



**BUSINESS**

**The £232 billion opportunity**

**HOW COVID-DRIVEN  
DIGITAL CHANGE  
COULD TRANSFORM  
THE UK ECONOMY**

**REVOLUTIONISE  
THE EVERYDAY**



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# FOREWORD

After the toughest of years, the UK has a £232 billion opportunity ahead of it.

One that we must now grasp with both hands.

It's an opportunity that has come about because of our national response to Covid-19 and the steps taken by organisations across the UK to speed up their adoption of digital technologies and infrastructure.

Throughout history, hard times have been a catalyst for innovation. 2020 was no exception.

We've seen years of progress delivered in weeks.

Through technology, we've reshaped our working lives and overcome barriers that previously seemed insurmountable. We've transformed the way we work, how we connect, and how we keep the country moving.

Digital transformation left the realm of boardroom ambition and became a reality for everyone, from CEOs to front-line workers and people living their day-to-day lives. No matter how big or small these transformations were, we all experienced them in some capacity.

Now we have the chance to build on that progress. To define our new everyday on our terms. A new everyday that works better for us, our people, our customers, the whole UK – not just today, but in years and decades to come.

That starts with asking the right questions.

What is the real impact of the innovation we've seen? How does it add up across the whole of our economy? And how will digital transformation drive our national rebound and future recovery?

We partnered with the Centre for Economics and Business Research (Cebr) to find out.

Cebr is one of the UK's leading independent economic consultancies, responsible for decades of influential economic predictions.

Through our research, we've explored the impact of Covid-19 on accelerating technology programmes. We now have the numbers to show how IT investments and digital adoption could add hundreds of billions of pounds to our national economy.

We're excited to show you what we've found. The insights in this report will help you and your organisation learn from what we've all experienced so we can all build a brighter future together.

## **Investment in digital transformation could drive our nation's recovery**

The numbers in our report tell a simple, powerful story.

Continued investment in digital could help to grow the UK economy by £232 billion by 2040.

This boost to the economy is similar in magnitude to the current GDP of countries such as South Africa or Finland.<sup>1</sup>

Over the coming years, as the UK economy recovers, accelerated digital adoption could help us to increase UK GDP by approximately £74 billion in 2025.

Cebr's work validates on a national scale what our customers have repeatedly told us over the past year: bringing forward digital investment looks set to generate significant benefits.

This is the moment to make the right decisions so that we can achieve this necessary uplift to our economy and set ourselves up for success in the years to come.

Digital adoption will help businesses grow in productivity and output. By increasing their investment in digital transformation, they will have the potential to improve what and how they sell. Innovation will mean better products and more effective and valuable services.

Across commercial sectors like construction, professional services, and retail, this could mean an uplift in the value of goods and services by £40 billion, going towards GDP.

This won't just benefit individual organisations – it will grow whole industries, drive our national output, and boost the economy. Beyond what Cebr has found, we can see how this will give businesses a greater competitive edge, help to create more jobs and revive consumer confidence.

In the UK public sector, digital growth will deliver important efficiencies and cost savings. It will create gains that can be reinvested in public infrastructure, people and skills and further innovations in technology. Gains from this will be felt on an economy-wide basis.

The improvement of our public services and digital infrastructure will positively impact all of us. It will drive output across enterprise and public organisations and could create new opportunities for public- and private-sector collaboration.

The transformation of the health, government and education subsets of the public sector alone could add £75 billion, and potentially more, to the UK economy.

These figures give us a dose of much-needed optimism. But to grasp this opportunity, we need to invest. And invest now.

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<sup>1</sup> Finnish GDP in 2020 was approximately \$268bn, or £209bn (1USD=0.78GPB) and South African GDP in 2020 was approximately \$283bn, or £221bn. Source: Cebr World Economic League Table. Note: Nominal GDP figures are used.

**A new and better everyday is well within our grasp.**

Digital transformation is driving progress that is shaping the future of work – positive changes that you’ll experience in your own organisation.

Our work with Cebr points to three key outcomes:

1. Technology that enables flexible working and keeps us collaborating, wherever we are
2. More efficient and effective digital delivery of services for customers and citizens
3. Richer data that will inform decision-making and drive the advancement of innovations like AI to assist workers in their everyday tasks

These advancements are already under way, and the combined effect of them over the next 20 years will be a transformational boost to the UK’s way of working.

This is about putting the right tools and technologies in people’s hands, enabling employees to do their job in a way that works for them and the customers they serve, now and in the future.

By doing this, we’ll be radically improving our economy by empowering our national workforce.

I’d like to thank Cebr for producing such a comprehensive and enlightening piece of research. We can all learn from the conclusions and take them forward into action.

Now is the time for the UK’s rebound. The opportunity to improve the lives of people across the UK.

With the right change, the right technology, and the right investment in people, we have the chance to not simply recover, but make things even better than before.

Together, let’s grasp this once-in-a-generation moment and revolutionise the everyday. For our people. For our customers. For the future of the UK and everyone who lives and works here.



**Peter Kelly**

*Managing Director,  
Virgin Media Business*

## Key findings from Cebr

- **Covid-accelerated digital transformation (CADT) could add £232 billion to UK GDP by 2040** – a 6.9% uplift to the economy
- By investing in digital transformation, we could increase GDP by **£74 billion in 2025** (2.8% increase)
- Across the private sector industries of **professional services, retail, and construction**, Covid-accelerated digital transformation could generate a combined **uplift of £40 billion in industry value added to the UK economy by 2040**
- Across the public sector in subsets of **health and social care, local and central government and blue light services, and education**, efficiencies and cost-savings from digital adoption will be reinvested in jobs, public infrastructure, and innovation, **benefiting the whole UK economy by approximately £75 billion, and potentially more, by 2040**
- Three digital transformations are shaping the world of work for organisations, their workers, and those who use their services:
  - **Flexible working**
  - **Digital delivery of services**
  - **Larger and richer data sets, used for analytics and AI systems**

**The Covid challenges facing the UK, and the entire world, are extremely serious. The economic impacts alone fall far short of capturing the scale of the pandemic's toll on people's lives and wellbeing.**

**Focusing on the economic implications, however, history shows us that periods of economic hardship can help to catalyse technological progress and adoption, as businesses and other stakeholders seek to adapt to new realities.**

**Within this research, we have examined the potential economic impact of a wave of digital transformation driven by the rollout of new ways of working and connecting.**

**This could create an economic high road over the coming decades, helping the UK economy to grow while having the flexibility to deal with future challenges.**

Cristian Niculescu-Marcu CFA,  
Director of Economic Analysis, Cebr

## Executive summary

**By 2040, investment in digital transformation could increase the UK economy by £232 billion.**

In this report, we set out an important moment for UK organisations to grasp, based on what we've learned from Cebr's research and our own work in interviewing customers and industry leaders across the nation's private and public sectors.

Our report examines how investing in digital change, to transform how we work, can support the UK's economic recovery from Covid-19. Detailed sector analysis also reveals that, despite the rapid shifts many have already made in response to the Covid-19 pandemic, there is still a major digital opportunity for organisations right across the economy.

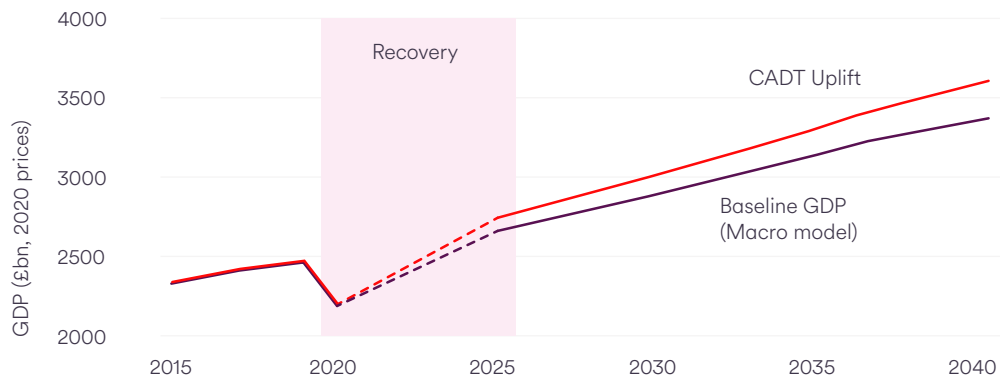
This is a Virgin Media Business report based on work undertaken by Cebr.

For the full analysis and economic modelling, methodology and literature review, you can download Cebr's report *The impact of digital transformation on the UK economy: A Cebr report for Virgin Media Business* on our [research hub](#).



## The impact on the economy

### UK GDP, 2015–2040



Source: Cebr analysis

- The boosted investment and fast adoption of Covid-accelerated digital transformation (CADT) could increase UK GDP by £232 billion (6.9% increase) by 2040
- This is the equivalent of growing the UK economy by approximately the same magnitude as the current GDP of Finland or South Africa<sup>2</sup>
- By 2025, digital transformation could have increased GDP by £74 billion (2.8% increase). By investing in digital transformation, we'll help to ensure that the UK is in a position of strength over the medium term

[Read more](#) on the impact on the UK's economic rebound.

<sup>2</sup> Finnish GDP in 2020 was approximately \$268bn, or £209bn (1USD=0.78GBP) and South African GDP in 2020 was approximately \$283bn, or £221bn. Source: Cebr World Economic League Table. Note: Nominal GDP figures are used.



## The digital transformations improving the world of work

There are three key transformations shaping the future of work. These will create benefits for employees, drive efficiencies and productivity, and enable organisations to improve services:



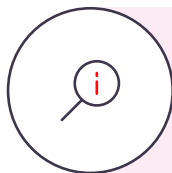
### Flexible working

- Digital technology is enabling remote collaboration across teams and between different organisations, meaning that projects and operations continue to run virtually
- Through increased usage and further innovation, flexible working will lead to more efficient processes and support employees in their work, and beyond that, empower them with a better work-life balance



### Digital delivery of services

- The transformation of customer and citizen experiences (online retail, virtual delivery of primary healthcare and courts, video consultations with professional services, computer-aided education), is bringing improved convenience, access and speed of service
- Increased adoption will enable efficiencies and economies of scale to be applied more broadly across the economy, adding greater value to our national output



### Richer data for analytics and AI

- Richer data, made available through digital technologies, is providing real-time intelligence for planning (from town planning to building management) and delivery of services (such as high-volume ecommerce)
- As the quality and use of this data evolves, it will help inform decision-making and empower workers to deliver more effective solutions, accelerating processes that will allow employees to focus on value-adding tasks

## Benefiting the UK workforce

These Covid-accelerated digital transformations will benefit employees across the UK:



Flexible working will impact 46% of jobs



Digital delivery of services will impact 26% of jobs



Increased implementation of analytics and AI to assist employees will impact 5% of jobs

Cebr's work also shows how Covid-accelerated digital transformation could boost employee productivity. Cebr's desk research and literature review, validated with expert interviews, points to an almost 12% productivity growth assumption for those employees who can take full advantage of Covid-accelerated digital transformation.

This assumed productivity is substantively responsible for an economic uplift of 4.8% by 2040, across the sub-sectors of specialised and digital retail, professional services, and construction.

## Investing in the right connectivity and network infrastructure

These benefits won't happen on their own; they'll require ongoing investment in physical and digital infrastructure.

With investment in these technologies continuing to grow, communications will only become more widespread. Organisations will need the right underlying connectivity to enable employees to use the tools they need to be productive and effective from any location.

The quality of an organisation's connectivity and network infrastructure is paramount. Organisations will need connectivity and networks that continue to grant them flexibility and security, with the ability to meet increases in demand when and where they happen, and to give them scalability.

To keep technological progress going, the UK will need:

1. **Continued investment in connectivity** to meet the demands of a flexible workforce
2. **Increased investment in collaboration technologies** to improve productivity and allow flexible work to become the new everyday of many industries
3. **More agile networks and smarter enterprise systems** to improve quality of delivery, while reacting to changing demands, as more and more services move to a digital-first environment

And all of this together will have hugely positive impacts on the future prosperity of our private and public sectors.

[Read more](#) on Covid-accelerated digital transformation shaping the world of work.

## The impact on our private and public sectors

To understand the digital opportunity across different areas of our economy, Cebr examined in detail six sub-sectors across UK private enterprise and public services:

- Construction
- Professional services
- Specialised and digital retail
- Health and social care
- Education
- Local and central government and blue-light services

Cebr studied the scale of technology adoption and future potential for growth across each to show the value that digital transformation could bring to their success and the wider UK economy by 2040.

Increased investment in digital transformation projects will lead to better services and greater output. The gains generated in these sectors will be reinvested to grow industries, add value to the economy and improve economy-wide services.

In short, the sooner the digital transformation projects start, the sooner the benefits will be felt across the economy, and the greater long-term impact they will have.

### Private sector



Digital transformation, accelerated by Covid, will grow the UK's private sectors, and the UK economy more widely, over the coming years and decades.

When we look in detail at three private-sector categories of construction, professional services, and specialised and digital retail, we see a total digital transformation uplift of £40 billion added to the economy in 2040.

Within those categories, the biggest uplift in economic impact will come from retail, which could generate £11 billion in growth by 2030, growing to £21 billion (6.2%) by 2040 as the sector embraces digital transformation programmes.

PRIVATE-SECTOR GVA UPLIFT

Digital Transformation Uplift (2020 prices)



Source: Cebr analysis

[Read more](#) on the impact on the private sector.



**Public sector**



**One third of economy-wide tech-enabled growth will be supported by public-sector investment in the sub-sectors Cebr examined: by £75 billion, and potentially more, in 2040.**

As the government looks to the UK's bounceback from Covid-19 disruption, investment in our public sector across technologies, skills and digital infrastructure will be vital to our recovery.

The uplift generated by digital transformation will create cost-savings and efficiencies, and these will be reinvested to boost our whole economy.

The public sub-sectors analysed by Cebr (health and social care, education and local and central government, and justice) have great potential to bring about the benefits of technological innovations that improve services, save employee time and increase productivity.

- Public-sector reinvestment (in technology, skills and infrastructure) from gains such as efficiencies and savings could lead to added value to the economy of £75 billion, and potentially more, by 2040 (2.3% uplift to GDP)
- This will benefit not just our public services but the whole economy, across enterprise and public organisations

**PUBLIC-SECTOR CADT INVESTMENT IMPACTS**

**Economy-wide gains attributable to public-sector investment  
(2020 prices, gain as % of GDP)**



Source: Cebr analysis

[Read more](#) on the impact on the public sector.

## The impact on the UK's economic rebound

Over the next 20 years, continued investment in digital transformation will transform the way we work and live, increasing productivity and output, radically improving our economy, creating jobs, and making our communities healthier and more secure.

While the long-term view of growth is a cause for optimism and one that should encourage action among organisations, there is a need for investment now to ensure that the UK is in a position of strength.

**By 2040, investment in digital transformation could have increased UK GDP by £232 billion.**

## The importance of investing now

Ongoing Covid-19 challenges and pressures on our public services and industries, coupled with rapidly changing government policies and interventions, make the short-term view of UK growth much harder to predict.

While a fast and effective rollout of vaccines may allow for a return to normality and a quick V-shaped economic recovery, prolonged restrictions well into the second half of 2021 would lead to greater negative impact on the economy and slower growth in the years that follow.

The exact shape of economic recovery in the next four years is unclear. Cebr therefore focused on the medium and longer-term annual estimates of growth, between 2025 and 2040. This enables their findings to be more robust and less likely to be impacted by current – and ongoing – changes to the pandemic trajectory and governmental responses.

However, what is clear is that investments over this immediate period will enable the UK to be in a position of strength by 2025, as Covid-accelerated digital transformation could help grow UK GDP by £74bn billion.

Decisions to invest, made now, will bolster recovery over the medium term (the next five years) as well as deliver long-lasting impact, allowing the UK to realise the GDP uplift by 2040 that our research indicates.

## Long-term GDP growth from investment in digital technology: 2025 to 2040

GDP across the UK economy is estimated to reach approximately £2,891 billion by 2030.

However, increased investment in Covid-accelerated digital transformation could deliver additional growth to GDP of approximately £3,018 billion – an uplift of £127 billion, or 4.4%.

By 2040, the baseline GDP – without accelerated technology adoption – is estimated to be approximately £3,361 billion. However, Covid-accelerated digital change could result in an uplift of around 7% to £3,593 billion – providing an increase to our national GDP of £232 billion.

### UK-WIDE IMPACT OF COVID-ACCELERATED DIGITAL TRANSFORMATION ADOPTION

Year	Baseline GDP (£bn, 2020 prices)	Uplifted GDP (£bn, 2020 prices)	Additional GDP (£bn, 2020 prices)	Percent boost
2020	2178	2178	0	0.0%
2025	2651	2725	74	2.8%
2026	2697	2786	89	3.3%
2027	2744	2845	101	3.7%
2028	2794	2905	111	4.0%
2029	2845	2964	119	4.2%
2030	2891	3018	127	4.4%
2031	2939	3073	134	4.6%
2032	2988	3130	142	4.8%
2033	3038	3189	151	5.0%
2034	3090	3250	160	5.2%
2035	3143	3314	171	5.4%
2036	3198	3380	182	5.7%
2037	3244	3438	194	6.0%
2038	3283	3488	205	6.2%
2039	3322	3540	218	6.6%
2040	3361	3593	232	6.9%

Source: Cebr analysis

In the following sections of our report, we explore how these results will play out across the UK's private and public sectors.



## The impact on the private sector

UK businesses have taken incredible strides to adapt in the face of the challenges created by Covid-19.

From flexible and remote working to virtual contact centres and cloud adoption, the pandemic has pressed the fast-forward button on many technological trends that had already started or were being planned for.

If investment in such technologies continues at the same pace, organisations and their sectors – and in turn, the whole UK economy – will be able to grow at an increased rate.

This will deliver better outcomes for our industry workforces and benefit customers in the years and decades ahead.

Cebr’s findings indicate that the growth gains for the private sector – experienced by each sub-sector analysed – will receive significant uplift from Covid-accelerated digital transformation.

Across the three private sectors of professional services, retail and construction, Covid-accelerated digital transformation could bring about a combined boost of £40 billion by 2040.

Investment in digital adoption and innovation has a real impact on sector growth and businesses, leading to real increases in private-sector value.

### SUMMARY OF PRIVATE-SECTOR DIGITAL TRANSFORMATION GVA UPLIFTS IN 2040

(Real, £bn, 2020 prices)				
Private Sector	Baseline 2040	Size of Uplifted Sector in 2040	Digital Transformation Uplift	Percent Gain
Construction	164	167	3	1.8%
Professional & Scientific Services	333	349	14	4.8%
Retail	340	361	18	6.2%

Source: Cebr analysis

## Construction

For an industry that has traditionally been fragmented, labour-intensive, site-based and relatively slower to adopt technological transformation than some others, the digital age is presenting new opportunities for UK construction.

The effect of Covid-19 has been to accelerate the ways in which construction industry businesses use technology for remote working across teams and sites, and plan and manage projects virtually.

Thanks to an ever-increasing number of pioneering projects and organisations embracing innovation, there are signs that the industry is starting to increase its adoption rate and invest in transformation.

The property industry is generally slower to take up tech and a bit more reserved in taking risks. But the pandemic allowed us as a company to embrace changes.

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It's shown how quickly you can roll out new innovations. The cloud has been huge enabler to get services up and running quickly, collaborate with teams and share documents.

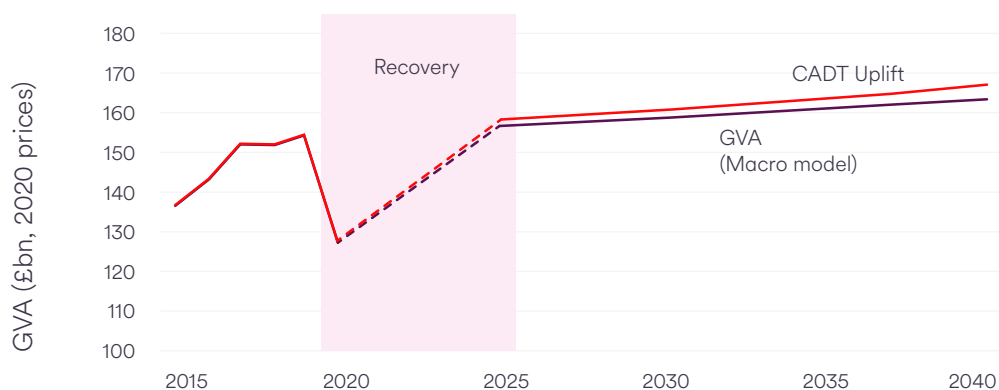
Mark Nallen,  
Director of Technology and Innovation, Canary Wharf Group

The construction sector has the potential to become a field in which digital solutions will save time and money. This is particularly true for smaller administrative tasks and projects where virtual work technology can allow for different companies along the supply chain to collaborate in real time and deliver remotely.

A 2019 report by McKinsey highlights a number of positive examples of digital transformation across the sector. For example, a mobile app for real-time feedback led to a 12% reduction in rework hours at the job site, and advanced analytics led to improvements in project margins of 3 to 5%.<sup>3</sup>

In view of this, the **digital transformation uplift could be £3 billion in 2040, taking the sector up to £167 billion** at the end of the 20-year period. This is a gain over the baseline of around 1.8%.

### UK CONSTRUCTION SECTOR GVA, 2015–2040



Source: Cebr analysis

Forecasted size of the construction sector under the baseline scenario, together with the size of the uplifted sector, achieved through accelerated adoption of digital transformation.

<sup>3</sup> McKinsey (2019): [Decoding digital transformation in construction](#)

## Professional services

In contrast to the construction sector, the professional and scientific services sector was seen to have a high current level of digital transformation adoption.

This was verified through Cebr’s panel workshops with our customers and independent experts, where industry practitioners confirmed that many sub-sets within the sector – such as the legal profession – have been using automation tools for assisting employees with tasks for a number of years.

A report by Clio in 2019 found that cloud computing had enabled greater workforce mobility in the US legal sector through syncing data between devices. This, in turn, cut law firms’ costs by 30% by allowing around 25% of employees to work remotely.<sup>4</sup>

Such tools have brought about significant productivity gains across professional services. These gains can further be realised by additional innovations in the sector, such as the use of video technology, which is important in ensuring successful flexible working practices.

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**We are a people business. It’s person-to-client, heavily powered by digital. Some believe that embracing digital means losing some aspects of the personal relationship. But we would argue the opposite.**

**Take video calling for example, which enables us to meet more frequently and face to face. We use technology to enhance our relationships with all stakeholders. Technology has allowed us to work effectively from home, allowed us to successfully integrate acquisitions, onboard and train our new colleagues and engage effectively with our clients.**

Richard King,  
COO, Knights plc

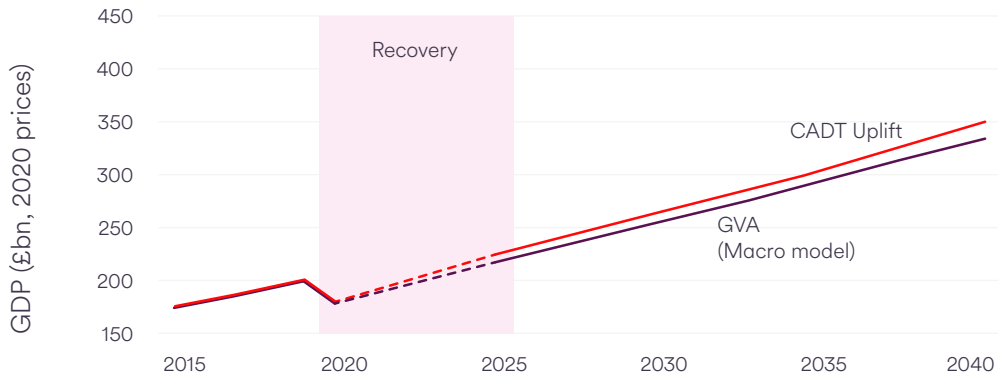
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<sup>4</sup> Clio (2019): How cloud computing is making law firms more efficient and profitable

Cebr estimates that **the UK’s professional services sector could be £349 billion by 2040, with an uplift of £16 billion (4.8%)** thanks to Covid-accelerated digital transformation.

**UK PROFESSIONAL SERVICES SECTOR GVA, 2015–2040**



Source: Cebr analysis

Forecasted size of the professional and scientific services sector under the baseline scenario, together with the size of the uplifted sector, achieved through accelerated digital transformation.

**Specialised and digital retail**

As in professional services, the specialised retail sector was found to have a high current level of digital adoption.

The internet has given consumers access to endless shopping options, and the proliferation of mobile devices has put information at their fingertips in ways previously unimaginable. And with shoppers increasingly shopping online because of lockdowns, consumer expectations about how they access products and services has only grown.

However, there is potential for even greater personalisation of online services, and further technological transformation is still possible. Dunelm’s 2020 interim financial results referenced a new cloud-native digital platform that supported a 33% increase in like-for-like sales.<sup>5</sup>

The use of chatbots to enhance customer experience is another good example of an innovation increasingly being rolled out to improve the customer experience and drive sales.<sup>6</sup>

<sup>5</sup> Dunelm (2020): Interim Results – Financial Year 2020

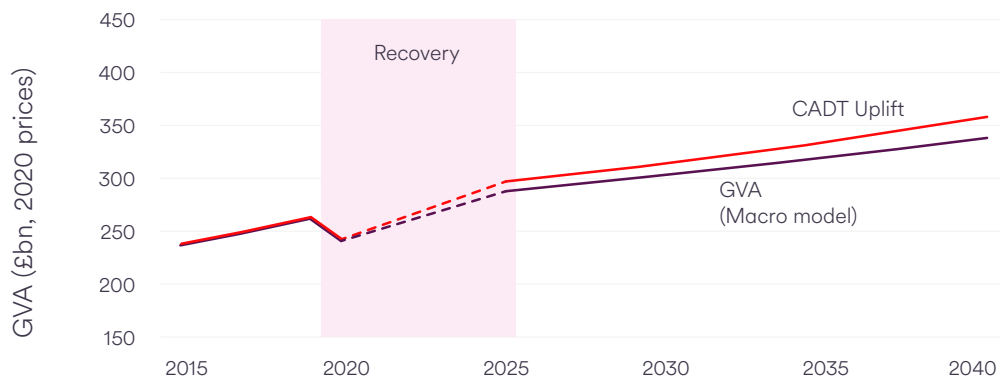
<sup>6</sup> Hildebrand and Bergner (2019): AI-driven sales automation: using chatbots to boost sales



The success of multi-channel retailers in the USA shows the opportunity for the already highly digitised UK retail market, where online shopping is the norm and has increased over the last year with people shopping more from home. ONS retail sales data showed average weekly online sales of £2.35 billion in June 2020 – a 65% increase over the same time in 2019.<sup>7</sup>

Cebr’s analysis estimates the **uplifted retail sector could be £361 billion by 2040**, an increase of £21 billion, or 6.2%.

**UK RETAIL SECTOR GVA, 2015–2040**



Source: Cebr analysis

Forecasted size of the specialised and digital retail sector under the baseline scenario, together with the size of the uplifted sector, achieved through accelerated digital transformation.

<sup>7</sup> ONS (2020): Retail sales data

## The impact on the public sector

2020 was a challenging year for the public sector. It had to take dramatic steps, rapidly shifting to remote working for employees and prioritising digital delivery for citizens.

The NHS was – and continues to be – put under enormous pressure in seeking to handle Covid-related hospital admissions. Local authorities, meanwhile, have had to support the most vulnerable by freezing rent payments, supporting food banks, and providing shelter for those in need.

In the face of these challenges, the public sector has been accelerating digital transformation at pace, with connectivity playing a critical role in supporting new working patterns, providing public services to citizens, and helping to tackle social inequalities.

Alongside these advances, the increased adoption of digital transformation in our government-dominated public sectors will also have a long-term positive impact on the UK's wider economic recovery and future health, across public and private organisations.

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**Every £1 in public-sector funding for R&D and innovation typically returns £7. Short-term interventions around digital transformation provide the city with long-term benefits.**

**Digital is absolutely critical. We work hand-in-glove with local enterprises, councils, universities and commercial partners to deliver the right strategies.**

Dr Jayne Brady MBE,  
Belfast Digital Information Commissioner at Belfast City Council

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Public-sector gains will be reinvested and boost our national GDP by an estimated £75 billion (2.3%) and potentially more, by 2040, benefiting all.

**SUMMARY OF PUBLIC-SECTOR DIGITAL TRANSFORMATION UPLIFTS IN 2040**

(Real, £bn, 2020 prices)			
Public Sector	Total size of Public Sector in 2040	Economy-wide gains attributable to Public Sector investment	Gain as a % of GDP
Health & Social Care	270	33	1.0%
Education	151	10	0.3%
Public Administration & Defence	121	32	1.0%

Source: Cebr analysis

**Health**

From Cebr’s research, it is assumed that Covid-19 might have accelerated the rate of digital transformation in health and social care by between three and five years, as a result of forcing through innovations that help to improve efficiency.

**Reforming long-standing services in order to promote real choice, competition, innovation and value for money is always difficult.**

“

**The Covid-19 pandemic demonstrated how important it is to underpin online digital services with the right connectivity. Good connectivity is vital for healthcare practitioners, supporting them with faster, more reliable access to the information and services they need, when they need it.**

”

Patrick Clark,  
Health and Social Care Network (HSCN) Programme Director at NHS Digital

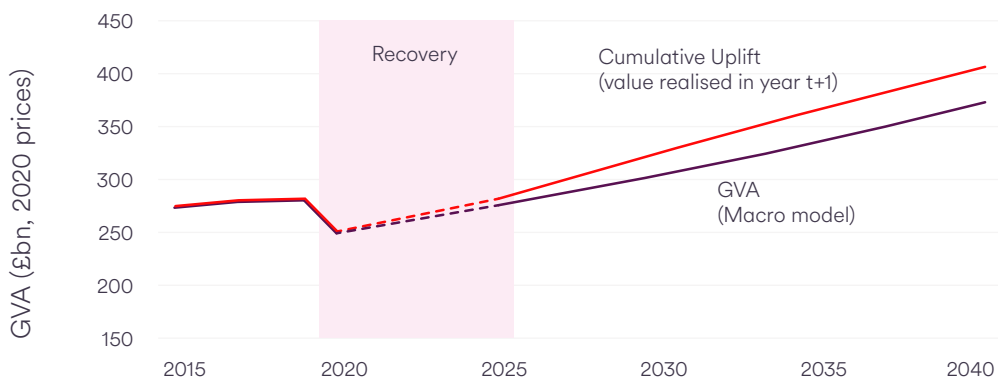
Before the outbreak of Covid-19, there was a lower rate of relative digital transformation adoption across the health sector – particularly compared to some private sectors.

However, insights from Cebr’s literature review and panel workshops show that the sector could realise significant gains from increased use of technology – from enhanced employee efficiency through to the improvement of service quality and delivery, particularly through telemedicine.

Research by NHS Digital found that there has been a huge increase in the usage of NHS Digital Services to access healthcare remotely as a result of Covid-19. In 2020, there was a 257% increase in the use of NHS 111 online, and a tenfold increase in the use of the NHS app.<sup>8</sup>

**GDP gains (to be released across the overall economy) from Covid-accelerated digital transformation in healthcare are estimated to be approximately £33 billion in 2040 (around 1% of 2040 GDP).**

**UK HEALTH SECTOR GVA, 2015–2040**



Source: Cebr analysis

Forecasted size of the health sector under the baseline scenario and the estimated size of the cumulative gain that will be released across the wider UK economy, accruing to accelerated digital transformation in the health sector.

<sup>8</sup> NHS Digital (2020): [Coronavirus pandemic prompts a surge in the number of people using NHS tech in 2020](#)



## Education

In 2019, the UK government set out its digital education strategy, which aims to harness technology to reduce teacher workload, increase efficiencies and raise learning standards for students in primary and secondary education.

As the government continues to implement these plans in line with advancements made during the pandemic, digitally aided teaching will continue to increase in importance.

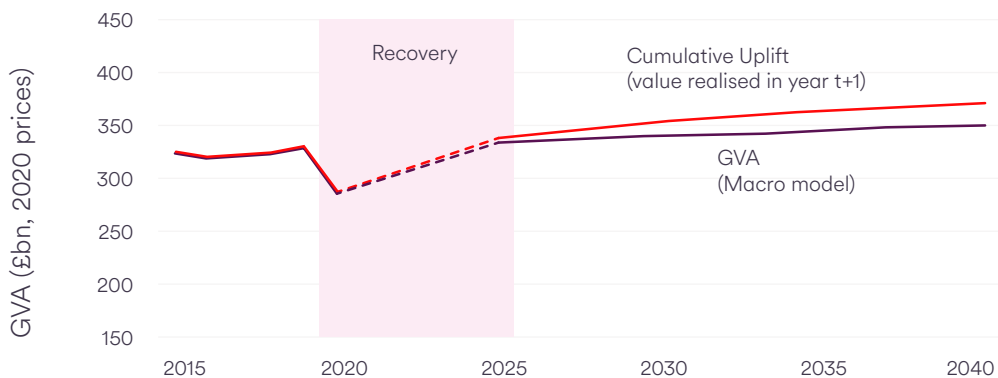
Further, and more radical, transformations may also be realised in higher education, as the digital-first model becomes more commonplace.

This could mean that previously investigated benefits are now delivered in practice to improve learning provision across the UK.

For example, a 2017 study by the Higher Education Policy Institute found that technology-enhanced learning through curriculum redesign can achieve savings of 31% and increase retention by as much as 5.7% for low-income students.<sup>9</sup>

**By 2040, economy-wide gains attributable to digital investment in the education sector are approximately £10bn – around 0.3% of 2040 UK GDP.**

### UK EDUCATION SECTOR GVA, 2015–2040



Source: Cebr analysis

Forecasted size of the education sector under the baseline scenario and the estimated size of the cumulative gain that will be released across the wider UK economy, accruing to accelerated digital transformation in the education sector.

<sup>9</sup> Higher Education Policy Institute (2017): Rebooting learning for the digital age

## Local and central government, and blue-light services

Throughout the pandemic, local authorities have rapidly adapted in order to keep providing citizens with vital services that support local communities and the most vulnerable.

This has been achieved through the launch of new online platforms and services for citizens, and through the move of sector employees to remote working.

During the first peak of the pandemic, 82% of local authority workers<sup>10</sup> were working from home, up from 5% before, according to research from public sector IT association, Socitm (Society for innovation, technology and modernisation). Due to the mass roll-out of remote working, 80% were also using office collaboration and videoconferencing tools to continue working, up from 30% before the pandemic.

**We had to scale things up overnight. Thankfully, we had already been investing in the infrastructure that came into play.**

**Staff had to work from anywhere and everywhere. They didn't have to be desk-bound anymore.**

**This is now the new normal. We want to use this opportunity to roll out more online channels. We want to enable better outcomes for citizens and residents.**

Jai Ghai,  
Head of ICT, City of Wolverhampton Council

The nature of most government services allows Covid-accelerated digital transformation to have a sizeable impact in the sector.

Swindon Borough Council is a great example of how the pandemic has transformed public services. Following a 2,000% spike in free meal applications, the council rapidly adopted a process automation system to handle such a volume of enquiries, leading to a 98.3% efficiency gain.<sup>11</sup>

Technology has proven critical to the continuing provision of local services. And where citizens need new skills or support to access online services, councils are being proactive.

<sup>10</sup> Socitm (2020): [COVID-19 digital & ICT impact survey report](#)

<sup>11</sup> IPro (2020): [How coronavirus has accelerated the digital transformation of Britain's public sector](#)

We want people in Greater Manchester to get on in life and we want our economy to thrive. And we firmly believe digital is central to that aspiration.

“

Digital is key to enabling our region to recover from this pandemic. To genuinely enable us to level up across the country...as well as how we level up in Greater Manchester.

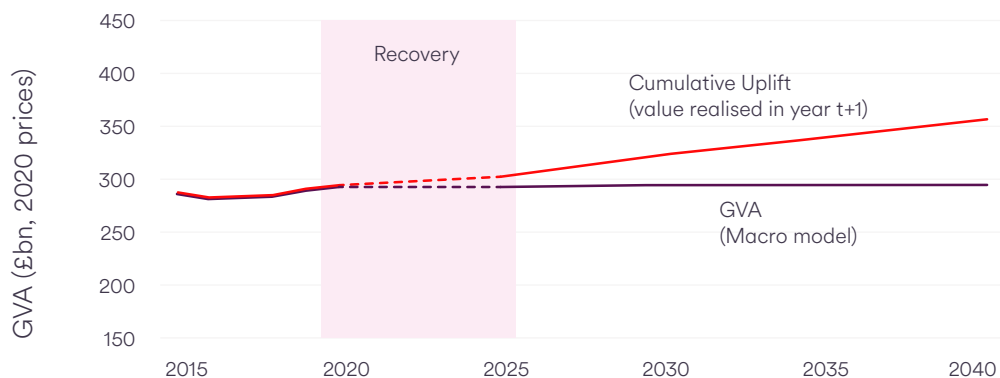
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Our intention is to be a 100% digitally enabled city region. To help everyone have access to the internet. And to do so with confidence and safety.

Sara Todd,  
CEO for Greater Manchester Combined Authority Digital

Additionally, public demand for digitised government services during Covid-19 will drive accelerated digital transformation over the coming decades.

Across local and central government, and blue-light services, the GDP uplift is estimated to be £32 billion, or around 1% of UK GDP in 2040.



Source: Cebr analysis

Forecasted size of the UK local and central government, and blue-light services, under the baseline scenario and the estimated size of the cumulative gain that will be released across the wider UK economy, accruing to accelerated digital transformation in this government-run sub-sector.

## Covid-accelerated digital transformation shaping the world of work

The immediate impact of Covid-19 on digital transformation has been seen in large increases in the number of consumers using online shopping, digital tools enabling tens of millions to work from home and increased digital delivery of services.

Due to the nature of Covid-19 restrictions, digital transformation has been characterised by the replacement of in-person interactions with digitally enabled interactions, and the replacement of the physical with the digital – particularly in the work environment.

## Technology trends shaping the new world of work

In the first instance, it was necessary for Cebr to capture the benefits associated with digital transformation in a post Covid-19 scenario. The findings from our panel workshops and Cebr’s literature review were particularly important in providing evidence for these benefits.

From this work, the solutions adopted during and immediately before Covid-19 have enabled three key transformations in the world of work:

1. Flexible working
2. Digital delivery of services
3. Creation of larger and richer data sets, used for analytics and AI systems that assist employees



## Flexible working

Whether you call it flexitime, remote working or compressed hours, flexible working has, due to Covid-19, moved from being an occasional or trialled workplace initiative to being the everyday experience of workers across the UK.

It has enabled organisations to continue operating and supporting customers during Covid-19 and has helped people to strike a better balance between their career and home commitments.

In a recent study, over half (52%) of UK employees said they feel closer to their families and enjoy a better work–life balance after working from home.<sup>12</sup>

Prior to the pandemic, the proportion of remote workers in the UK was approximately 5% across all industries. However, when the first national lockdown was announced, this figure rose to 47.5%. Whilst remote working dropped to approximately 27.4% in early September 2020 – during a period of lessened restrictions – this still represented a substantial rise above previous typical levels.<sup>13</sup>

The benefits of increased flexible and remote working include the increased productivity of workers, reduced sick leave, a more efficient labour market where a pool of candidates is not impacted by location, and a focus on work–life balance and wellbeing.

Whilst the initial model adopted during lockdown for many office workers was one of working from home five days a week, the benefits of flexible working do not require a full departure from office work.

The term “flexibility” is key here: working three days per week from home or allowing employees to choose which days they come into the office is more likely to be the norm following Covid-19.

Flexible working has been enabled by the adoption of technology to help employees to work where they want, and how they want:

- Videoconferencing
- Collaboration tools
- Cloud computing
- Virtualisation
- VoIP and cloud voice
- Flexible network architecture

In order to measure the direct economic impacts of flexible working on the UK economy and sectors, a focus has been put on the efficiency gains experienced by those working from home rather than the wider economic benefits such as decreased costs associated with physical offices (such as rents).

During the workshops Cebr held with members of a representative selection of UK industries, panellists agreed there would be a long-term shift to working from home.

<sup>12</sup> Employee Benefits (2021): [UK employees enjoy a better work-life balance after home working](#)

<sup>13</sup> ONS (2020), Business Impact of COVID-19 Survey (BICS)

They cited evidence of companies investing in employees' home working environments, supporting employee relocation away from high-cost commuter areas, not renewing office rentals and reducing total floorspace.

This chimes with a study by the Institute of Directors<sup>14</sup> with over 900 company directors in the UK, where nearly three-quarters (74%) intend to continue with increased home-working post-Covid, and more than half said their organisation intended to reduce the long-term use of workplaces.

A 2021 study from Capgemini,<sup>15</sup> which surveyed 500 organisations worldwide, shows that 46% of Britain's businesses have seen a boost to productivity due to remote and flexible working during the Covid-19 lockdowns of 2020. Among those organisations, employee productivity grew by 10% on average, with a top uplift of 14%.

### Digital delivery of services

In 2020, when the first Covid-19 national lockdown came into effect, the knock-on impact on retail was a sudden overnight shift to online shopping and delivery services.

During the first peak of the coronavirus outbreak in May, the ONS recorded online retail's share of total retail as 33.8%, well above pre-Covid levels of 20.1% in February.<sup>16</sup> Even when most non-essential bricks-and-mortar shops had resumed trading, ONS shows online sales only dipped to 27.6% by September; when lockdown was reinstated, they rose to 28.5% in October and 31.4% in November.

As a result of Covid-19, the acceleration of digital delivery of services in UK retail signalled a fundamental shift in the state of the sector. One that was driven by consumer demand and met by organisations through rapid moves to scale up and deploy digital transformation by retailers.

If we look at the US online retail market, which has historically been a bellwether of the UK's development, IBM has suggested that Covid-19 accelerated the shift away from physical stores to digital shopping by roughly five years.<sup>17</sup>

Alongside the sharp rise in the use of online shopping over the course of the Covid-19, there has also been a switch to digital delivery throughout the wider economy.

For example, the Chartered Institute of Management Accountants (CIMA) had to adapt to the pandemic in May and June 2020 by rearranging exams and delivering them remotely.<sup>18</sup> Five thousand exams were sat from home in the first week, with another 5,000 lined up over the following weeks.

<sup>14</sup> IoD (2020): [Home-working here to stay](#)

<sup>15</sup> Consultancy.uk (2021): [Bosses hope to extend remote work productivity boost beyond pandemic](#)

<sup>16</sup> ONS (2020): [The impact of the coronavirus so far](#)

<sup>17</sup> Techcrunch (2020): [Covid-19 pandemic accelerated shift to ecommerce by 5 years](#)

<sup>18</sup> AccountancyAge (June 2020): [Office reshuffle and digital transformation top firms' agenda](#)



“

**We have gone to an entirely digital service.**

**For patients who don't have digital assets, we developed digital pods. We repurposed our digital spaces with WebEx boards. Patients with no digital skills can come in, have a virtual face-to-face consultation and go. It addressed the gap between those that have and those that don't.**

**I require clinicians to offer virtual face-to-face consultations. Not just phone calls. We found an improvement in clinical delivery. It really helped the outcomes.**

Dr Ben Wright,  
Lead Clinician for the Richmond Wellbeing Service

”

Examples of digital delivery of services include:

- Video consultations with medical and social care providers, lawyers and other professionals
- Virtual courts
- Computer-aided classrooms and lectures

Prior to Covid-19, the virtual delivery of services such as primary healthcare and courts had been either available or successfully piloted.

The Ministry of Justice ran a virtual court pilot back in 2010, and when evaluating its impact found that the average number of cases seen per day was greater, with a 6.4% increase in efficiency.<sup>19</sup>

But Covid-19 rapidly accelerated the transformation to digital delivery. At the height of the first lockdown in May 2020, HM Courts & Tribunals Service data shows that over 500 virtual court hearings had been conducted by audio or video technology. Within a month, the number of these hearings had reached almost 3,000.<sup>20</sup>

Digital services not only allow for delivery that is more convenient for the consumer or user; critically, they also allow the efficiencies and economies of scale seen in the tech sector to be applied to a wider segment of the economy.

<sup>19</sup> Ministry of Justice (2010): [Virtual courts pilot: outcome evaluation report](#)

<sup>20</sup> Thomson Reuters, Practical Law (November 2020): [Virtual courts and COVID-19: the future is now](#)

## Richer data for analytics and AI systems

The richness of data, made available by increased investment in digital infrastructure and work technologies, has many benefits to workers when applied through smart systems and AI programmes.

These systems can analyse and order important data in real time to assist with decision-making and improve service delivery.

**Digital is now at the heart of the way we work. Previously we would've taken three weeks to clear 400 applications from landlords. When we automated that clearance process, we had 80% cleared in three hours. Freeing our staff up to focus on the complex ones that needed a conversation.**

“

**Our approach to automation is not to reduce jobs. We have used it to remove the need for our people to get involved in unnecessary, high-volume work.**

”

**There's more time for empathy, judgement and face-to-face human interaction. We don't want technology to cut things, we want to do things better.**

Stephen Moir,  
Executive Director of Resources at Edinburgh City Council

For retailers, automating certain processes gives employees the ability to handle huge volumes of data, from online transactions to the coordination of payment methods. It can also free up employees to focus on collaborating with team members and providing customer service.

Analytics and AI-enabled systems can also assist teams working on building and city planning, analysing data around people traffic and pollution levels.

“

**In the new generation of lampposts, you can put 5G or air-quality sensors. You generate a lot of data and functionality beyond just giving light. Leveraging public assets will deliver that service to planners to help eradicate ‘not spots’ and improve services for people with existing connections.**

”

**All these things together create a digital infrastructure that benefits Londoners, making neighbourhoods cleaner, greener and more pleasant for people.**

Theo Blackwell,  
Chief Digital Officer for London, Greater London Authority

The impact of Covid-19 has been to accelerate the adoption and use of analytics and machine learning systems to help businesses deal with the huge volume of customer demand, and the need to roll out digital tools that will mean better services.

In 2020, a joint study<sup>21</sup> by the Bank of England and the Financial Conduct Authority (FCA) showed that investment in machine learning by financial services firms remained stable during Covid-19, despite the wider market volatility and the economic downturn.

In some cases, there was increased investment to help deal with the high volume of customer enquiries and government-guaranteed loan applications. Over a third of firms also cited analytics and machine learning technologies as supporting remote working among their employees.

Out of the banks researched in that study, over half of them cited Covid-19 as making investment even more important than before, accelerating growth in demand.

McKinsey<sup>22</sup> has shown, through its own research into the use of advanced data analytics in response to Covid-19, that organisations have implemented machine learning solutions to great effect.

One energy-utility retailer mobilised employees to better address the full customer journey; it used real-time data systems to inform decisions on whom they would target, what to offer, and when and how to contact customers.

Another example was a grocery enterprise with stores across multiple countries. Here, supply-chain leaders deployed a digital tool that enabled real-time end-to-end visibility of stock levels and supplier deliveries at country, regional and store levels.

Both of these examples of AI-enabled transformation were delivered in a matter of weeks.

<sup>21</sup> Bank of England and FCA (2020): [The impact of Covid on machine learning and data science in UK banking](#)

<sup>22</sup> McKinsey & Company (2020): [Accelerating analytics to navigate COVID-19 and the next normal](#)

### The role of the cloud and flexible networks

- Cloud computing has provided a powerful, large and scalable environment for the continued application of analytics and AI systems
- The increased use of digital communication creates much richer data to power these systems, and the increase in digital touchpoints means that AI can more readily learn from people and assist them with tasks
- Flexible networks and computer infrastructure have allowed organisations to rapidly shift business models and work practices. These networks will continue to host and enable intelligent enterprise solutions, from machine learning to the collection and mining of real-time data

During Covid-19, AI and analytics tools and systems, powered by rich data, were shown to have increased value to organisations, their people and customers.

The combination of digital technology and real-time intelligence also has enormous potential in improving the lives of people across the UK, by improving our environment and public services.

“

**We're making buildings smart to accommodate their usage and help sustainability. It's making sure we have a safe, pleasant environment.**

**We're monitoring buildings with more sensors for air quality and to ensure wellbeing. We monitor usage of the estate – how people are going through touchpoints – and if something needs more cleaning in a high-use area, we have that data to hand.**

Mark Nallen,  
Director of Technology and Innovation, Canary Wharf Group

”

## Productivity inputs into GDP growth

Cebr’s work also shows how Covid-accelerated digital transformation could boost employee productivity.

Cebr’s desk research and literature review, validated with expert interviews, points to an almost 12% productivity growth assumption for those employees who can take full advantage of Covid-accelerated digital transformation.

### SUMMARY OF CADT COEFFICIENT PRODUCTIVITY INPUTS

	Productivity gain	Scalar	Final impact
Flexible working	17.0%	28.7%	4.9%
Digital Delivery of Services	28.0%	15.3%	4.3%
Machine Learnable tasks	90.0%	3.0%	2.7%
		<b>CADT uplift:</b>	11.9%

Source: Cebr analysis

This assumption was an input into Cebr’s economic model, against each sector’s rate of technological adoption and the industry-specific worker opportunity, to estimate sector value gain and the uplift to the national economy.

Across the private sub-sectors of construction, professional services, and specialised and digital retail, Cebr estimates that productivity benefits will be substantially responsible for an **economic uplift of 4.8%**. This would be driven by continued growth in flexible working and the delivery of digital services, and by providing richer data sets for analytics and AI.

## The importance of investment in connectivity and network infrastructure

These benefits won’t happen on their own. They will require ongoing investment in physical and digital infrastructure to achieve them.

With investment in these technologies continuing to grow, communications will only become more widespread. Organisations must have the right underlying connectivity to enable employees to use the tools they need to be productive and effective from any location.

The quality of an organisation’s connectivity and network infrastructure is paramount. They will need connectivity and networks that continue to grant them flexibility and security, with the ability to meet increases in demand when and where they happen, and to give them scalability.

This is also true of digital services, where the rising demand from consumers and citizens will only increase the need for the right network support.

To keep progress going, the UK will need:

1. **Continued investment in connectivity** to meet the demands of a flexible workforce
2. **Increased investment in collaboration technologies** to improve productivity and allow flexible work to become the new everyday of many industries
3. **More agile networks and smarter enterprise systems** to improve quality of delivery, while reacting to changing demands, as more and more services move to a digital-first environment

The quality of network infrastructure is paramount. Organisations will need networks that continue to grant them flexibility and security, with the ability to meet increases in demand when and where they happen, and to give them scalability.





## Seize your new everyday

The findings of this report have revealed the once-in-a-generation opportunity that lies within our reach. It's one that has come from the toughest of moments, but that sets up the potential for a brighter future.

Investing now will ensure we realise the full potential of the progress we've outlined here, creating a new and better everyday for employees, customers and communities across the UK.

This is a chance to act for organisations of all types, shapes and sizes. For innovation and growth, and for the UK to rebound.

The conversation shouldn't end here.

We'll soon be publishing further sector insights from Cebr, alongside research we've undertaken with partners and customers, from public services to enterprises and SMEs, right across the UK.

We've been hearing from them about their stories of transformation:

- Construction companies overseeing multi-million-pound projects from the simplicity of a smartphone, keeping sites safe and efficient from afar, working virtually with suppliers across the UK
- Doctors staying connected with their most vulnerable patients, using virtual consultations that deliver the right care at the right time, for those who need it
- Local authorities freeing up their employees from labour-intensive admin to take time for what's truly important: face-to-face interactions with local citizens
- Retailers guaranteeing more choice and convenience than ever, transforming the customer experience

These are just some examples of the ways organisations have adapted and innovated.

Real stories of transformation. Led by organisations like yours.

We want to hear the transformations that you're most excited about. And the progress you've made.

We're committed to partnering with organisations like yours, making sure you get your own share of this £232 billion opportunity.

We'll help you put the right tools in employees' hands, empowering them to do their job wherever they happen to be, in a way that works for you, them and the customers they serve.

And we'll make sure you have the right infrastructure to make that happen, quickly and securely.

**A different approach. A new everyday.**

**Let's revolutionise yours.**



Want to learn more about how organisations across the UK are grasping their digital opportunity?

Visit our [Revolutionise the everyday hub](#)

or get in touch today to discuss your own digital transformation projects

0800 953 0180

**REVOLUTIONISE**  
**THE EVERYDAY**



**BUSINESS**