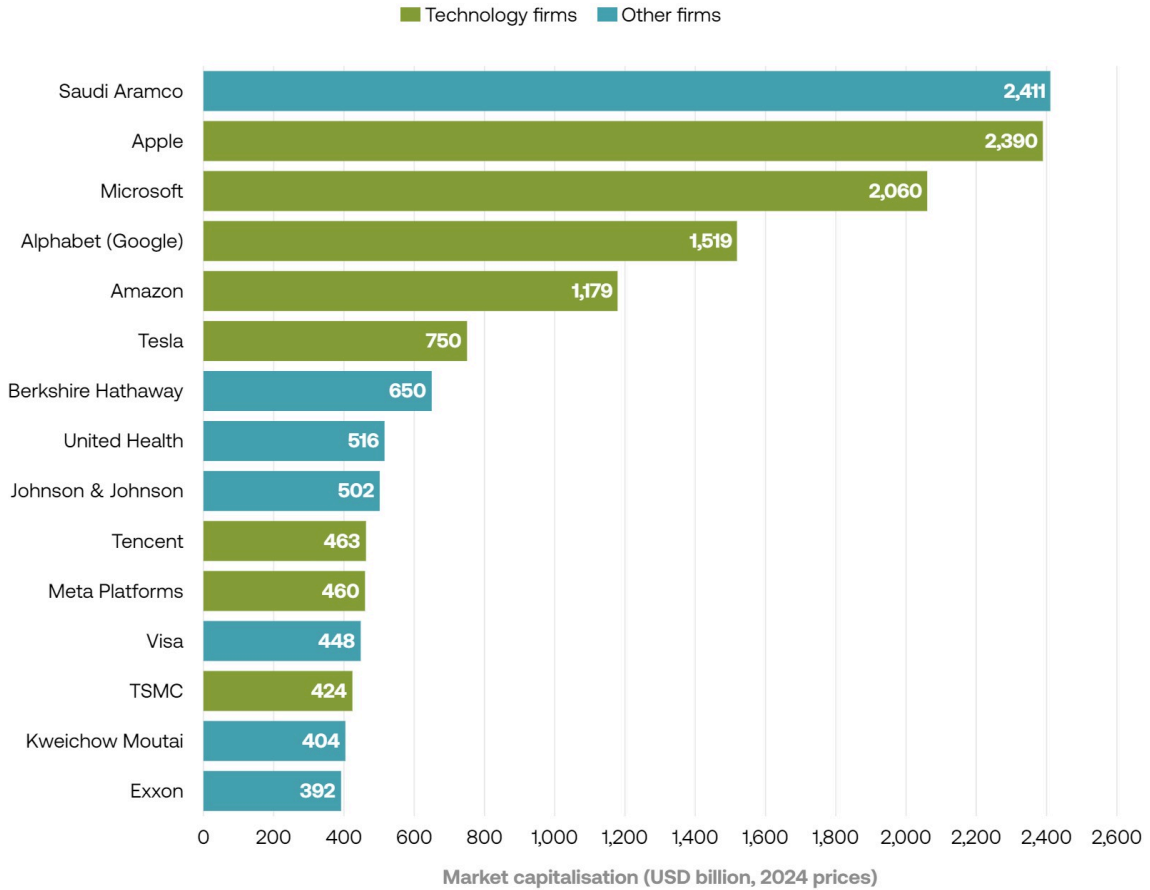
FIGURE 7

Top 15 largest public companies in 1997

Legend: ■ Technology firms ■ Other firms

Company	Market capitalisation (USD billions, 2024 prices)
General Electric	433
Royal Dutch Shell	355
Microsoft	314
ExxonMobil	303
The Coca-Cola Company	301
Intel	268
Merck	226
Toyota	213
IBM	188
Procter & Gamble	178
Pfizer	160
Walmart	158
Johnson & Johnson	155
HSBC	155
AIG	138

Market capitalisation (USD billions, 2024 prices)

Source: Financial Times, Stock Exchange historical data, Federal Reserve Bank of St Louis (2024). Data as of July 1997 uprated to 2024 prices
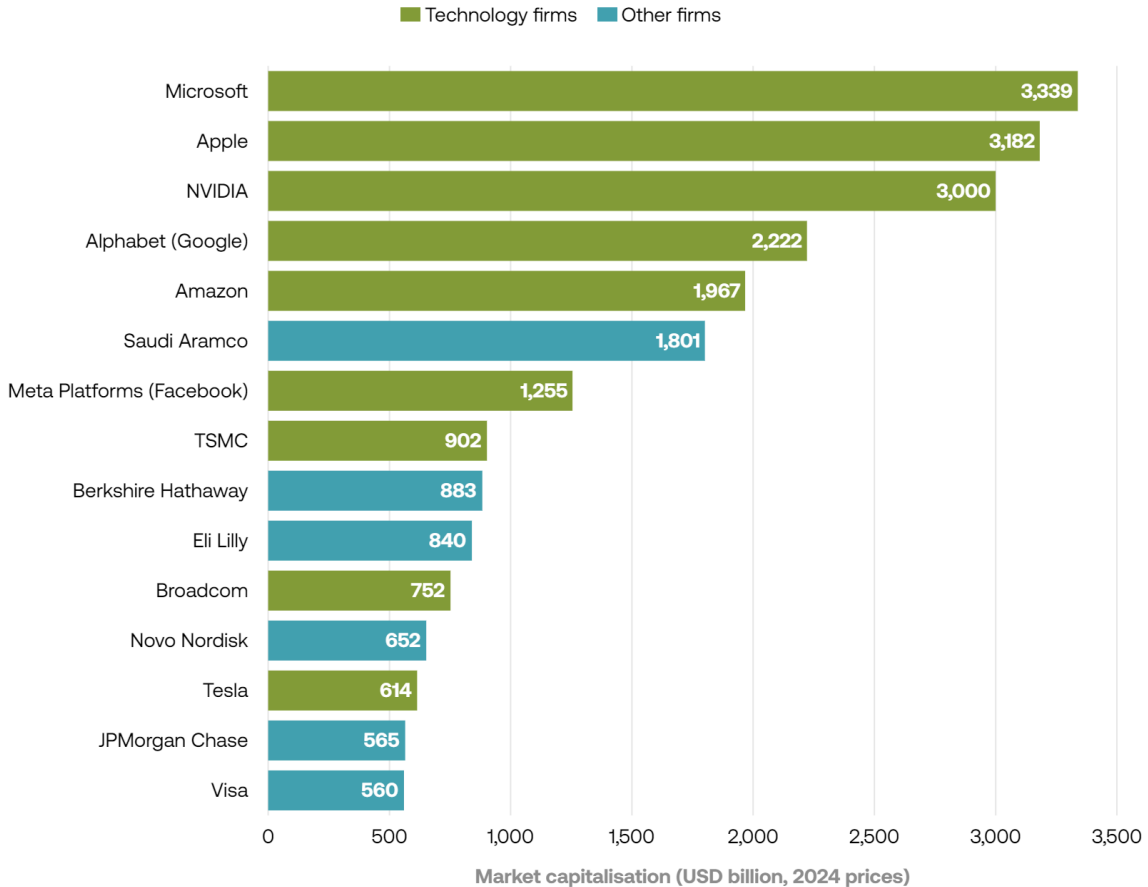
FIGURE 8

Top 15 largest public companies in 2022

Source: Forbes (2024), Companiesmarketcap (2024), Federal Reserve Bank of St Louis (2024). Market data as of 2 July 2022 uprated to 2024 prices

FIGURE 9

Top 15 largest public companies in 2024

■ Technology firms ■ Other firms

Company	Market capitalisation
Microsoft	3,339
Apple	3,182
NVIDIA	3,000
Alphabet (Google)	2,222
Amazon	1,967
Saudi Aramco	1,801
Meta Platforms (Facebook)	1,255
TSMC	902
Berkshire Hathaway	883
Eli Lilly	840
Broadcom	752
Novo Nordisk	652
Tesla	614
JPMorgan Chase	565
Visa	560

Market capitalisation (USD billion, 2024 prices)

Source: Forbes (2024), Companiesmarketcap (2024). Data as of June 2024

Over the past two years, the list has been transformed again by the advent of generative AI. Nine of the world's largest companies are now tech giants, including the top five, and all of them are investing heavily in AI. Moreover, many of the newly promoted non-tech companies in the top 15 – including Novo Nordisk, Eli Lilly and JPMorgan Chase – are among the biggest investors in AI-era technology within their sectors. For example, JPMorgan Chase invests $15 billion a year in technology[38] and now employs more than 2,000 AI experts.[39]

Among the top 15 companies, NVIDIA is often viewed as the poster child of

the AI revolution, given its recent meteoric rise up the global rankings and its status as a leading producer of the high-spec chips necessary to develop and use AI. Although the company's stock price has often grabbed the most headlines – given it rose 230 per cent in 2023 and 150 per cent in the first half of 2024, briefly seeing it become the largest company in the world – the real story is revenue growth. NVIDIA made $80 billion in revenues in the 12 months to April 2024, exceeding already-lofty market expectations and more than tripling its revenues from the previous year. This shows that the private sector is already investing in the kind of AI hardware that NVIDIA and other tech companies are producing. Moreover, this trend looks set to accelerate in the coming years: Goldman Sachs predicts that the largest technology companies will invest more than $1 trillion in AI over the next five years.[40]

BUSINESS LEADERS ARE BULLISH ON AI'S POTENTIAL

At the start of this year, Boston Consulting Group released a survey of more than 1,400 C-suite executives from 50 markets. It showed that 85 per cent of business leaders plan to increase spending on AI in 2024; 54 per cent expect AI to deliver cost savings this year, with roughly half of those surveyed expecting savings of more than 10 per cent; and 6 per cent of businesses have already trained more than a quarter of their workforce to use generative-AI tools.[41]

ACADEMIC RESEARCH AND REAL-WORLD APPLICATIONS OF AI

A range of novel academic papers have been released over the past two years that point to double-digit productivity gains from AI, many of which have since been borne out in commercial settings.

Brynjolfsson, Li and Raymond (2023) show that having access to an AI-enabled chatbot improves the productivity of customer-support agents by 14 per cent on average, including a 34 per cent gain for novice and lower-skilled workers.[42] Swedish fintech Klarna has achieved these gains in a commercial setting, building an AI-powered virtual shopping assistant using ChatGPT. It conducted 2.3 million customer conversations and did the work of 700 full-time agents in its first month, and is expected to drive a $40 million rise in profits in 2024.[43]

Dell'Acqua et al (2023), meanwhile, conducted a field study of 758 consultants from the Boston Consulting Group to test the ability of AI to perform a range

of consultancy tasks. They found that AI helped perform these tasks 25 per cent faster – equivalent to a 33 per cent productivity gain[44] – and improved the quality of output by 40 per cent.[45]

Noy and Zhang (2023) show that professionals who use ChatGPT to help with writing tasks can save about 40 per cent of their time – equivalent to a 67 per cent rise in productivity – as well as improve the quality of their output by 18 per cent on average.[46] AI's potential has been linked to a major restructuring of Germany's biggest newspaper, *Bild*, which slimmed its workforce by one-fifth as part of a €100 million cost-cutting drive.[47] And as part of a London School of Economics' 2023 Journalism AI survey, 75 per cent of respondents confirmed that they use AI in the newsroom.[48]

Finally, Peng et al (2023) show that computer programmers with access to GitHub Copilot, an AI pair programmer, can perform some coding tasks 55.8 per cent faster on average – a productivity gain of 126 per cent.[49] Subsequent analysis of almost 1 million GitHub users has shown that the tool is already having a real-world impact, with users accepting 30 per cent of code suggestions on average and reporting increased productivity as a result.[50]

AI'S POTENTIAL TO SIGNIFICANTLY BOOST UK ECONOMIC GROWTH

These examples offer a taste of what is to come but they are isolated cases. The key questions for the new government: how big could these gains be when scaled up across the UK economy, when are the gains likely to emerge and what sort of fiscal space could they create?

- **Scale of impact:** A growing number of studies have attempted to quantify AI's impact on economic growth. One prominent IMF study estimates that AI could add between 0.9 and 1.5 percentage points to UK growth over the course of a decade,[51] or 10 to 16 per cent to GDP cumulatively. Other studies suggest similar-sized effects (for example, Goldman Sachs predicts a 15 per cent cumulative boost[52]), while some suggest larger effects (Microsoft estimates a 20 per cent boost[53]) or smaller effects (Daron Acemoglu suggests an impact of just 0.5 per cent[54]). Much of the debate around these figures relates to how much time AI could save and how cost-effective the technology will be to deploy.[55] TBI's forthcoming analysis of AI's impact on the UK labour market is in line with the IMF's figures: we find that AI could save about 25 per cent of private-sector workforce time, could be implemented comparatively cheaply and could boost UK GDP by

about a sixth cumulatively – or raise growth by 1.5 percentage points per year over the course of a decade. Such a rise in GDP would be transformative for the UK economy, equivalent to all the productivity growth seen in the first 20 years of this century.

- **Timing:** The speed with which these macroeconomic gains could materialise is highly uncertain. The advent of personal computing, for example, began in the 1970s but took until the mid-1990s to show up in productivity statistics. Two factors determine the lag between tech creation and its impact on productivity: the speed and intensity with which the technology is adopted by households and businesses, and the degree to which existing work processes must be rewired to make best use of the new tools. There are grounds for optimism on both counts. First, the pace of technological adoption is speeding up[56] – it took 30 years for electricity to reach 10 per cent adoption in the US, but just five years for tablets to achieve the same feat. Second, much of the digital infrastructure needed to utilise AI already exists, so it should be easier to integrate into existing work processes. For these reasons and others, Goldman Sachs expects AI to start having a measurable impact on GDP growth from 2027 onwards[57] (yellow line, Figure 10).[58] TBI constructs a "best guess" central scenario that follows Goldman Sachs' timing assumption, but where the impact of AI grows towards the IMF's estimates (blue line, Figure 10). We also explore an alternative scenario that sees an even faster rate of AI adoption, where the IMF's annual growth rates are achieved within a decade (purple line, Figure 10).

FIGURE 10

Private-sector AI adoption could boost UK GDP by about 16 per cent in the coming decades

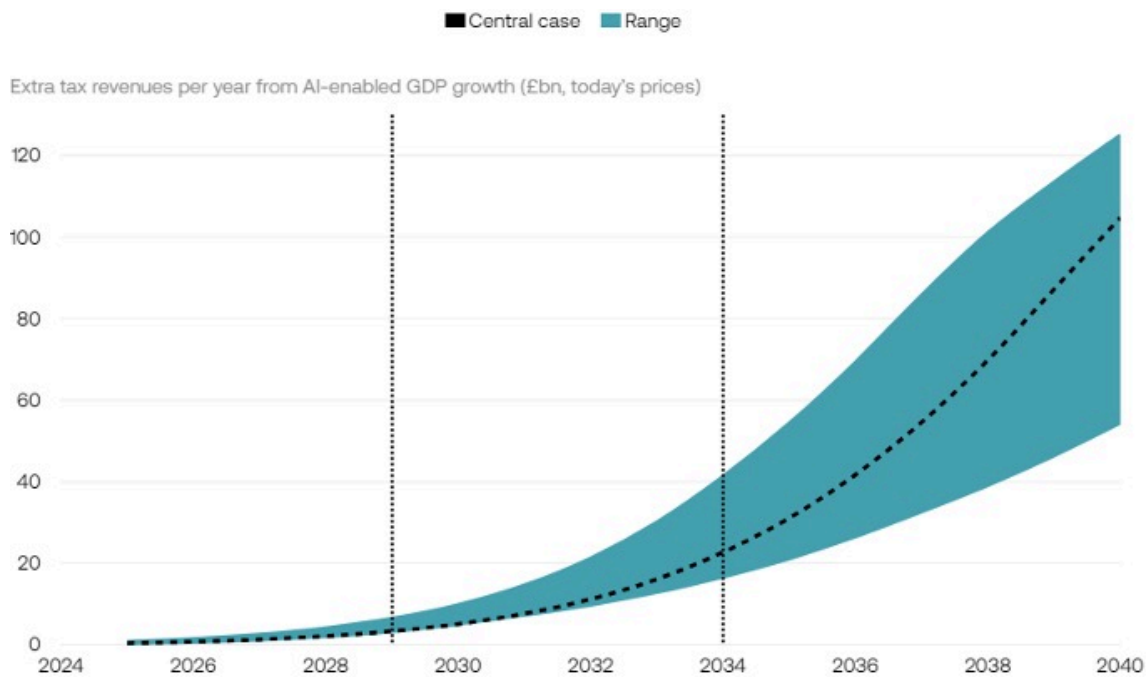Impact of private-sector AI adoption on annual UK GDP growth (%)
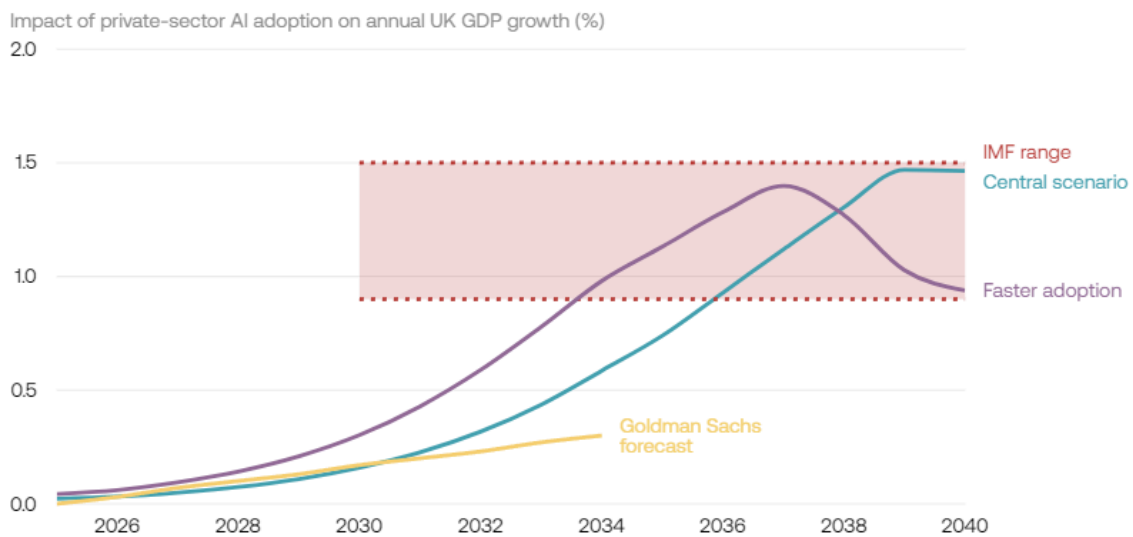
Source: IMF, Goldman Sachs and TBI calculations

- **Fiscal impact:** The potential fiscal gains from AI adoption in the private sector are substantial. Higher AI-enabled growth could raise £3 billion a year in extra tax revenues by the end of this Parliament, £23 billion per year by the end of the next term and more than £100 billion per year by 2040 using the central scenario (Figure 11).[59] The latter figure equates to 3.8 per cent of GDP and would be sufficient to offset almost all the increases in tax revenues needed to stabilise debt between now and 2040. These figures are sensitive to the timing assumptions outlined above: under a rapid-rollout scenario, the gains by 2034 could top £40 billion a year (enough to pay for the entire defence budget of £32.8 billion[60]), while Goldman Sachs' forecast estimates the gains in 2034 to be £17 billion a year.

Faster AI-enabled growth could lead to much higher tax revenues

■ Central case ■ Range

Extra tax revenues per year from AI-enabled GDP growth (£bn, today's prices)

Source: IMF, Goldman Sachs, OBR and TBI calculations

THE GOVERNMENT'S ROLE IN HARNESSING THE GAINS OF AI-ERA TECHNOLOGY

The UK is already well-placed to take advantage of the coming technology wave given its position as probably the third most advanced country in the AI race:

- **Second-highest number of the world's top universities.**[61] The UK is home to eight of the world's 50 best universities, second only to the US (with 16) and more than the rest of Europe combined (six).
- **Third-largest compute capacity.** TBI's paper, *State of Compute Access: How to Bridge the New Digital Divide*, shows that the UK has the most cloud and co-location data centres globally (118) after the US (1,204) and China (437).

- **Third-largest number of top-tier AI researchers.**[62] 6 per cent of top-tier AI researchers work in the UK, the most after the US and China.
- **Top three destination for AI venture capital.**[63] The UK attracted $3 billion in AI venture capital in 2023, behind only the US ($55 billion) and China ($18 billion).
- **Third-largest number of AI unicorns.**[64] The UK has eight AI companies worth more than $1 billion, the highest number globally outside the US and China.

But even with this favourable starting position, the UK will not automatically reap the macroeconomic gains from AI. There is a risk that AI adoption in the private sector could fall short of the figures outlined above, particularly if AI adoption is slower or limited to just the largest firms. The new government needs to support the diffusion of AI across the economy by adopting a pro-innovation, pro-technology stance. Recent TBI paper *Accelerating the Future: Industrial Strategy in the Era of AI* outlines 22 policy recommendations on how to achieve such gains, including:

- Investing in high-performance computing and other critical digital infrastructure
- Providing targeted support to attract global tech talent
- Establishing a national programme for digital skills
- Expanding the availability of capital for deep-tech ventures through public investment, co-investment funds and pension reforms
- Creating regulatory sandboxes to enable rapid testing of new tech
- Creating an advanced procurement agency to stimulate demand for emerging tech

04

The Transformative Power of AI-Era Technology to Reimagine the State

The government can harness the potential of AI-era technologies to build on the gains made by the private sector. AI-era tech could help solve some of the major challenges facing the government in three ways: by reducing the cost of public services; by improving the quality of public services; and by laying the foundations for faster long-term economic growth.

In this chapter we illustrate how this would work in practice.

FIGURE 12

Four use cases show how AI-era technology could be deployed in government

1. Using AI to improve the efficiency of public-sector workers and **reduce costs**

2. Harnessing new innovations in preventative health care to **improve public-service quality and create fiscal space**

3. Creating a digital ID, which will also **improve public-service quality and create fiscal space**

4. Using AI to improve educational attainment and **boost long-term growth**

1. AI AND THE PUBLIC-SECTOR WORKFORCE

There are almost 6 million[65] public-sector workers in the UK and the government spends almost 10 per cent of national income on their wages (equivalent to £240 billion in 2022–23).[66]

New TBI analysis released alongside this report explores *The Potential Impact of AI on the Public-Sector Workforce*. It shows that AI could radically change the way that the public sector operates by saving a fifth of public-sector workers' time. Moreover, these potential time savings could be achieved comparatively cheaply by adopting low-cost forms of AI.

FIGURE 13

Rolling out AI across the public sector could save about a fifth of workforce time
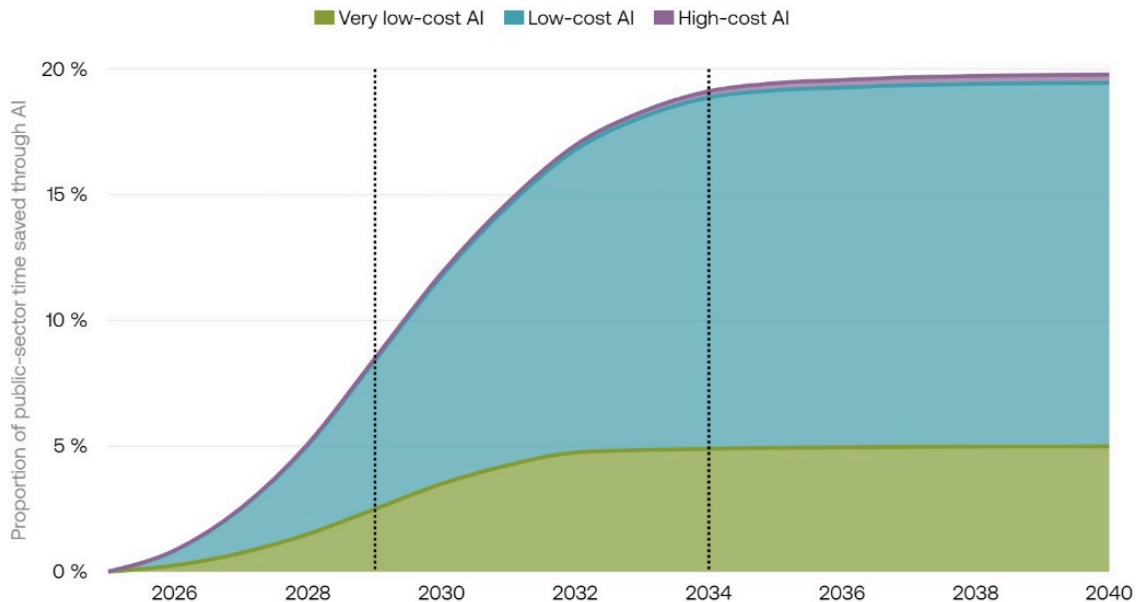
Source: TBI: The Potential Impact of AI on the Public-Sector Workforce

These substantial time savings could translate to significant fiscal savings if the government decides to reduce the size of the public-sector workforce. However, not all the time savings would lead to a smaller workforce (and subsequent lower wage bill). Many public-sector professions already face severe staff shortages, with workers doing significant amounts of unpaid overtime to keep the system afloat. We assume that the benefits of AI in these stretched professions – which account for 2.3 million workers and include teachers of maths, science and languages, as well as doctors, nurses and care workers – do not lead to any job cuts; instead they allow these workers to deliver better outcomes and work fewer unpaid overtime hours. Excluding

these cases from the analysis reduces the overall potential cost savings from one-fifth of the government's wage bill to one-sixth, which still implies gross savings of more than £40 billion a year (1.5 per cent of GDP) if AI was used to its fullest possible extent.

To achieve these gains, the government will need to invest in AI technology, upgrade its data systems, train its workforce to use the new tools and cover any redundancy costs associated with early exits from the workforce. With an ambitious rollout scenario, we estimate that these costs will average about £4 billion a year in today's prices over the course of this Parliament, £7 billion a year over the next Parliament and £4 billion a year in the longer term. This implies an annual net benefit from rolling out AI across the public- sector workforce of £10 billion (0.4 per cent of GDP) by the end of this parliamentary term, £34 billion (1.2 per cent of GDP) by the end of the next term and £37 billion (1.3 per cent of GDP) in the longer term.

FIGURE 14

Rolling out AI across the public sector could create substantial fiscal savings this decade

Source: TBI: The Potential Impact of AI on the Public-Sector Workforce

The speed with which these gains are realised is within the government's gift to determine. Government IT projects typically take nearly four years to complete, but these undertakings tend to be more targeted; deploying AI across the entire public sector would present a more considerable delivery challenge. The above figures are based on an ambitious programme where the rollout of AI across the public sector is largely complete within two parliamentary terms. TBI's recent paper, *Governing in the Age of AI: A New Model to Transform the State*, sets out a plan for the new government to meet this timetable.

The government will have a choice on how to spend any dividend from AI-enabled efficiency. It could choose to reinvest the savings in the public sector and boost the number of frontline workers; for example, a saving of 1 per cent of GDP would be enough to boost the size of the NHS workforce by about a third.[67] Alternatively, the government could choose to shrink the UK's public-sector workforce and bank the fiscal savings. This would involve reducing the workforce by a sixth over the course of a decade, equivalent to slimming the previously growing public sector by half a million roles this parliamentary term and another half a million during the next term.

Whichever choice the government makes, the key point is that by investing in transformational change it can wrestle itself out of its current fiscal straitjacket and create space to choose once again.

2. PREVENTATIVE HEALTH CARE

We are living through a time of rapid advances in medical science, which is being accelerated by AI and the application of AI to health data. Treatments for cardiovascular disease (CVD), obesity and cancer are all being changed by new means of diagnostics and innovative cures.

FIGURE 15

Recent medical advances to treat preventable diseases

Disease	Recent medical breakthrough
Cardiovascular disease	New **injectable obesity drugs** can reduce heart attacks and strokes by 20 per centIn place of a blood test, **AI-powered smart stethoscopes** can immediately detect heart failure in GP clinics before life threatening progression, reducing A&E admission and saving £2,400 per patient
Obesity	**Injectable obesity drugs** are helping people lose up to 22 per cent of body weight**Oral obesity drugs** in late-stage trials are seeing more than 17 per cent weight loss
Cancer	**The Galleri blood test** doubles the cancer detection rate versus traditional methods and can identify up to 50 types of cancerCustomised to target specific mutations, **mRNA cancer vaccines** can be used for personalised treatments that are nearly 50 per cent more effective than traditional cancer therapies, with fewer side effects than chemotherapy

Source: The Guardian, Imperial University, Nature, Galleri, NBC News and Frontiers in Immunology

FIGURE 16

The cost of preventable disease to the UK economy

Disease	Annual economic cost (2024 prices)
Cardiovascular disease	£25 billion
Obesity	£41 billion
Cancer	£13 billion

Source: European Heart Network, TBI, Frontier Economics. Note: Figures for cardiovascular disease from the European Heart Network have been scaled up from 2015 to account for inflation. For consistency, figures for obesity and cancer exclude the individual costs associated with loss of quality-adjusted life years, and cancer figures also exclude unpaid productivity losses

Too often spending on preventative health care has been deprioritised in favour of immediate crises because typical cost-benefit analysis fails to account for the wider positive spillovers that preventative health care can have on the economy. But new economic modelling from Schindler and Scott

(2024)[68] shows that these wider macroeconomic benefits are substantial.

As set out in a recent TBI report called *Prosperity Through Health: The Macroeconomic Case for Investing in Preventative Health Care in the UK*, preventative health care can reduce early mortality and morbidity and significantly increase the years of healthy life available for work. This leads to a triple benefit: a healthier population, a healthier economy (because more people in work boosts economic growth) and healthier public finances (because more people in work leads to higher tax revenues and fewer people drawing on benefits). Schindler and Scott (2024) show that a 20 per cent reduction in disease incidence across six preventable conditions – CVD, cancer, diabetes, musculoskeletal disease, poor mental health and chronic obstructive pulmonary disease – would result in more than 400,000 people in work within a decade,[69] boost GDP by 1 per cent and raise an extra £13 billion per year for the Exchequer through higher tax revenues and lower benefit payments.

Importantly, some of these gains are achievable immediately with the help of technology. New TBI analysis, released alongside this report, outlines how a tech-enabled preventative health care system could work in practice (see *The Economic Case for Protect Britain, a Preventative Health Care Delivery Programme*). Under our proposals, the government would invest in digital-health infrastructure to ensure that every citizen would have a digital health record and access to an upgraded version of the NHS App, which would enable them to access their health data, health services, digital health checks and personalised health advice. These digital upgrades would be accompanied by further investment in the NHS's adult health-check programme, making it more accessible to citizens and increasing uptake beyond the current rate of 50 per cent.[70] This upgraded health-monitoring programme would enable citizens to perform basic health checks online (using the upgraded NHS App), at home (thanks to health checks mailed through the post) and on the high street (as a result of the NHS partnering with high-street retailers to offer more in-person health checks across the country).

The Protect Britain programme would use this upgraded health data and monitoring infrastructure to intervene earlier, preventing disease; nowhere is the evidence of the effectiveness of preventative treatment clearer than in the case of CVD. We therefore explore a foundational version of this programme in

The Economic Case for Protect Britain, a Preventative Health Care Delivery Programme that focuses on wider uptake of existing treatments (particularly statins) to reduce CVD incidence by 20 per cent. On its own, this version of the programme could lead to an additional 60,000 to 70,000 people in work per year once fully rolled out.[71]

FIGURE 17

Preventative health care could reduce CVD incidence by 20 per cent and mean up to 70,000 more people in work
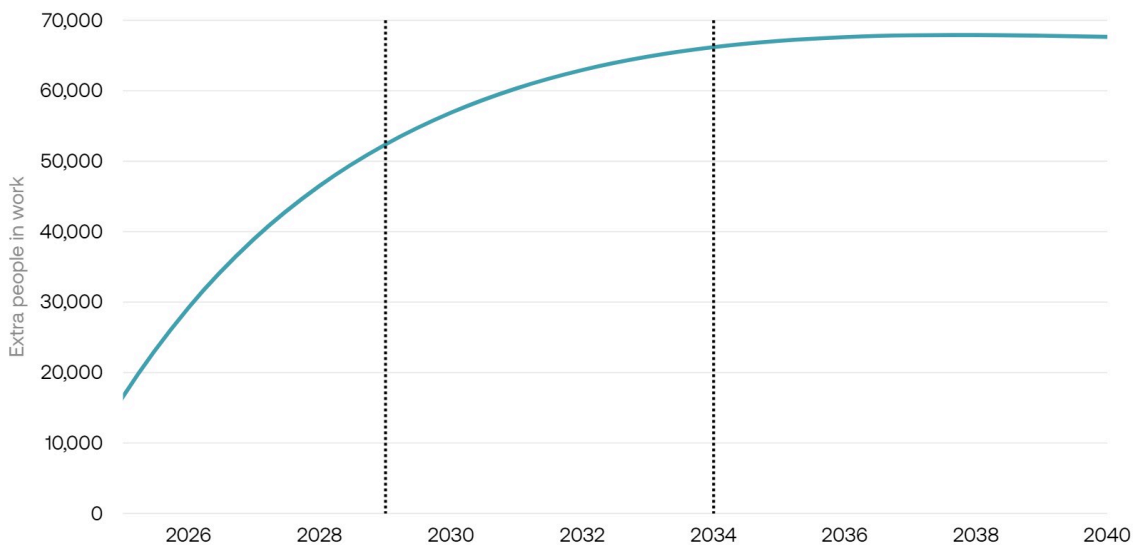
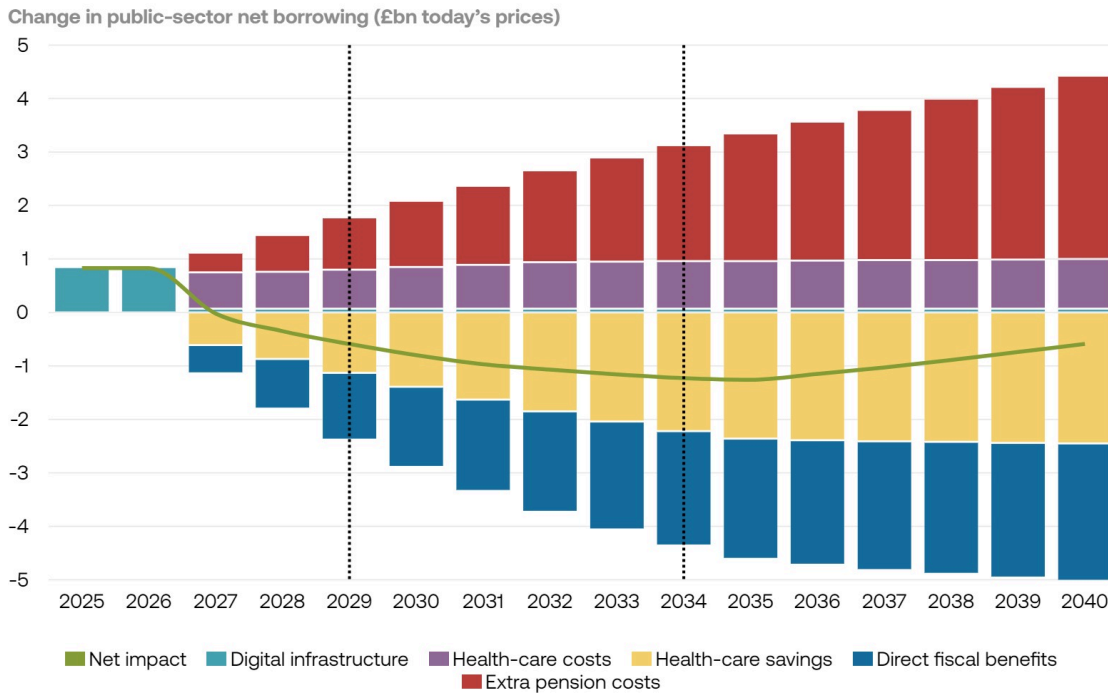Source: Schindler and Scott (2024), ONS and TBI calculations

This foundational version of the programme would not only improve the health of the population and the economy, but also boost the public finances. We estimate that the programme would cost £1.6 billion up front (in today's prices) to create the enabling digital infrastructure, £70 million a year to run the infrastructure and about £0.9 billion a year in higher health-care costs to pay for higher uptake of NHS health checks and treatment. People living healthier and longer lives will also result in greater numbers drawing on their state pensions – which we estimate will cost the Exchequer an additional £1 billion per year by the end of this Parliament and £2.2 billion by the end of the next.

However, these costs would be more than offset by a reduction in health-care treatment costs later in life, worth about £2.2 billion a year after a decade, and direct fiscal savings from higher tax revenues and lower benefit payments (due to more people being in work), worth about £2.1 billion.

Overall, we estimate that even this foundational version of the programme would result in annual net savings of about £0.6 billion (in today's prices) by the end of this term – and £1.2 billion by the end of the next.

FIGURE 18

Even a narrow version of preventative health care could improve the public finances

Change in public-sector net borrowing (£bn today's prices)

Legend: Net impact · Digital infrastructure · Health-care costs · Health-care savings · Direct fiscal benefits · Extra pension costs

Source: TBI: The Economic Case for Protect Britain, a Preventative Health Care Delivery Programme

These figures are only likely to grow over time as the Protect Britain programme expands to incorporate more medical treatments and cover a wider range of diseases. For example, there is much excitement around GLP-1 RA drugs, not only because of their effectiveness in treating obesity, but also

their indirect capacity to reduce numerous other health issues, including type-2 diabetes, fatty liver disease, hypertension, myocardial infarction, strokes, dementia, osteoarthritis and cancer. As discussed in *Prosperity Through Health: The Macroeconomic Case for Investing in Preventative Health Care in the UK*, these drugs point to a future whereby preventative drugs do not just target single diseases but delay the onset of multiple diseases, offering a transformative impact on health outcomes.

Some of these novel treatments are also likely to affect more younger members of the population than the CVD example outlined above, meaning a potentially bigger boost to employment, a slower rise in pension costs and larger fiscal gains. We explore these effects at the end of the chapter based on a scenario that sees the Protect Britain programme expand quickly over time.

3. DIGITAL ID

A digital ID could significantly improve the way that citizens interact with government, saving them time, easing access and creating a more personalised service. For these reasons alone, a digital ID is worth the investment. Moreover, new TBI analysis released alongside this report – *The Economic Case for a UK Digital ID* – finds that it also has the potential to directly improve the government's fiscal position.

A digital ID could create about £2 billion per year in extra fiscal space in the following ways:

- **By cutting benefit fraud** (which costs the Exchequer more than £7 billion a year) by £1.25 billion a year, thanks to a digital ID enabling additional identification and eligibility-verification checks on claimants.
- **By collecting £600 million in extra tax revenues every year.** By better linking taxpayer data, a digital-ID ecosystem could help close the UK's tax gap by pre-populating tax returns. This would save citizens time while also helping to avoid the tax-filing errors that cost the Exchequer several billion every year. In addition, by making it easier to link complex datasets, a digital ID could enable HMRC to better target tax-compliance activity, helping to crack down on under-taxed offshore income, for example.
- **Better targeting support during crises** could save an average of £200 million per year. By their nature, crises do not occur at regular intervals or at the same scale, so the potential for a digital ID to reduce crisis-related

costs will vary substantially from year to year. However, the 2022 energy-price shock provides an instructive example of the potential gains from having a digital ID in a crisis. In 2022, the government's energy-bills support scheme and energy-price guarantee were made available to all households and cost £33 billion. We estimate that the government could have saved at least £10 billion if it had used a digital ID to better target support to the most at-risk households.[72]

We estimate that the enabling infrastructure for a digital ID would cost about £1 billion to set up and £100 million to run every year. This is a slightly lower setup cost than in other countries that have recently created similar schemes (Australia and Italy, for example) because the UK has already put some of the necessary infrastructure in place, via its One Login programme.

Based on international experience, we think it is achievable for the government to fully roll out a digital ID within one parliamentary term. A rapid rollout would see the scheme cover its initial setup costs within three years of operation and, from that point on, it could raise just under £2 billion per year for the Exchequer. This means a digital ID could result in net savings of almost £4 billion over the course of the current parliamentary term and nearly £10 billion over the next term.

FIGURE 19

A digital ID could improve citizen access to public services and yield about £2 billion in savings by the end of this Parliament
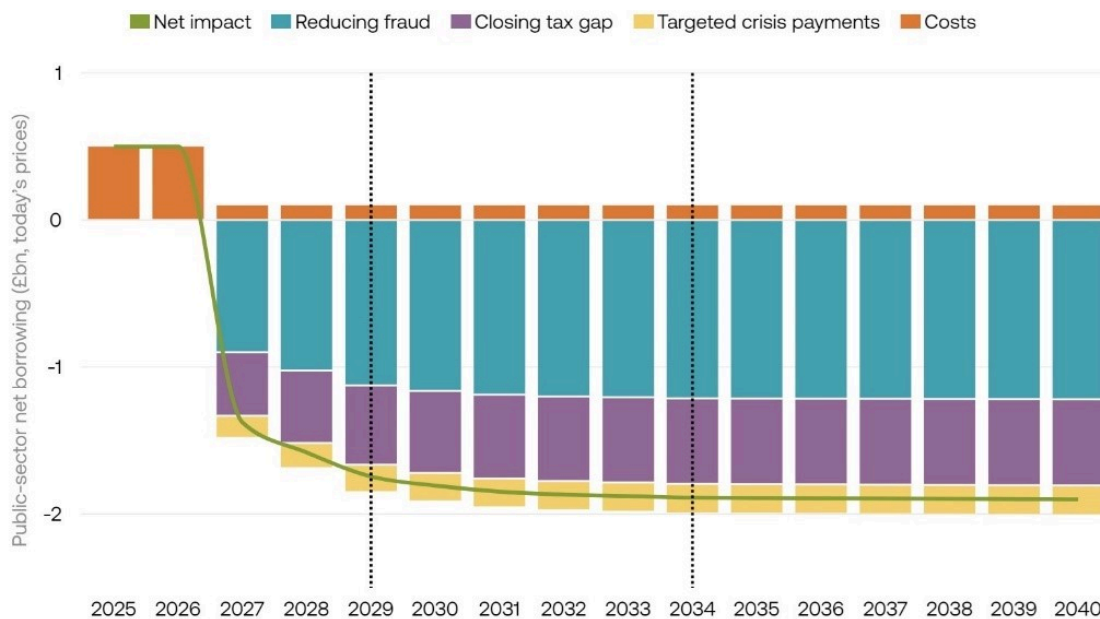
Source: TBI: The Economic Case for a UK Digital ID

4. AI-ENABLED EDUCATION

AI has the potential to significantly boost students' academic performance across three key channels:

- improving the quality of teaching (through AI co-pilots for teachers)
- freeing up teacher time to focus on more interactive learning (by automating repetitive tasks)
- increasing the ability of students to absorb lesson content (through AI-tutor bots)

New TBI research released alongside this report – *The Economic Case for AI-Enabled Education* – estimates that these effects could boost educational attainment levels by 6 per cent. This effect comes through two channels:

boosting the average attainment of all students and increasing the number of students that go on to higher levels of education. Such effects will take time to feed through to the labour market, but the potential gains are substantial. By boosting the productivity of the future workforce, AI-enabled education could raise GDP by about 6 per cent in the long run and add more than 0.1 per cent to growth per year for more than 40 years.

FIGURE 20

# AI-enabled education could boost GDP by 6 per cent in the long term
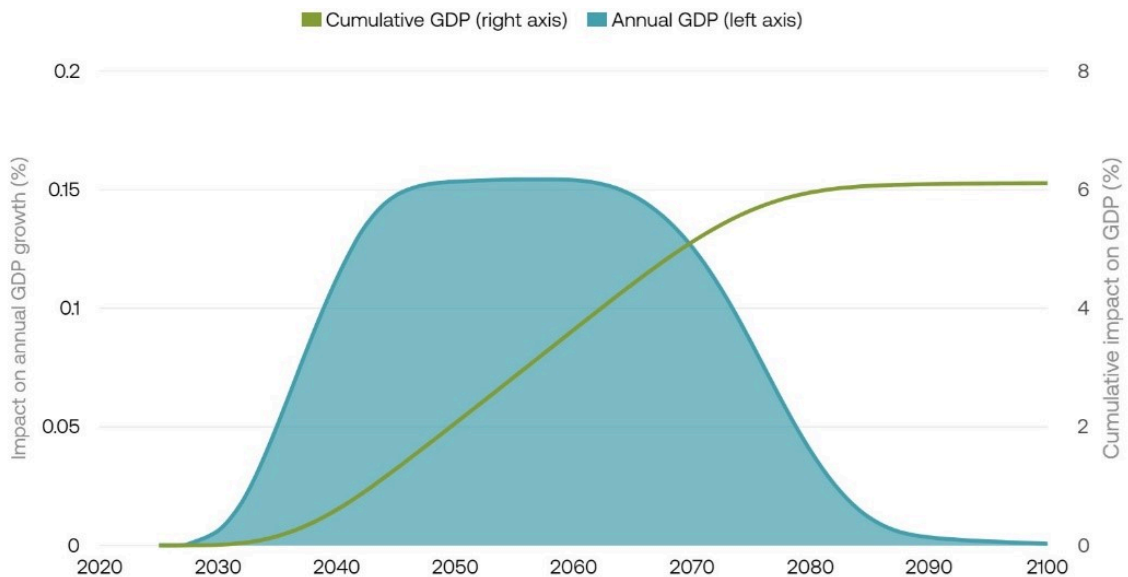
Source: TBI: The Economic Case for AI-Enabled Education

AI-enabled education would not only help future-proof the UK's workforce and improve the skills of its citizens, but could also have a significant bearing on the public finances. The cost of rolling out AI-enabled education across the UK's 26,500 schools would be material and require upfront investment in new digital infrastructure. This would include new edtech tools and a digital learner ID for each student, teacher training in the new technology and ongoing investment in new hardware for students and teachers. Overall we put the cost at about 0.04 per cent of GDP per year (or £1.2 billion per year in today's prices).

However, such costs are dwarfed by the potential gains. Higher GDP could lead to significantly higher tax revenues and even if these are partly offset by higher government spending, the gains are likely to be substantial. We estimate that an AI-enabled education programme would generate annual net benefits from the mid-2030s onwards, with the programme paying for itself by the early 2040s and from then on creating cumulative net gains for the Exchequer. In the long term, AI-enabled education could create more than £30 billion a year in extra fiscal space when fully rolled out.[73] This is comparable to the scale of the fiscal savings from adopting AI across the public-sector workforce, but in this case the effects take much longer to materialise.

FIGURE 21

By boosting growth, AI-enabled education could limit the requirement for future tax rises
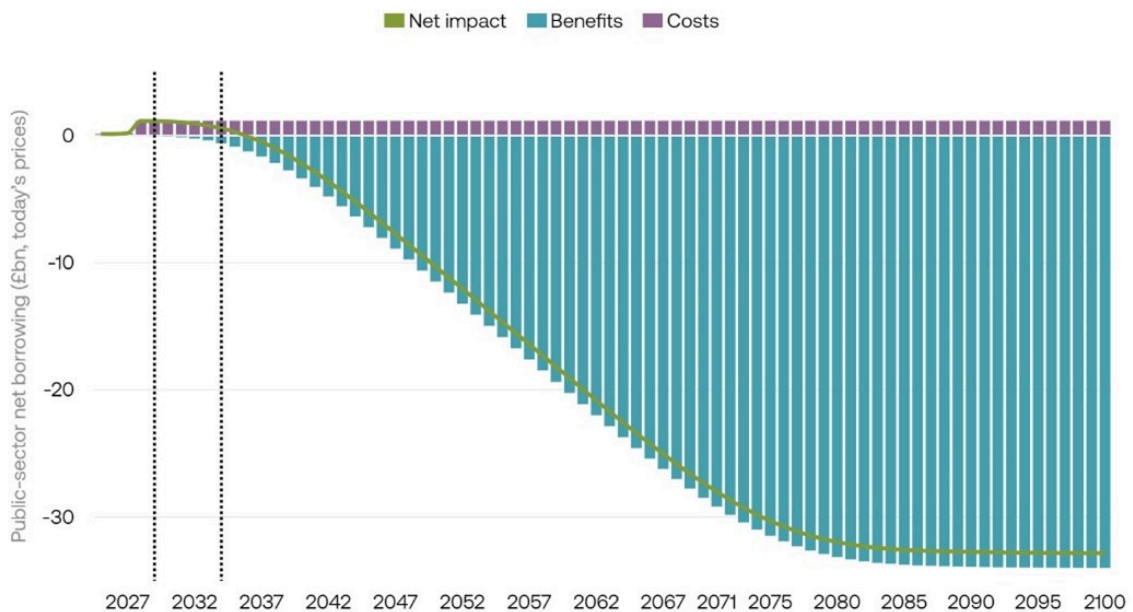
Source: TBI: The Economic Case for AI-Enabled Education

A FUTURE OF OPPORTUNITY

The four public-sector use cases outlined above could create substantial

fiscal space for the new government. Together they could be worth £12 billion a year (0.4 per cent of GDP) by the end of this parliamentary term, £37 billion (1.3 per cent of GDP) by the end of the next and more than £40 billion (1.5 per cent of GDP) by 2040. These gains are in addition to those from the private sector highlighted in chapter 3 and would give the government space to not just avoid raising taxes but cut them.

FIGURE 22

Deploying AI-era tech in the public sector could create material fiscal space for the next government
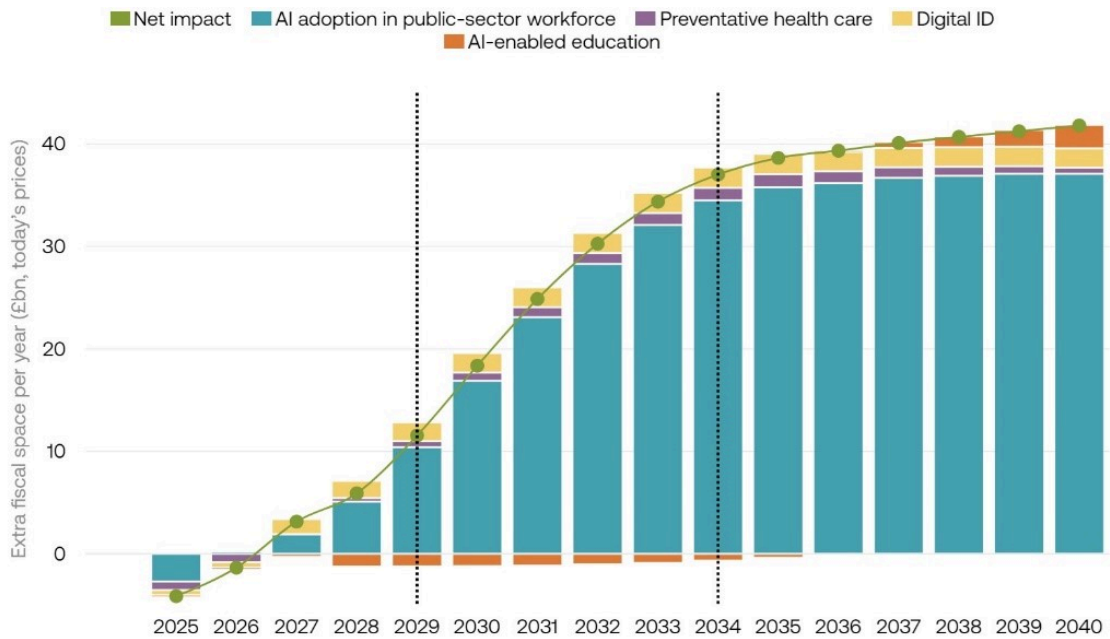
Source: TBI calculations

Just as importantly, adopting AI-era tech in the public sector would boost long-term growth by creating a healthier and better-educated workforce. There would be other positive outcomes for the public, including:

- an extra 70,000 people in work thanks to better health care
- a 6 per cent boost to educational attainment and at least 50,000 more

students a year going onto higher education

- better access to public services through a new digital ID, with a citizen portal and an upgraded version of the NHS App
- Less benefit fraud and more efficient tax collection

Crucially, the above examples are all premised on the state of technology as it is now. As such they offer a snapshot of the potential gains from the widespread adoption of AI-era technology. But we are not living in a static world: the pace of technological progress is advancing rapidly. If we take a more speculative look to a future in which AI-era technologies will continue to advance quickly, there is potential for the gains to extend even further.

For example, if the recent pace of medical breakthroughs continues to accelerate over the next decade it may be possible to reduce the incidence of cancer, musculoskeletal disease, diabetes, chronic obstructive pulmonary disease and mental-health issues by 20 per cent. If that were to happen, the annual gains from preventative health care (use case 2) could rise by £6 billion by 2040.

Similarly, if AI continues to advance so that it can perform a wider variety of public-sector work tasks over time – in line with the advances in capabilities we have seen over the past year – it is not unreasonable to assume that AI could save an additional 1 per cent of public-sector workers' time every year. This would generate a further £9 billion in fiscal savings from use case 1 by 2040.

Each of the above scenarios are examined in more detail in one of the companion publications to this paper: *The Economic Case for Protect Britain, a Preventative Health Care Delivery Programme*. Meanwhile, the figure below shows the cumulative effects of this advancing AI scenario. While the figures are speculative, the direction of travel is clear; by investing in AI-era technologies today, the government can reap significant and growing gains in the future.

FIGURE 23

The potential fiscal savings from AI are only likely to grow as AI-era tech advances
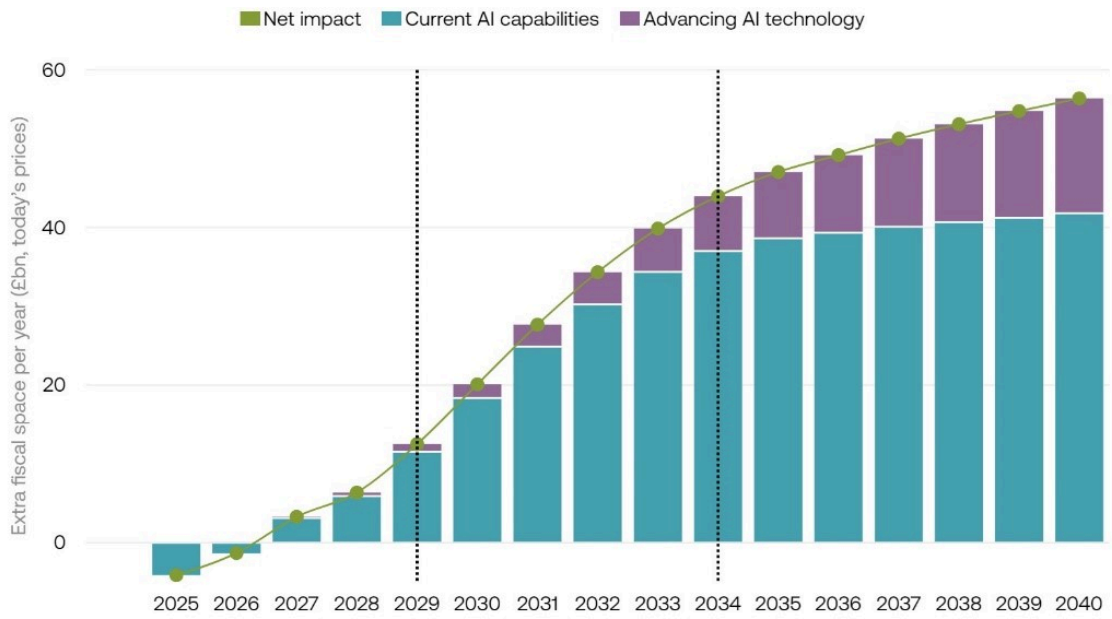
Source: TBI calculations

05 Preparing Britain for a More Radical Future

AI-era technology is the only solution that can lift the UK out of its current crisis, create a new era of possibilities and help reimagine the state for the 21st century. But to make this a reality, the government needs to change the way it operates. Too often, efforts to transform public services with technology have failed and spending on the future has been sacrificed in favour of spending today. As a result, the government has not invested in the future-focused tech-policy solutions that the country needs.

The new government needs to make two structural changes to the way in which the public sector operates if it wants to harness the gains from AI-era tech. The first is to embed tech expertise across the public sector to identify appropriate use cases and oversee the effective rollout of the technology; the second is to change the incentives in the system to prioritise long-term investment in public-sector transformation.

EMBED AI EXPERTISE ACROSS GOVERNMENT

Create a Mission Control in Number 10 to drive technology-enabled productivity growth across government. As TBI has previously argued in *Governing in the Age of AI: A New Model to Transform the State*, harnessing AI gains across the public sector will require nothing short of a transformation in the way government operates, requiring widespread adoption of new technology across a vast array of public institutions in every corner of the country. The past is littered with examples of government technology projects that have failed to deliver. The UK cannot afford to fail to deliver on the promise of AI. The new government needs to drive this change by creating a new Mission Control at its heart, focused on identifying ways to harness technology to improve public-sector productivity and to drive adoption of those technologies across the public sector.

Create new Chief Productivity Officers (CPOs) to identify new ways to utilise technology within each government department. These new roles would complement the central Number 10 team and be responsible for

identifying new ways that technology could be deployed within their specific department. The CPOs would be supported by a team of technologists and analysts, and given a mandate to oversee all departmental spending review bids before they are submitted to the Treasury to ensure they have considered how best to utilise new technology. The same team would help oversee major tech-transformation projects during every parliamentary term.

Create a new team of technology specialists and economic forecasters within the Treasury. This team would be responsible for scrutinising spending review bids from each department for their technological content and helping the public sector analyse the macroeconomic impacts of technology on the economy – to ensure that wider spillovers are considered when prioritising spending.

INCENTIVISE LONG-TERM INVESTMENT

The four public-sector use cases outlined in chapter 4 would cost £28 billion (in today's prices) during this Parliament to implement. That equates to £6 billion on average per year or 0.2 per cent of GDP. To put that figure in context, the New Labour government increased spending on education by 1.6 per cent of GDP[74] per year between 1997 and 2010, while JPMorgan Chase invests $15 billion a year[75] (£12 billion) on its team of 50,000 technologists.

With the tight fiscal situation, the government will need to borrow-to-invest to realise the substantial gains from AI-era technology. Given the scale of fiscal returns to each use case highlighted above, this makes financial sense. However, several institutional constraints – some self-imposed – currently disincentivise such long-term investment.

Updating Fiscal Rules

In its manifesto, the new government indicated that its spending decisions would be guided by two fiscal rules: to achieve current budget balance within five years[76] and to ensure that underlying public-sector net debt falls as a share of GDP between the fourth and fifth years of the forecast.[77]

The first rule is a sensible upgrade on the previous government's borrowing target, which made no distinction between borrowing to pay for day-to-day spending and borrowing for productive investment. However, the second rule is the same debt rule as the previous government and continues to be

problematic. The rule does not guarantee the long-run sustainability of the public finances as it can be easily gamed, and it unnecessarily limits public investment that pays off beyond the five-year horizon.

The debt rule has been the main constraint on public spending in recent years and is the key metric that determines how much "fiscal space" the government has had at recent fiscal events (just £9 billion in March 2024[78]). But this is a distraction. This fiscal space is entirely determined by the definition of the rule, not by how much the government can sustainably borrow.

Such a tight fiscal stance is not being demanded by investors.[79] UK debt is at a 60-year high, but it has been much higher in the past and it remains lower than all other members of the G7 except Germany.[80] Moreover, we should avoid drawing the wrong lessons from the spike in UK borrowing costs caused by the ill-fated mini-budget of Liz Truss's government. That fiscal event included large tax cuts without a clear fiscal strategy on how to pay for them. It is highly unlikely that markets would react in a similar way if the government borrowed to pay for investments that enhance the UK's ability to service its debt in the future.

The new government should therefore revise its fiscal rules before its first major fiscal event in the autumn. This would incur some political cost in the short term but would only lend credibility to the government's fiscal plans in the longer term. There are several ways the government could change the rules for the better.

- **Drop the debt rule entirely.**[81] This approach would leave the government with just one simple "golden rule" to keep the current budget in balance in five years' time and would leave government investment unconstrained, which might be deemed unnecessarily risky.
- **Change the definition of debt.** The government could keep the debt rule but change the definition of debt to create more fiscal space. There are a number of options here: excluding debt for new investment[82] (which would create unlimited room to borrow-to-invest); switching to a headline measure of public-sector net debt that includes the Bank of England[83] (this would create £16 billion in extra headroom in 2028–29); or shifting to a measure of debt that nets off financial assets against public-sector debt (which would create £52 billion of extra space in 2028–29).[84]
- **Introduce a different fiscal framework that is more resilient to events.**

TBI has long advocated for a *Whatever the Weather: Future-Proof Budget Rules* fiscal framework that encourages productive investment to improve economic potential and the state of public services; allows additional borrowing during crises; and maintains debt at a sustainable level in the long run. If the government set a long-term debt target of 90 per cent of GDP, this alternative framework would create space for an additional £64 billion of borrowing for productive investment in 2028–29.

Upgrading the Role of the Office for Budget Responsibility

The creation of the OBR in May 2010 was one of the most consequential institutional decisions of the past 15 years. However, the role of the UK's fiscal watchdog could be enhanced to make it even more effective at guiding the UK towards sensible fiscal choices. The new government should mandate the OBR to:

- **Extend the time horizon of its Economic and Fiscal Outlook report to ten years from five.** This would shine a light on the government's fiscal plans beyond the boundary of its fiscal rules, making it harder for them to be gamed. More consequentially, a longer forecast horizon would leave room for the benefits of policies that have longer-term payoffs – such as investing in AI-enabled education – to be made clear.
- **Produce a holistic scorecard assessment of the public finances based on a wider range of fiscal metrics.** This scorecard would feature prominently at the beginning of the OBR's Economic and Fiscal Outlook report and include metrics such as public-sector net financial liabilities and public-sector net worth. This would help avoid a narrow focus on the small number of imperfect metrics covered by fiscal rules and would improve the quality of debate about the UK's fiscal choices. To further aid transparency, the chancellor could even adopt a new convention to read out a short assessment of the state of the public finances, prepared by the OBR, at the beginning of each budget speech – as advocated by Tim Leunig, a former advisor to two chancellors.[85]
- **Produce alternative forecasts, with different policy assumptions, in areas where government policy lacks credibility.** One issue with the current fiscal framework is that the OBR is obliged to accept the government's spending and taxation plans when producing its economic forecasts. However, in some cases these plans lack credibility. For example,

fuel-duty rates have not increased for more than a decade, but for the purposes of producing forecasts the OBR must assume that they will in the future, because that is what the government has stated. Similarly, in recent years the government has pencilled in tight spending plans that many commentators consider implausible. The OBR could include these alternative scenarios in the "risks and uncertainties" section of its Economic and Fiscal Outlook, highlighting the impact of each assumption on its assessment of whether the government is on course to meet its fiscal rules. Different scenarios are already included in the OBR's long-term projections: they should also be included in its medium-term ones.

- **Include a more risk-based assessment of government investment projects and their potential impact on the economy.** The OBR has historically set a high evidential bar for assuming that changes to government policy will have a large impact on economic growth or tax revenues. This can have the adverse effect of discouraging governments from investing in more risky policies that have uncertain but potentially large long-term payoffs, in favour of shorter-term policies with more certainty.[86] It is for the government of the day to determine its risk appetite, but instead of the OBR adopting a yes/no approach to scoring new policies, it should instead highlight the range of potential outcomes and illustrate their potential impact on the public finances. This could be a focus of the OBR's annual Fiscal Risks and Sustainability report, where it provides more risk-based analysis of the government's fiscal plans and explores more novel but speculative economic spillover channels (of the nature covered in this paper).

Changing the Risk-Reward Incentives to Invest Within Government

Ministers and civil servants are exposed to a range of institutional checks – from the National Audit Office (NAO), among others – to disincentivise them from taking unnecessary risks with taxpayers' money and ensure value for money. However, in some cases a higher risk tolerance for failure could lead to better outcomes. For example, during the pandemic, there was a reasonable chance that the vaccine programme would fail, but because there was a high degree of political support for it the investment went ahead despite the risks. The UK needs to learn the lessons of the pandemic and adopt a more venture-capitalist mindset in relation to certain kinds of public-investment

projects, taking a portfolio approach to investing in frontier technologies with a higher risk of failure. This would also require a review of the way that the NAO evaluates some government spending programmes, so that it does not judge each investment in isolation but as a package across a range of interventions. This would mean the NAO could compare actual returns across the portfolio with risk-adjusted expected returns.

06 Conclusion

Weak growth and stretched public finances present a formidable challenge for the incoming government – but a difficult economic inheritance need not dictate Britain's future. The coming Parliament will coincide with an era of unprecedented technological advancement, particularly in the field of AI. By harnessing these technological innovations the government can transform the public sector, making it more efficient and cost-effective so that it can deliver better outcomes for its citizens.

The UK has been in the doldrums for too long. The public has voted for change. The new government can deliver on that change by harnessing the biggest transformational force in the world today: technology. Its ability to do so will determine the future of Britain.

Endnotes

1   https://www.ons.gov.uk/economy/grossdomesticproductgdp/datasets/realtimedatabaseforuk
    gdpabmi

2   https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemploye
    etypes/timeseries/ybus/lms

3   https://www.ons.gov.uk/economy/grossdomesticproductgdp/timeseries/abmi/pgdp

4   https://obr.uk/supplementary-forecast-information-release-long-term-economic-determinant
    s-march-2024/

5   Productivity growth in the US non-farm business sector averaged 1.5 per cent a year between 20
    07 and 2023 (https://fred.stlouisfed.org/series/OPHNFB) – an upper bound for growth in the wid
    er economy when government and other sectors are included.

6   https://www.gov.uk/government/statistics/forecasts-for-the-uk-economy-may-2024.

7   https://www.imf.org/en/Publications/WEO/weo-database/2024/April

8   https://obr.uk/economic-and-fiscal-outlooks/

9   https://commonslibrary.parliament.uk/research-briefings/sn02812/

10   https://obr.uk/public-finances-databank-2023-24/

11   https://obr.uk/download/historical-public-finances-database/?tmstv=1719999226

12   https://www.ons.gov.uk/employmentandlabourmarket/peoplenotinwork/economicinactivity/d
    atasets/economicinactivitybyreasonseasonallyadjustedinac01sa.

13   https://www.bma.org.uk/advice-and-support/nhs-delivery-and-workforce/pressures/nhs-bac
    klog-data-analysis.

14   https://commonslibrary.parliament.uk/research-briefings/cbp-7281/#:~:text=The%20waitin
    g%20list%20for%20hospital%20treatment%20rose%20to,treatment%20target%20has%20n
    ot%20been%20met%20since%202016.

15   https://www.kingsfund.org.uk/insight-and-analysis/reports/public-satisfaction-nhs-social-car
    e-2023.

16   https://www.nao.org.uk/wp-content/uploads/2024/05/reducing-the-backlog-in-the-crown-c
    ourt-summary.pdf.

17   https://www.gov.uk/government/publications/prison-population-figures-2024.

18   https://www.gov.uk/government/publications/reinforced-autoclaved-aerated-concrete-raac-
    management-information.

19   https://www.bbc.co.uk/news/business-66709376

20   https://www.officeforstudents.org.uk/publications/financial-sustainability-of-higher-education-providers-in-england-2024.

21   https://www.local.gov.uk/about/news/councils-warn-cuts-neighbourhood-services-lga-survey#:~:text=Two%20thirds%20of%20councils%20surveyed,struggle%20to%20plug%20funding%20gaps

22   https://www.local.gov.uk/about/campaigns/councilscan/council-funding-requirement-and-funding-gap-technical-document.

23   https://ifs.org.uk/news/new-statistics-show-large-increases-material-deprivation-and-food-insecurity-during-cost.

24   https://www.trusselltrust.org/news-and-blog/latest-stats/.

25   https://www.trusselltrust.org/news-and-blog/latest-stats/end-year-stats/

26   https://ifs.org.uk/publications/context-march-2024-budget

27   https://www.imf.org/en/News/Articles/2024/05/20/mcs052124-united-kingdom-staff-concluding-statement-of-the-2024-article-iv-mission.

28   These figures are based on the long-term projections for emissions-related receipts from the OBR's July 2023 Fiscal Risks and Sustainability report, updated for the OBR's March 2024 Economic and Fiscal Outlook projections in the near-term.

29   The figures in this section are based on the long-term projections from the OBR's July 2023 Fiscal Risks and Sustainability report, updated to account for the latest population forecasts from the Office for National Statistics.

30   These figures assume no further crises will hit the UK that could cause debt to soar even higher and require even larger increases in tax. However, this may be wishful thinking. It is estimated that the pandemic cost the Exchequer £373 billion, while the energy-price support schemes deployed to soften the impact of the Russia-Ukraine war cost £52 billion (about 16 per cent of GDP when added together). In its risk analysis, the OBR explores a scenario whereby the UK economy continues to get hit by shocks at the same rate it has so far this century; this results in a rise of 25 percentage points for the debt-to-GDP ratio every decade. This would require the tax-to-GDP ratio to rise by a further 2.5 percentage points on average to stabilise debt.

31   https://www.oecd.org/content/dam/oecd/en/topics/policy-sub-issues/global-tax-revenues/revenue-statistics-united-kingdom.pdf

32   Figures refer to productivity per hour worked, measured in USD. Latest figures refer to 2022. https://data.oecd.org/lprdty/gdp-per-hour-worked.htm.

33   https://nic.org.uk/news/james-heath-urgent-planning-reform-needed-to-remove-binding-constraint-on-uks-economic-future/.

34   https://pubs.aeaweb.org/doi/pdfplus/10.1257/mac.20170388.

35   https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/datasets/employmentbyindustryemp13.

36   https://www.cnbc.com/2024/02/14/brexit-has-sliced-5percent-off-uk-economic-growth-goldman-sachs-says.html

37   https://obr.uk/forecasts-in-depth/the-economy-forecast/brexit-analysis/#assumptions.

38   https://www.jpmorgan.com/technology

39   https://www.jpmorganchase.com/ir/annual-report/2023/ar-ceo-letters

40   https://www.goldmansachs.com/intelligence/pages/gs-research/gen-ai-too-much-spend-too-little-benefit/report.pdf

41   https://www.bcg.com/publications/2024/from-potential-to-profit-with-genai

42   https://www.nber.org/papers/w31161

43   https://openai.com/index/klarna/

44   If a task can be performed 25 per cent faster, it means the same output can be produced with 75 per cent of the labour input required before. Labour productivity is defined as output per unit of labour input, so if previously one unit of labour produced one unit of output and now that same unit of output can be produced with 0.75 units of labour, that implies labour productivity rises from 1 to 1.33 – a 33 per cent gain.

45   https://www.hbs.edu/ris/Publication%20Files/24-013%5Fd9b45b68-9e74-42d6-a1c6-c72fb70c7282.pdf

46   https://www.science.org/doi/10.1126/science.adh2586

47   https://www.lemonde.fr/en/germany/article/2023/06/28/german-newspaper-bild-cuts-costs-and-banks-on-artificial-intelligence%5F6038923%5F146.html

48   https://static1.squarespace.com/static/64d60527c01ae7106f2646e9/t/656e400a1c23e22da0681e46/1701724190867/Generating+Change+%5F+The+Journalism+AI+report+%5F+English.pdf

49   https://arxiv.org/abs/2302.06590

50   https://arxiv.org/pdf/2306.15033

51   https://www.imf.org/-/media/Files/Publications/WEO/2024/April/English/ch3.ashx - see Box 3.3.

52   https://www.gspublishing.com/content/research/en/reports/2023/03/27/d64e052b-0f6e-45d7-967b-d7be35fabd16.html

53   https://microsoftuk.publicfirst.co.uk/uploads/Unlocking%5Fthe%5FUKs%5FAI%5FPotential.pdf

54   https://www.nber.org/papers/w32487

55   https://www.goldmansachs.com/intelligence/pages/gs-research/gen-ai-too-much-spend-too-little-benefit/report.pdf

56   https://hbr.org/2013/11/the-pace-of-technology-adoption-is-speeding-up

57   https://www.goldmansachs.com/intelligence/pages/ai-may-start-to-boost-us-gdp-in-2027.html

58   Goldman Sachs' AI forecast in Figure 9 shows only a modest boost to GDP growth over the next decade, adding around 0.3 percentage points to growth by 2034. This is despite its central assumption that AI will add 15 per cent to GDP in the long run. It rationalises this difference on the basis that its previous growth forecast, which did not include an explicit AI effect, did nevertheless assume some technological progress. As such it discounts some of the AI effect on the grounds that it would be double counting. This is a conservative assumption, as it is unclear whether the technical advances from AI should be seen as additive to wider technological progress in the economy or as a substitute, as Goldman Sachs assumes. In our central case we assume that the effects of AI are additive and hence the potential boost to growth is bigger, but there is clearly a great deal of uncertainty around such judgements.

59   These fiscal gains are measured in today's prices and have been calculated by multiplying the cumulative gains in GDP growth under different AI-rollout scenarios by the ratio of public-sector current receipts to GDP, as measured in the OBR's March 2024 Economic and Fiscal Outlook report.

60   https://obr.uk/forecasts-in-depth/brief-guides-and-explainers/public-finances/

61   https://www.topuniversities.com/

62   https://macropolo.org/digital-projects/the-global-ai-talent-tracker/

63   https://oecd.ai/en/data?selectedArea=investments-in-ai-and-data&selectedVisualization=vc-investments-in-ai-by-country

64   https://www.tortoisemedia.com/intelligence/global-ai/#data

65   https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/publicsectorpersonnel/bulletins/publicsectoremployment/march2024

66   https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fassets.publishing.service.gov.uk%2Fmedia%2F64b67a4061adff001301b237%2FPESA%5F2023%5FCP%5FChapter%5F5%5Ftables.xlsx&wdOrigin=BROWSELINK

67   https://digital.nhs.uk/data-and-information/publications/statistical/nhs-workforce-statistics/february-2024

68   Schindler and Scott (2024), working paper, "The Macroeconomic Impact of Chronic Illness in the United Kingdom"

69   This increase-in-employment figure is calculated by applying the modelled increase in employment rates by age from Schindler and Scott (2024) to the ONS's national population projections.

70   https://www.gov.uk/government/publications/using-the-nhs-health-check-programme-to-prevent-cvd/using-the-world-leading-nhs-health-check-programme-to-prevent-cvd

71   This increase-in-employment figure is calculated by applying the modelled increase in employment rates by age from Schindler and Scott (2024) to the ONS's national population projections.

72   To produce our £200 million estimate, we assume a major crisis – of the scale of the 2022 ener gy-price shock – occurs roughly every decade, based on the frequency and size of other major crises (for example, the global financial crisis, the Covid-19 pandemic, plus major issues that hav e required significant compensation, such as the infected-blood scandal). We then assume tha t a digital ID can only help realise these savings in one in five cases, based on its applicability to recent crises. This is the equivalent of assuming a digital ID could save £10 billion over 50 years, or the equivalent of £200 million on average a year.

73   The benefits of AI-enabled education have been calculated on the assumption that the elasticit y between GDP growth and tax revenue is 1 (as in, a 1 per cent increase in GDP increases tax re venue by 1 per cent, multiplied by the tax share of GDP) and the elasticity between GDP growth and public spending is 0.5. These assumptions are in line with the way the OBR modelled the fis cal impact of long-term changes in GDP for its 2021 Fiscal Risk Report, when analysing climate-change scenarios. It is also broadly consistent with the idea that about half of government spe nding (on public-sector wages and income-linked benefits such as pensions, for example) tend s to rise in line with growth in the wider economy. However, it is a deviation from the OBR's conv entional assumption that primary spending moves one for one with GDP and therefore different assumptions about future GDP matter for the volume of public services consumed, rather than the changing prospects for fiscal sustainability.

74   https://assets.publishing.service.gov.uk/media/60f573b88fa8f50c76838770/PESA%5F202 1%5FCP%5FChapter%5F4.xlsx

75   https://www.jpmorgan.com/technology

76   The current budget is defined as public-sector net borrowing minus spending on capital invest ment. So, a balanced current budget target implies the government must cover its day-to-day spending commitments, but can still borrow to invest.

77   "Underlying" debt refers to public-sector net debt excluding transfers to and from the Bank of E ngland.

78   https://obr.uk/efo/economic-and-fiscal-outlook-march-2024/

79   https://www.ft.com/content/4f868dd0-259d-45e9-bd86-2af4b60aab43

80   https://www.ons.gov.uk/economy/governmentpublicsectorandtaxes/publicspending/bulletin s/ukgovernmentdebtanddeficitforeurostatmaast/september2023

81   https://mainlymacro.blogspot.com/2024/02/one-rule-to-bring-them-all-and-in.html

82   https://www.thetimes.com/article/public-investment-must-rise-and-credibility-can-reassure-markets-w2p5v8rpx

83   https://www.resolutionfoundation.org/app/uploads/2024/06/Debt-dramas.pdf

84 A large part of the reason why public-sector net debt is forecast to fall so little as a share of GDP towards the end of the forecast period under the OBR's latest forecasts (despite a relatively small forecast deficit) is that the student loan book is forecast to keep growing. This is because student loans that will ultimately be repaid are classified as "financial transactions" that add to debt but not to borrowing. The OBR forecasts that public-sector net financial liabilities will fall as a share of GDP by 1.9 percentage points in 2028–29. Shifting to this wider debt measure would thus increase headroom against the fiscal rules by £52 billion in 2028–29. This measure would also remove constraints on growth of public financial entities, like the proposed National Wealth Fund, which are heavily constrained by the debt rule.

85 https://www.economist.com/by-invitation/2024/03/04/a-former-adviser-on-the-250-words-jeremy-hunt-should-read-out-at-the-budget

86 https://www.theguardian.com/commentisfree/article/2024/jun/12/tories-fiscal-disasters-change-warped-public-spending-obr

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