UK
COUNTRY REPORT

Unlocking the UK's Digital Potential

Accelerated Adoption of AI Could Pave the Way to Tech Superpower Status by 2028

Key Statistics

- The number of UK companies adopting artificial intelligence (AI) increased by **31%** from 2022 to 2023.

- Thanks to the acceleration in AI adoption, digital technology could add **£520 billion** to the UK economy, up from £413bn in 2022.[1]

- **39%** of UK businesses reported that cloud computing technologies have become more important to their business since 2022, while **33%** state that AI has become more important.

- **70%** of UK businesses which have adopted AI reported using large language models (LLMs) or generative AI.

- There are still opportunities to level up in areas with low digital adoption. If the regions with the lowest digital adoption (Wales and the South West of England) are able to level up to reach the average UK adoption of **39%**, this could generate **£2.48 billion** for the UK economy per annum, equivalent to more than half the value of the UK's music exports.[2]

- Despite UK businesses' appetite for digital technologies, digital skills are not keeping pace. Only **13%** of businesses find it easy to hire staff with good digital skills, and businesses estimated that it takes, on average, **7.5 months** from posting a job vacancy to finding an employee with the appropriate digital skills.

- **76%** of UK citizens reported being interested in learning new digital skills, while the same number believed it is important to continuously improve their digital skills.

Introduction

The UK Government has ambitious plans to make the UK a science and technology superpower by 2030.[3] This includes a bold plan to grow the UK economy, create high-paid jobs of the future, and radically improve people's lives through science, innovation and technology.

At Amazon Web Services (AWS) we share this vision. That is why we commissioned independent consultancy, Strand Partners, to undertake a new study to understand the role that cloud computing and artificial intelligence (AI) can play in unlocking the UK's digital ambitions.

This study finds that digital technology is set to become a powerhouse for the UK's economic growth in this decade. Thanks to the acceleration in AI adoption, digital technology could add **£520 billion** to the UK economy by 2030, up from £413 billion last year in 2022.[4] At £18,440 per household, this is almost double the total contribution of travel and tourism to the UK's GDP in 2022.[5]

UK businesses that have adopted digital technology, including cloud computing and AI, reported realising a range of benefits, which are helping them to achieve growth and drive innovation. For example, 86% of UK businesses which have already adopted AI reported enhanced automation and efficiency, while 79% have experienced cost savings, and 64% increased revenues in 2023.

However, despite the positive outlook, the research shows that many individuals and organisations are still not equipped with the right tools and skills to take full advantage of the opportunity presented by digital technologies. The primary barrier preventing businesses from increasing their uptake of digital technologies is a digital skills gap, cited by **29%** as an obstacle to their adoption of AI tools, while a further **32%** report that a lack of digital skills has slowed their business growth.

A Breakout Year for AI Adoption

2023 saw an acceleration in the UK's uptake of advanced digital technologies, including AI. **39%** of UK businesses reported consistently using AI technology in their daily operations in 2023, a **31%** growth rate from 30% in 2022. **70%** of businesses which are already using AI said they are using LLMs or generative AI.

This accelerated adoption of AI could unlock an **additional £107 billion** in economic growth, compared with previous projections from 2022.[6] As a result, digital technology could add **£520 billion** in gross value added (GVA) to the UK economy by 2030, up from £413 billion in 2022. This is the equivalent to **£18,440** per household, and almost double the total contribution of travel and tourism to the UK's GDP in 2022.[7]

UK businesses are using AI technology for a variety of purposes. **62%** of businesses reported that they are using it to interpret or generate human language, **46%** are using it to detect fraud or anomalies, and **46%** are using it to make predictions, decisions, or forecasts based on data.

The UK Government recognises the transformative potential of AI, and in 2021 set out its National AI Strategy, aiming to make the UK a global AI leader by 2030.[8] According to this study, if the UK is able to maintain its growth in AI adoption, it could achieve its target to become a global tech superpower by 2028 – two years ahead of its 2030 target.[9]

This growth in AI is supported by an increase in the use of cloud computing. **39%** of UK businesses said that cloud computing has become more important over the last year. Cloud computing is foundational for the use of AI, and underpins the LLMs which power generative AI applications.

Businesses also reported using cloud computing for a variety of purposes including improving their online security (**75%**), selling products or services online (**63%**), and improving the way they work with customers (**56%**).

The UK Public is Excited About AI's Potential

UK consumers are also excited by AI, and see opportunities for AI to help improve their lives and careers, echoing the UK Government's belief that AI 'is already delivering real social and economic benefits for people'.[10]

59% of UK citizens state that they believe AI will be important in addressing big societal challenges, such as climate change and disease control. **Only 10%** state that they do not believe AI will play a key role in such challenges.

Consumers reported that they believe AI has the potential to transform industries over the next five years, in particular **education (81%)**, **manufacturing (80%)**, **entertainment (79%)**, **healthcare (75%)**, and **retail (72%)**. They have also identified specific use cases for AI in their jobs. For example, **39%** of consumers thought that AI will help to automate routine and repetitive tasks, and **32%** thought it will enable better data analysis and insights.

Consumers also envisaged how AI could be used to enhance their everyday lives. **65%** of consumers believed that AI will help with day-to-day tasks, such as cleaning and groceries; **53%** thought that it will help with safety and security; and nearly half (**49%**) believed it will have a **positive impact on their work-life balance.**

New Opportunities for AI-Powered Growth
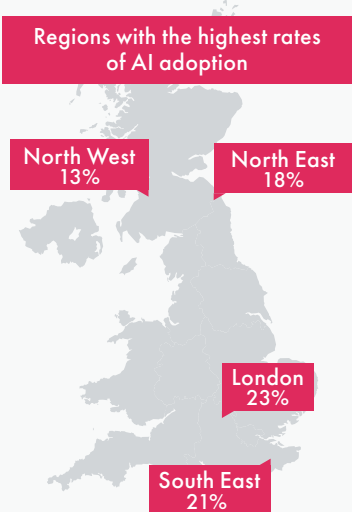
While UK businesses overall have increased their use of AI in 2023, the level of adoption is uneven across nations and regions. Closing these divides presents an opportunity for the UK to boost the economic potential of advanced digital technologies further.

The study reveals that **75%** of all businesses' AI adoption is concentrated in four regions: London (**23%**), the South East (**21%**), the North East (**18%**), and the North West (**13%**).

If the regions with the lowest digital adoption (Wales and the South West of England) are able to level up to reach the average UK adoption of **39%**, this could generate **£2.48 billion** for the UK economy per annum, equivalent to more than half the value of the UK's music exports.[11]

UK businesses' adoption of AI is also uneven across industry sectors. Over two-thirds (**68%**) of AI adoption is concentrated in just five sectors (out of a total of 21).[12] These five are: **technology**, **telecoms**, **financial services**, **professional services**, and **construction**.

Furthermore, there are a number of sectors with potential for economic growth. In 2023, the retail sector reported just **12%** AI adoption, but our study suggests clear intentions to increase uptake. Over the past 12 months, retail organisations reported that their investments in digital technology have risen, on average, by **30%**. These organisations recognise the transformative potential of AI: **85%** of retail organisations in our study stated that AI will transform their sector.

The healthcare sector represents another sector with low uptake of AI, but high aspirations. While the sector reported just **6%** AI adoption in 2023, investments in digital technology have risen, on average, by **32%** since 2022. Similar to the retail sector, **88%** of healthcare organisations reported that AI will transform their sector.

If the UK could boost the uptake of AI in the four sectors with the lowest digital adoption (**agriculture**, **hospitality**, **healthcare**, **retail**) to match that of the UK average (**39%**), our estimates show that this could generate **£8.21** billion for the UK economy, the equivalent of just over half of the contribution of the sports sector to the UK economy.[13]

The benefits of levelling up these industries also goes further than economic benefits. For example, the UK Government has already identified that the development of AI diagnostic tools can improve speed and accuracy and lead to better patient outcomes. AI can help to deliver better care for patients and better value for the taxpayer.[14]

Unlocking the AI Opportunity for the UK's Smallest Businesses

There is an opportunity for the UK's micro businesses, those employing fewer than 10 employees, to unlock the opportunity offered by AI.

According to the study, large businesses (those with more than 250 employees) have adopted AI at four-times the rate of micro businesses, at 60% compared to 15%.

Despite this, micro businesses have indicated an appetite for AI adoption. For example, at least one in four could name a potential practical use case for AI in their businesses.

If the UK could boost the uptake of AI among micro businesses to match that of large businesses, our estimates show that this could unlock **£13.98 billion** for the UK economy per annum, the equivalent of double the value of the UK video games market.[15]

Tackling Barriers

Unlocking this growth and value for the UK means tackling a number of barriers to tech adoption, the most significant of which is a gap in digital skills, especially basic digital skills such as backing up data, researching topics online or creating spreadsheets. Despite the UK becoming more digitally advanced, and businesses and consumers looking to increase their adoption of AI technologies, digital skills capabilities are not keeping pace. The UK Government estimates that the digital skills gap costs the UK economy **£63 billion a year** in lost potential GDP, a number which is expected to grow.[16]

Businesses are placing an increased emphasis on digital skills when hiring. **Over half (57%)** of UK businesses surveyed reported that a candidate's digital skills will be more important than their university qualifications in five years' time.

Furthermore, according to our research, **nearly half of UK businesses (48%)** said the digital skills most lacking in their business were basic digital skills, and **just 20%** said they found it easy to train staff in digital skills. **Over a fifth of businesses** which have adopted cloud (21%) said that cloud skills are lacking in their organisations. Among those that have adopted cloud, **more than a fifth** reported advanced digital skills gaps in data science (**21%**) and programming and coding (**20%**).

Businesses reported struggling to hire people with good digital skills: only **13%** said they find it easy to hire staff with good digital skills. These businesses estimate that it takes, on average, **7.5 months** from posting a job vacancy to finding an employee with the appropriate digital skills.

The digital skills gap is also holding UK businesses back in other ways. **Almost one third (32%)** of businesses reported that the skills gap has hindered their growth, while **37%** said that a lack of digital skills has increased costs for their businesses.

Encouragingly, UK citizens want to improve their digital skills. **Three quarters (76%)** of UK citizens reported being interested in learning new digital skills, while the same number said it is important to continuously improve their digital skills. Job progression is a motivator for digital upskilling: **36%** of citizens learning new digital skills cited improved career prospects as a key motivator, and **32%** wanted to learn digital skills to stay competitive in the job market.

The barriers to digital skills most frequently cited by citizens in our survey were:

52% the cost of training programmes   **41%** lack of time   **28%** limited access to resources
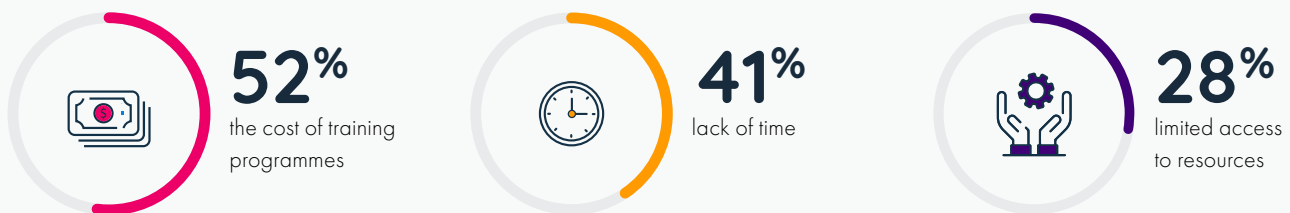
Businesses are taking proactive steps to address the digital skills gap. **76%** of businesses stated that they currently invest in some form of digital skills training for their employees. Despite this, UK citizens acquiring new digital skills said that they are learning through trial and error (**45%**) or their own independent research (**44%**).

Digital Skills

The UK Government's Digital Strategy highlights digital skills, and advanced digital skills in particular, as a crucial area of focus.[17] In order to build up advanced digital skills, such as cloud computing and AI, UK businesses will need to focus on increasing basic digital skills among their workforce, as a foundation for further upskilling. Building basic digital skills for both tech and non-tech employees and investing in advanced digital skills will empower UK citizens and businesses to fully harness their digital potential.

Programmes such as the UK Government's Digital Entitlement programme, which provides free qualifications for adults with low digital skills, and Skills for Life, which provides citizens with the necessary skills for career progression, will prove crucial in providing comprehensive and high quality digital skills training for UK citizens.[18] However, public and private sector collaboration will be required in order to develop and deploy the skills programmes required to help the UK achieve its ambition to become a science and technology superpower.

AWS recognises that digital and cloud skills will be key to ensuring the UK can continue to compete on a global stage. This is why AWS has committed to investing hundreds of millions of pounds to provide free cloud computing skills training for 29 million people by 2025 – reaching people from all walks of life and all levels of technical knowledge, in more than 200 countries, including the UK. For example, AWS has launched a number of learning and skills programmes in the UK including AWS Educate, AWS Academy, and AWS re/Start.

We piloted AWS re/Start in the UK in 2017 as a way of building an inclusive and diverse pipeline of new cloud talent, and engaging individuals who otherwise might not have had access to a career in cloud computing. The programme prepares learners from unemployed and underemployed populations who have little technology experience, for careers in the cloud – at no cost to the learner.[19] The programme also connects learners with potential employers, and AWS re/Start graduates have secured jobs at organisations such as Beauty Bay, BT Group, Cancer Research UK, Financial Times, and Matillion. AWS re/Start is available in cities across the UK including Belfast, Birmingham, Blackpool, Bristol, Cardiff, Dundee, Edinburgh, Leeds, London, Manchester, Newcastle, and Sheffield.

AWS also announced "AI Ready", a commitment to provide free AI skills training to two million people globally by 2025. To achieve this goal, AWS launched new initiatives for adults and young learners, and scaled existing free AI training programmes to remove cost as a barrier to learning these skills.

Supporting UK businesses on their digital transformation journey

AWS strongly supports the UK Government in efforts to democratise access to AI by making funding and support available for smaller businesses to innovate with AI technology. SMEs (small and medium-sized enterprises)[20] display no less enthusiasm for innovation with AI, but require awareness of and access to the same tools and support as larger businesses, which will empower them to progress on their AI journey.

AWS supports small businesses through programmes such as the AWS Think Big for Small Business programme, which offers cloud-based solutions and resources to small partner public sector organisations. AWS's Digital Innovation Programme for Small & Medium Businesses and the Amazon Innovation Accelerator also provide a model for how larger businesses can support SMEs on their digital transformation journey. Through the Digital Innovation Programme, AWS runs workshops to upskill regional businesses in cloud technology, focusing on best practices in digital innovation, and how to use cloud capabilities to drive growth, reduce costs, and improve customer experiences. The most recent workshop was held in collaboration with Business West in the South West of England, an area which reported 2% AI adoption in 2023 according to the study.

Similarly, the Amazon Innovation Accelerator, which AWS and Amazon launched last year, invites SMEs into the organisation's state-of-the-art facilities across the UK and lifts the lid on how Amazon and AWS have scaled their own operations. Participants receive free workshops from on-site teams on topics including technology adoption, data analytics and leadership & management.

AWS is helping UK businesses of all sizes to learn, apply and benefit from generative AI technology through the newly launched $100 million AWS Generative AI Innovation Centre, which connects AWS machine learning (ML) and AI experts with customers and partners worldwide to accelerate enterprise innovation and success with generative AI. One UK company that is benefitting from the Innovation Centre is NatWest Group. The financial provider's data scientists and engineers are working closely with specialist teams in the AWS Generative AI Innovation Centre to co-create responsible AI products on top of the foundation models (FMs) available through Amazon Bedrock.

Conclusion

UK businesses and citizens reported enthusiasm about the transformative potential of AI. Increased rates of adoption by UK businesses suggest that the UK is set to meet its ambition of becoming a tech superpower as early as 2028. This will empower the UK to realise significant benefits, including an additional **£520 billion** in GVA to the UK economy by 2030.

However, the spread of AI technologies is uneven across regions, industries, and business size, and a lack of digital skills presents a significant barrier to the further adoption of AI, holding businesses back from unlocking further growth opportunities.

Addressing these areas will help the UK to maintain its growth in the adoption of digital technologies and to empower businesses and citizens to unlock their digital ambitions.

References:

1. Public First (2022). Available at: https://awsdigitaldecade.publicfirst.co.uk/aws-uk/

2. These calculations are based on if the bottom 20% could catch up with the UK average; M Magazine (2023) UK music exports deliver £4 billion boost to UK economy. Available at: https://www.prsformusic.com/m-magazine/news/uk-music-deliver-4-billion-boost-to-uk-economy-this-is-music-2023-report

3. Department for Science, Innovation and Technology (2023) Plan to forge a better Britain through science and technology unveiled. Available at: https://www.gov.uk/government/news/plan-to-forge-a-better-britain-through-science-and-technology-unveiled

4. Public First (2022) Unlocking the UK's Digital Ambitions. Available at: https://awsdigitaldecade.publicfirst.co.uk/aws-uk/

5. These calculations are based on if the bottom 20% could catch up with the UK average; Statista (2023) Available at: https://www.statista.com/topics/3269/travel-and-tourism-in-the-united-kingdom-uk/#topicOverview

6. Public First (2022) Unlocking the UK's Digital Ambitions. Available at: https://awsdigitaldecade.publicfirst.co.uk/aws-uk/

7. Statista (2023) Available at: https://www.statista.com/topics/3269/travel-and-tourism-in-the-united-kingdom-uk/#topicOverview

8. HM Government (2021) 'National AI Strategy'. Available at: https://www.gov.uk/government/publications/national-ai-strategy

9. This is in comparison to the European Commission's target of achieving 75% of businesses adopting AI, Big Data, and cloud computing by 2030 as part of its Digital Decade programme to make Europe a digital leader:

10. Department for Science, Innovation and Technology (2023) 'UK unveils world leading approach to innovation in first artificial intelligence white paper to turbocharge growth.' Available at: https://www.gov.uk/government/news/uk-unveils-world-leading-approach-to-innovation-in-first-artificial-intelligence-white-paper-to-turbocharge-growth

11. These calculations are based on if the bottom 20% could catch up with the UK average; M Magazine (2023) UK music exports deliver £4 billion boost to UK economy. Available at: https://www.prsformusic.com/m-magazine/news/uk-music-deliver-4-billion-boost-to-uk-economy-this-is-music-2023-report

12. Full methodology here. Industries surveyed: Agriculture, forestry & fishing; mining & quarrying; manufacturing; electricity & gas supply; water supply, sewage & waste management; construction; retail & wholesale; transportation & storage; accommodation & food service activities; information & communication; social media; financial & insurance activities; real estate activities; professional, scientific, & technical activities; administrative & support service activities; public administration & social security; education; human health & social work activities; arts, entertainment & recreation; cyber security; other service activities.

13. These calculations are based on if the bottom 20% could catch up with the UK average; Department for Digital, Culture, and Sport (2022) 'Using annual estimates from summed monthly GVA data'. Available at: https://www.gov.uk/government/statistics/dcms-sectors-economic-estimates-monthly-gva-to-june-2022/using-annual-estimates-from-summed-monthly-gva-data

14. Department of Health and Social Care (2023) '£21 million to roll out artificial intelligence across the NHS'. Available at: https://www.gov.uk/government/news/21-million-to-roll-out-artificial-intelligence-across-the-nhs

15. These calculations are based on if the bottom 20% could catch up with the UK average; UKIE (2023) 'UK Consumer Games Market Valuation 2022 – how much money did people in the UK spend on video games?' Available at: https://ukie.org.uk/news/2023/04/uk-consumer-games-market-valuation-2022

16. Department for Digital, Culture, Media & Sport (2022) Policy Paper: UK Digital Strategy. Available at: https://www.gov.uk/government/publications/uks-digital-strategy/uk-digital-strategy

17. Department for Digital, Culture, Media & Sport (2022) 'Policy paper: UK Digital Strategy', Available at: https://www.gov.uk/government/publications/uks-digital-strategy/uk-digital-strategy

18. Department for Education (2022) Free qualifications for adults with low digital skills. Available at: https://www.gov.uk/guidance/free-qualifications-for-adults-with-low-digital-skills; UK Government (2022) Skills for Life. Available at: https://www.gov.uk/government/topical-events/skills-for-life

19. Amazon News (2021) 'AWS re/Start expands to 'level up' cloud skills across UK and Ireland.' Available at: https://www.aboutamazon.co.uk/news/community/aws-re-start-expands-to-level-up-cloud-skills-across-uk-and-ireland

20. Businesses with fewer than 250 employees.