UK Government

THE UK'S MODERN
**INDUSTRIAL
STRATEGY**

DIGITAL AND TECHNOLOGIES

Sector Plan

Contents

Ministerial Foreword

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The pace of technological change is increasingly rapid – and changing the world of commerce and work, faster than ever. The challenge for government is to energetically support the discovery, development and adoption of technologies impacting the future shape of the global economy so that British industry can continue to compete and succeed. We embrace that challenge because we want to ensure Britain's families and communities experience the opportunity and security economic success brings.

The political chaos of the last 14 years undermined the stability and certainty upon which businesses, investment decisions and long-term growth depend. That's what this government was elected to change: to find new ways of working with the founders and builders shaping the future prosperity of our country; and to ensure that working people fully feel the benefit in their lives.

Our Digital and Technologies Sector Plan, a central part of the modern Industrial Strategy, sets out a role for the State as an active partner, boosting British businesses instead of holding them back. Our plan is anchored in exploiting the ideas and talent of Britain's scientists, technologists, innovators and entrepreneurs – and strengthening our country as an investment destination for domestic and international enterprise. Our objective is to ensure that Britain's economy grows significantly so that working people can enjoy the economic security they crave.

The security and resilience of our economy will be even more important in the next decade, as technological change and disruption intensifies. We have already seen how artificial intelligence has begun to transform our economy and day to day lives. We must secure our position as creators and builders of new technology instead of just being swept along by the waves of economic and societal change it drives. That is the only way to make sure that working people can truly benefit.

I believe that the United Kingdom is uniquely placed to succeed in science and tech. We have four of the top 10 universities in the world. Our £1 trillion tech ecosystem is the largest in Europe. Now, we have the opportunity to make our Digital and Technologies sector an engine for economic progress by tearing down the barriers that British businesses face, making our country the best place for them to scale and succeed.

The new ideas and sciences we are backing carry risk. If they succeed, though, their impact will be seismic. Quantum scanners could change the experience of getting a medical test, and engineering biology could become how we make the clothes and goods we use every day. And many of the technologies covered in this plan have dual-use applications which make them indispensable to our national security.

Now is no time for caution. This government is unafraid to take risks and embrace the uncertain, because the cost of inaction – of leaving British business and Britain's people behind – is unthinkable. Working hand-in-hand with our partners in universities and industry, science and technology, we will unleash a new age of security, prosperity, and opportunity for our country.
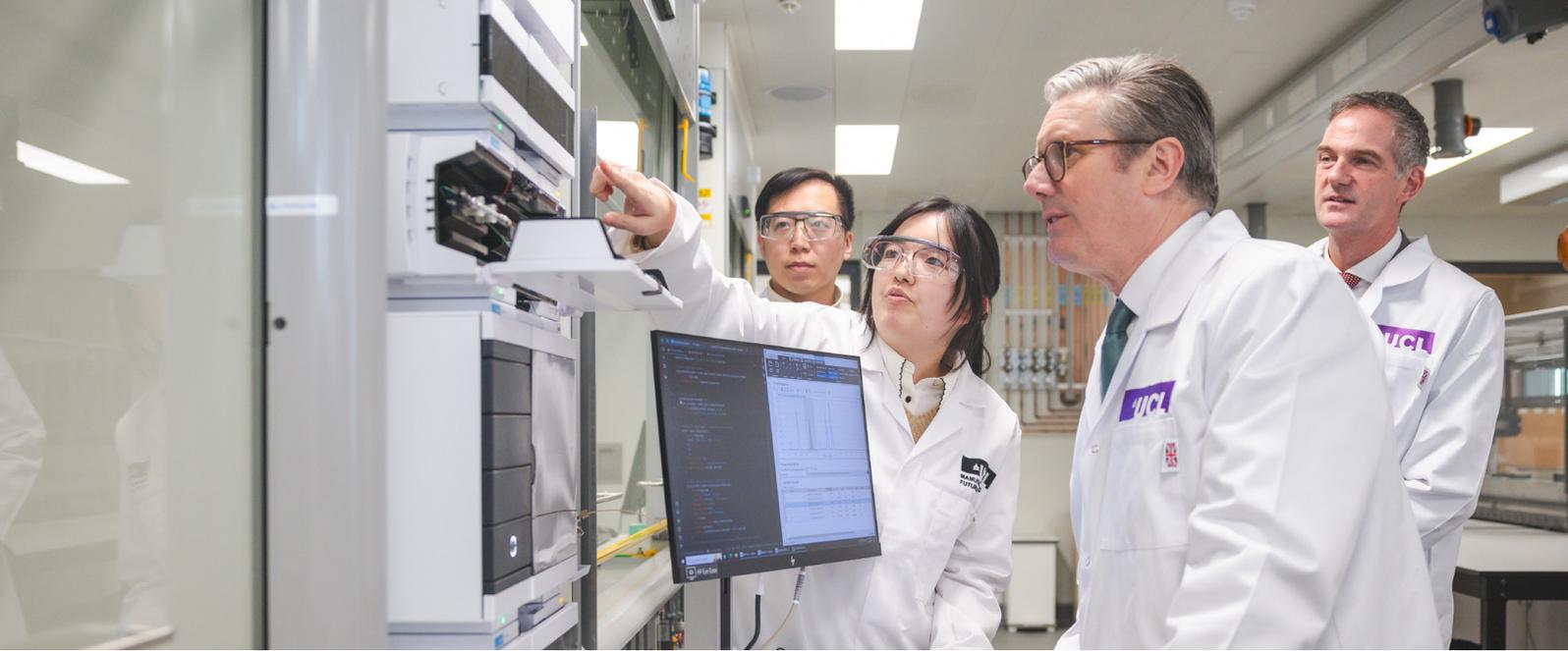
1. Executive Summary

New technologies are fundamentally changing our economy and society, creating new sectors, new business models and fuelling highly skilled and well-paid jobs. The fastest growing areas of the economy of the future will be those driven by technology. Already, nine of the top 15 most valuable global businesses by market capitalisation are technology businesses,[1] a radical change from 20 years ago. This plan will help UK technology-driven businesses scale, so they are at the forefront of the next wave of global superstar firms.

The UK is well placed to harness the next stage of technological revolution to secure growth, security, and opportunity across the country over the next 10 years and beyond. We have a proud history as a science and innovation nation, including Ada Lovelace's groundbreaking work on the first computer, Tim Berners-Lee's role in creating the World Wide Web,[2] and more recently Demis Hassabis' Nobel Prize for groundbreaking AI determination of protein structures.[3] We also have the conditions for future success – a globally renowned science base, a technology ecosystem worth almost £1 trillion[4] that ranks third in the world for venture capital investment,[5] and significant UK digital and technology businesses like Arm, Wayve, Google DeepMind and Oxford Nanopore Technologies. But the global context is changing, and we need to redouble our efforts if we want to seize opportunities in an increasingly unstable geopolitical environment where technology is changing at a rapid pace.

By 2035, our vision is for the UK to be one of the top three places in the world to create, invest in and scale-up a fast-growing technology business. We will aim to secure the UK's first trillion-dollar technology business. We will take a whole-of-government approach to delivering this vision, reforming the business environment for digital and technology businesses and fully deploying all the levers of government aligned with the Science and Technology Framework.[6] In line with the broader Industrial Strategy, we will target business investment in the sector as a key measure of success and aim to have more investment in commercial research and development (R&D) in the sector than any other country globally (excluding USA and China) by 2035.

We will prioritise research and development R&D support through record public investment – £22.6 billion in 2029/30,[7] strengthen access to finance support through the National Security Strategic Investment Fund, the British Business Bank and National Wealth Fund, and take action to build our domestic skills pipeline and continue to welcome talent from across the globe. We will tackle critical barriers in digital and energy infrastructure and adopt pro-innovation regulation through the new Regulatory Innovation Office. We will refresh our international engagement, combining the UK's distinct, world-leading capabilities with complementary international partnerships to share knowledge and build diversified and resilient supply chains. We will work closely with defence and security partners to realise the potential of dual-use technologies and harness their role as an engine for UK innovation and technology growth.

We will prioritise the frontier technologies with the greatest growth potential for the UK that also support UK security and sovereignty. We will enable new sectors to establish themselves e.g. our rapidly growing AI sector, catalyse change across the existing sectors of the economy through the adoption of productivity-enhancing technologies, and embed the principles of secure and resilient technology in all of our work. We have engaged widely with business, academia and other stakeholders to develop action plans for six frontier technologies:

i. **Advanced connectivity technologies (ACT):** Building on our world-leading research base to support greater domestic commercialisation of ACT and promote UK technology internationally. We will shape ACT in line with our values, develop the technologies through R&D and scale-up support, and deploy them to deliver connectivity benefits to people and businesses. We will concentrate on defence, transport and future telecoms networks including satellites.

ii. **Artificial intelligence (AI):** Implementing the ambitious AI Opportunities Action Plan to build domestic capability and establish new AI Growth Zones, improve the availability of high-quality data, boost regulators' AI capabilities, promote pro-innovation regulation, and significantly expand compute capability. This will also underpin the development of a strong Sovereign AI offer to new and existing, leading-edge AI companies and secure UK strategic advantage in AI.

iii. **Cyber security:** Driving investment into our internationally-renowned cyber sector and supporting cutting-edge innovation to address the challenges that prevent widespread technology adoption. We will build on the momentum of the Cyber Security and Resilience Bill and take advantage of innovation opportunities

presented by AI and post-quantum encryption. We will establish key supply routes into our leading intelligence and defence capabilities, including the National Cyber Security Centre and the National Cyber Force.

iv. **Engineering biology:** Building our innovation ecosystem to deliver growth by addressing the scale-up challenge through a new infrastructure fund, implementing an ambitious R&D programme, driving innovation by tackling regulatory barriers to enable routes to market for new products, and enhancing our capabilities and resilience in key areas of the domestic value chain. We will enhance our global leadership role on responsible innovation for new engineering biology applications and processes.

v. **Quantum technologies:** Refreshing the ambitious long-term quantum programme to accelerate technology development and implementation, building and upgrading scale-up infrastructure, and driving adoption through a mission-led approach which establishes clear government demand signals and generates a pipeline of early quantum adopters, defence and healthcare.

vi. **Semiconductors:** Developing a strategic and joined up approach to R&D and enhancing the innovation ecosystem to improve commercialisation, prioritising areas with high-growth potential and wide-ranging cross-sector applications. We will prioritise strategic measures to enhance national security and strengthen semiconductor supply chain resilience, and collaborate internationally as a reliable, trusted partner in the global semiconductor ecosystem.
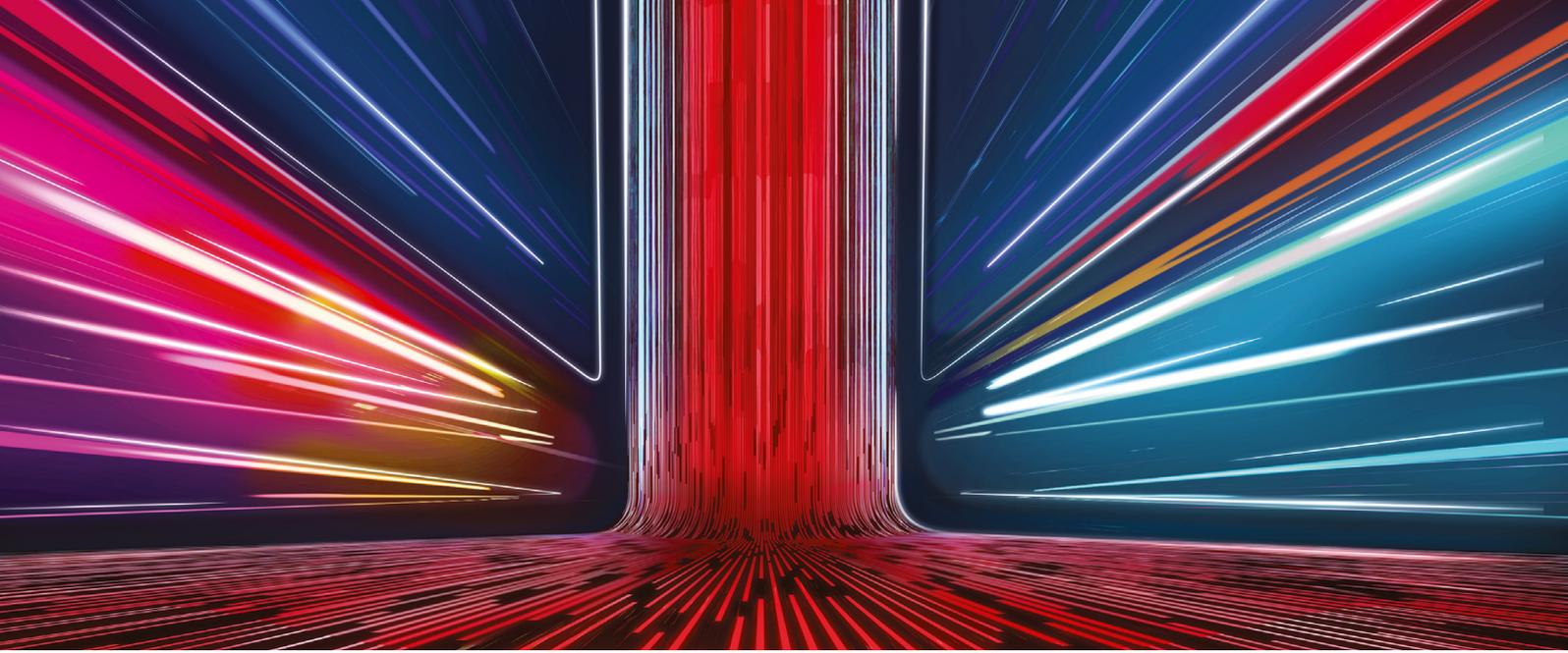
Frontier technologies related to Advanced Manufacturing, Clean Energy, Defence and Life Sciences sectors are excluded as they are covered in separate sector plans.

Unlocking the economic potential of clusters to create jobs and opportunity across the UK in these frontier technologies will be crucial so that digital and technology businesses across the country can realise their growth potential. We will work in partnership with devolved governments in Scotland, Wales and Northern Ireland, and Mayoral Strategic Authorities in England. We will align our actions with regional growth initiatives, such as the Oxford-Cambridge Growth Corridor.

This plan sets out a vision to secure the UK's position as a leading technology nation and capture the benefits of the radical, technology-driven changes underway in the global economy. This is a rapidly changing picture and we will work in partnership with industry and academia as we deliver the vision for the sector. We will listen closely to whether we are getting it right and adapting our plans as technology and its applications evolve and shape our economy, security, and society.

Endnotes

1   Trading View (2025) *World's Largest Companies*.

2   World Population Review (2025) *Nobel Prizes by Country 2025*.

3   The Nobel Prize (2024) Press release: *The Nobel Prize in Chemistry 2024*. Shared with John Jumper and David Baker.

4   Converted from US$1.2 trillion using an exchange rate of 1 USD = 0.79 GBP (2024 average, source: Bank of England). Dealroom (2025) UK Tech: *A Forward Look to 2025.* Dealroom's proprietary tech taxonomy may include industries that are not covered in this sector plan.

5   Dealroom (2025) *Locations fundings heatmap*.

6   Department for Science, Innovation and Technology (2025) *Science and Technology Framework*.

7   Department for Science, Innovation and Technology (2025) *Transformative £86 billion boost to science and tech to turbocharge economy, with regions backed to take cutting-edge research into own hands*.

2. Ease, speed and long-term stability for business

2.1 Sector overview

£1 trillion market capitalisation	The UK has the third most valuable technology ecosystem in the world and the most valuable in Europe, currently valued at nearly £1 trillion – a ninefold increase over the past decade.[1]
185 unicorns	The UK's technology ecosystem has created over 185 unicorns[2] – start-up companies valued at over US$1 billion – and ranks third globally for VC investment.[3]
£207 billion gross value added	In 2023, the Digital and Technologies sector contributed an estimated £207 billion in GVA, accounting for 9% of the UK economy.[4] GVA is estimated to grow by £90 billion (43%) by 2035.[5]
2.6 million employment	In 2023, the Digital and Technologies sector employed 2.6 million people in the UK, representing 7% of UK total employment.[6] Employment is estimated to increase by more than half a million jobs by 2035.[7]
19% higher productivity	The sector typically shows high productivity,[8] and is a key enabler of productivity across the wider economy. UK firms adopting technology see 19% higher turnover per worker, after accounting for firm differences.[9]

The operating environment for digital and technology businesses

The Digital and Technologies sector has experienced sustained growth globally in the past decade,[10] with imports of digital services growing by 116% and reaching £0.5 trillion in 2023.[11] UK businesses hold a comparative advantage in the sector, underpinned by the UK's highly competitive business environment and key strengths in the science, research and innovation activity needed to take exciting new technologies from lab-to-market.

The UK's world-leading university sector – including 4 of the top 10 universities globally[12] – makes an outsized contribution to research with 13.4% of the world's most highly cited academic publications.[13] It has a critical role in developing knowledge, skills and partnerships and increasingly in supporting the commercialisation of technology, with a five-fold increase in investment in university spinouts over the past decade.[14]

The UK ranks as the world's fifth most innovative economy[15] with a globally-renowned Intellectual Property system, vibrant clusters across the four nations and strong partnerships between government, industry and academia across the innovation landscape which support a healthy pipeline of high-growth technology companies.

Private investment in the sector is strong, with a healthy venture capital (VC) pipeline and a growing number of UK investment firms (e.g. SFC Capital, Mercia Asset Management, and Parkwalk Advisors[16]) and deep tech funds (e.g. IQ Capital, Seraphim and Amadeus Capital Partners) providing specialist support and funding for digital and technology businesses. There are regular UK public listings in the sector, but digital and technology businesses

often opt to list overseas, particularly in the US. UK equity markets remain dominated by traditional sectors, with technology and telecoms accounting for only around 5% of the FTSE All-Share Index.[17]

2.2 Unlocking economy-wide measures to boost digital and technology growth

To secure our position as a global leader in digital and technology, we will deliver on six interdependent pillars of activity:

1. Boosting R&D investment

2. Increasing access to finance

3. Creating a skilled workforce

4. Enhancing infrastructure

5. Delivering pro-innovation regulation

6. Securing international partnerships

Action in these areas will be coordinated with steps to support key frontier technologies – advanced connectivity technologies (ACT), artificial intelligence (AI), cyber security, engineering biology, quantum technologies and semiconductors.

Boosting R&D investment

The approach

Government R&D investment is at record levels, and the Spending Review has confirmed real terms increases to budgets, reaching £22.6 billion a year in 2029/30.[18] Businesses also invest heavily in R&D, investing £50 billion in 2023,[19] although the UK share of the world's top 200 R&D investors has decreased by a third since 2018.[20]

R&D investment is fundamental to all sectors, but it is particularly critical for the R&D-intensive Digital and Technologies sector. We want public and private investment to align more closely in developing the key technologies of the future in the UK. Our aim is to leverage government R&D investment to significantly increase private investment and to generate £3 of private R&D investment for every £1 of targeted public R&D investment in the sector by 2035.

We will achieve this by building on our existing, significant R&D investment and enhancing the wider R&D system that the sector benefits from, including significant investment and support from UK Research & Innovation (UKRI), the Catapult network and the Advanced Research and Invention Agency (ARIA).

ARIA case study

ARIA's £50 million Scaling Compute programme aims to open up new vectors of progress in computing by bringing the cost of AI hardware down by over 1000 times.[21] ARIA is also partnering with nine entrepreneurial Activation Partners to create a clear route to impact for promising early-stage R&D. Activation Partners, such as Google DeepMind and Fifty Years, will empower talent and support new entrepreneurs in ARIA's target areas – maximising the potential for economic growth. ARIA's Activation Partner call has already led to multiple US organisations establishing their operations in the UK including two of the world's most successful venture capital funds. ARIA is partnering with Fifty Years to establish a UK outpost of 5050, a programme that equips scientists and engineers to build companies that solve humanity's greatest challenges.

We will also continue our commitment to supporting R&D through the tax system. R&D tax reliefs are anticipated to support an estimated £56 billion of business R&D expenditure in 2029-30.[22] The Government is committed to strengthening the administration of R&D reliefs to reduce the unacceptable levels of error and fraud and provide greater certainty and predictability to genuine claimants.

The interventions

- **Committing to long-term investment in the sector** by establishing 10-year R&D budgets for key institutions, including the National Quantum Computing Centre.

- **Investing in priority frontier technologies** – ACT, AI, cyber security, engineering biology, quantum and semiconductors – through the government's record Spending Review settlement for R&D. More detail on these investments will be provided within chapter 3 of the Sector Plan.

- **Investing in scale-up infrastructure** for frontier technologies to support businesses to conduct critical R&D and scale-up products. Innovate UK will also change its rules to allow R&D grants and loans to be used to purchase specialist equipment.

- **Reforming and streamlining UKRI funding routes** to make it easier for businesses to navigate different funding streams and reducing the length of time between applications and funding decisions. Innovate UK will also increase the proportion of its investments which are joint with private sector partners.

Increasing access to finance

The approach

Respondents to the formal Invest 2035 consultation cited access to finance as an influence on investment, and agreed that it presents a barrier to some businesses seeking finance to scale up in the UK.[23] The UK has strong capital markets, but there are fundamental barriers that prevent businesses in the sector from getting the investment they need to grow to scale. Limited domestic institutional investment and a lack of investors with deep tech experience are key challenges to overcome. VC funding rounds tend to be smaller and later than in the US, where businesses in R&D-intensive sectors raised proportionately 1.4 times more than UK businesses.[24] There is also a shortfall of later-stage VC funds in the UK that invest in technology, and analysis of data collected by Dealroom suggests UK investments are diluted as the amount of funding increases.[25]

There is an existing pipeline of investment-ready digital and technology businesses that we need to support now, as well as laying the foundations for future businesses to start and scale quickly. Extensive public support is already available, but we know we need to go further, building on investment through the National Wealth Fund (NWF) and the British Business Bank (BBB). 48% of BBB investments were in technology and IP-based businesses between 2021 and 2023.[26] In March 2025, the NWF identified the Digital and Technologies sector and dual-use technologies specifically as priorities for investment.[27] At Spending Review, we announced that the BBB would be increasing its investments in UK SMEs by two-thirds, bringing its total financial capacity to £25.6 billion and crowding-in tens of billions of private capital. Through the National Security Strategic Investment Fund (NSSIF), we also invest directly in start-ups and support R&D work programmes for dual-use technologies.

We are also reforming public markets to encourage investment at scale in digital and technology businesses. The Government has introduced the Pension Schemes Bill to unlock institutional investment and consolidate pension funds, increasing their ability to invest in VC funds that support productive science and technology assets. In November 2024, the Chancellor announced a £250 million BBB investment into Schroders Capital's Long-Term Asset Fund, with match funding from Phoenix Group, creating a £500 million investment vehicle.[28] This will support pension funds and institutional investors to participate in the growth of innovative UK science and technology businesses. The industry-led, voluntary Mansion House Accord will also unlock investment in deep tech businesses, and the Government estimates that new voluntary commitments under the Accord could unlock £25 billion of additional investment in UK private markets by pension providers by 2030.[29]

We are facilitating access to global capital by expanding the Office for Investment, which will work across government to ensure the UK remains a great place for technology businesses looking to start, scale, or grow. We will streamline the interface between investors and government, increase our capability to launch and execute major deals, and develop commercially attractive investment propositions to market the UK to global investors.

Government can also unlock growth by using our significant buying power to support early-stage digital and technology businesses, particularly in markets where the Government is the largest customer like cloud computing and cyber security services. We will use new flexibilities under the Procurement Act and experiment with new approaches in the cross-government Commercial Innovation Hub to support and nurture UK digital and technology businesses.

We are committed to making greater use of public procurement as a lever to support the sector and will align actions in the Sector Plan with the procurement programmes for dual-use technologies in defence and security. In particular, the Department for Science, Innovation and Technology (DSIT) will work with the Ministry of Defence (MoD) to pull through innovative capabilities to mission at speed and foster a thriving and world-leading UK defence technology sector through collaboration in multiple areas e.g. on the creation of UK Defence Innovation (UKDI) and closer working on NSSIF investment programmes. DSIT and MoD will also work together to identify the most impactful technologies and solutions which could benefit from a greater proportion of defence R&D and equipment spend.

The interventions

- **Providing more support for companies scaling up** in the UK and for companies in emerging sectors through new Industrial Strategy funding from the BBB. The BBB is committing an additional £4 billion of Industrial Strategy Growth Capital, which will catalyse investment in the Government's eight growth-driving sectors, including the Digital and Technologies sector, crowding-in £12 billion[30] of private sector capital. The BBB will double its investment in new fund managers, cornerstone funds that invest in the eight growth-driving sectors, and make direct investments of up to £60 million in strategically important companies. As announced at SR, BBB's overall yearly investments will increase by around two-thirds, bringing its total financial capacity to £25.6 billion.

- **Driving investment in dual-use technology businesses**, including by committing up to £330 million in investment through NSSIF to address the UK's national security and defence capability requirements. We will also launch a second year of the successful Science and Technology Venture Capital Fellowship scheme to support mid-career venture capital professionals to invest in digital and technology businesses.

- **Driving reform of public markets and the pensions system** to encourage investment in the sector, building on previous reforms. This includes introducing the Pensions Schemes Bill to consolidate funds to enable investment at scale, and working with institutional investors and science and technology-focussed VC and private equity funds to increase institutional investment in innovative companies.

- **Facilitating access to global capital** through an enhanced Office for Investment offer and providing UK Export Finance (UKEF) support to small and medium-sized enterprises (SMEs). UKEF has £80 billion in capacity to support UK exporters and an ambition to reach over 1,000 SMEs a year by 2029, including many in the Digital and Technologies sector.

- **Addressing barriers to lending** by considering steps to address regulatory and non-regulatory barriers to lending to IP-rich SMEs. Government will establish a new working group convening relevant departments and authorities, engaging closely with industry, commercial banks and other financial institutions. As part of this work, the BBB and Intellectual Property Office (IPO) will explore how to best support lending to IP-rich sectors and encourage IP-backed lending. Government will publish an update on this work and next steps by the end of the year.

Creating a skilled workforce

The approach

Digital and technology businesses need talent to grow. The sector relies on specialist digital skills and science, technology, engineering and maths (STEM) skills, but there are mismatches between demand and supply. In 2022, there were approximately 130,000 STEM and 13,500 digital vacancies due to skills shortages.[31] We need to do more to build the STEM talent pipeline and respond with agility to ever-changing skills demand, an issue raised in stakeholder responses to *Invest 2035*. We will also continue supporting high-skilled business and academic talent from overseas to come to the UK.

The Government is reforming the skills system to be more agile and flexible. We are using the High Value Courses Premium, Strategic Priorities Grant and Adult Skills Fund to support digital and technology-related courses such as Computer Science degrees. We have also introduced retention incentives in the Further Education workforce for critical subjects such as computing, engineering, electronics and maths. We are engaging widely with stakeholders on the sector's needs through the new industry-led Digital Skills Council and the Digital and Technology Task and Finish Group of the Independent Curriculum Review. In addition, the new levy-funded Growth and Skills Offer will increase flexibility for learners and employers in England through shorter-duration apprenticeships, something that digital and technology employers have been calling for to support a more agile response to changing in skills needs.

We are also investing in specific programmes to address skills gaps identified by digital and technology businesses, including the new TechFirst programme that was launched by the Prime Minister on 9 June at London Tech Week. Alongside we are working with British AI companies including PolyAI, Quantexa and Darktrace to deliver Spärck AI scholarships for Masters' degrees at nine UK universities. We have already expanded the Turing AI Fellowships through new Pioneer fellowships, providing established professionals from

science, humanities, academia, or industry with resources to develop AI skills to tackle a specific challenge in their fields. Government and industry partners such as BT, Google, Amazon, SAS, Salesforce and Sage will also work together to equip 7.5 million workers with the skills to use AI in their roles by 2030.[32] This is underpinned by the government's Digital Inclusion Action Plan which aims to ensure everyone in the UK can benefit from technology.

TechFirst

An ambitious new TechFirst skills programme, supported by £187 million in government funding, will reach up to one million young people and provide over 4,500 undergraduate bursaries, Masters' placements and PhD opportunities for domestic students to support them into the tech workforce.[33] Recruitment for the first TechFirst cohort of graduates and PhD students for 2026/27 academic year will be from August 2025. Regional delivery hubs will be established to deliver the programme from late summer 2026.

Alongside building the domestic skills pipeline, we will continue to support digital and technology talent from around the world to come to the UK. For example, we are expanding the Encode: AI for Science Fellowship to place world-class AI researchers into cutting-edge scientific labs and will launch new Turing AI Global Fellowships to provide world-leading AI experts from overseas with multi-year funding to build a team and conduct groundbreaking AI research in the UK. The Government is exploring expanding eligibility of the High Potential Individual visa, improving access to the Global Talent visa, and reviewing the Innovator Founder visa to support entrepreneurs.

The interventions

- **Investing in Technical Excellence Colleges** to increase specialist and practical skills, informed by the Industrial Strategy priority clusters.

- **Delivering a clear strategy for skills, developed in partnership with the Digital and Technologies sector.** Skills England will publish analysis on sector skills needs and work with employers to co-design solutions to address skills needs. This will include engagement with the Digital Skills Council to inform a joined-up skills strategy that brings together Mayoral Strategic Authorities, local authorities, universities, local education institutions, skills providers and employers. We will continue to work with devolved governments on skills initiatives for the sector.

- **Attracting top tech talent to the UK.** A new Global Talent Taskforce will focus on sectors which have top talent requirements, such as digital and technologies. We are also launching a Global Talent Fund designed to attract world-class researchers, together with their teams, to move to the UK.

- **We will go further by introducing short courses in England, funded through the Growth and Skills Levy,** in areas such as digital, AI, and engineering. We will work with Skills England to determine the courses which will be prioritised in the first wave of rollout and subsequent waves, and how those sit alongside apprenticeships and other training routes. We will work with Skills England to introduce these short courses and consider how to prioritise investment across the programme.

Enhancing infrastructure

The approach

The explosive growth of AI and the increasing needs of other frontier technologies like quantum reinforces the importance of digital and physical infrastructure for the growth of the Digital and Technologies sector. Infrastructure was a key theme in feedback on *Invest 2035*. Infrastructure investment, alongside other actions, can unlock rapid growth in places across the UK. For example, independent estimates suggest that fully unleashing the Oxford-Cambridge corridor's potential could add up to £78 billion in cumulative growth to the UK economy by 2035,[34] creating one of the most intensive innovation clusters in the world.

We are increasing investment in AI and digital infrastructure, investing £1 billion to expand our AI compute capacity by a factor of at least 20. We will publish a long-term compute strategy later in 2025. Our flagship AI Growth Zone programme will facilitate new AI infrastructure, with Culham in Oxfordshire confirmed as the first site. More broadly, the 10 Year Infrastructure Strategy for England sets out the importance of digital infrastructure for growth. We will invest in fixed and wireless networks, including £1.8 billion to rollout gigabit-capable broadband, integrate digital needs in other infrastructure, and maximise 5G technologies across the economy.

We are also addressing historic under-investment in physical infrastructure that has caused long lead-times for electricity grid access for businesses investing in new technology facilities e.g. data centres or compound semiconductor fabrication plants.[35] The Government is supporting the National Energy System Operator and Ofgem to speed up grid connections by deprioritising almost 500 gigawatts of capacity from the oversubscribed queue and enabling faster connections for strategically important projects that are ready to connect.[36] Ofgem published its End-to-End Review of the connections process in 2024[37] and is consulting on how to deliver timely connections, better customer service and more accessible connections data.

We are also pursuing the most significant planning reforms in a generation, including building grid infrastructure ahead of need and accelerating the build process through cross-cutting actions on planning, supply chains and skills. Reforms to make the UK infrastructure offer more compelling are underpinned by the UK's high share of renewable power in our energy mix, making it an attractive location for companies looking to power future infrastructure in a sustainable manner.

The interventions

- **Launching a Connections Accelerator Service** which will boost connections support for demand projects, including prioritising those that guarantee high-quality jobs and bring the greatest economic value. This will build on work undertaken by the Government, which has secured and safeguarded £30 billion of investment by supporting key strategic demand investors, using the convening power of government to work intensively with electricity network companies to secure timely grid connections. We will work closely with representatives from the energy sector, local authorities, Welsh and Scottish governments, trade unions, and industry to design this service, which we expect to begin operating at the end of 2025.

- **Refreshing the Nationally Significant Infrastructure Projects (NSIPs) regime**, amending legislation so more types of development, including data centres, can request to be directed into the NSIP regime. The Planning and Infrastructure Bill is also continuing its passage through Parliament, including measures which will help to meet the Government's commitment to fast-track 150 planning decisions on major economic infrastructure projects, including in the Digital and Technologies, by the end of this Parliament.

Delivering pro-innovation regulation

The approach

Digital and technology businesses generate new innovations, create new markets and disrupt existing sectors, which presents challenges to regulators. Regulatory frameworks are often not designed with innovation in mind, but pro-innovation regulation and standards can be strong enablers of growth. Respondents to the formal Invest 2035 consultation viewed the regulatory landscape as lacking in flexibility and adaptability, making it difficult for businesses to innovate and respond to market changes efficiently.

The Government is reforming its regulatory approach. We have committed to reducing the administrative costs of regulation for businesses by 25% by the end of this Parliament.[38] This will help digital and technology businesses and increase opportunities for the use of AI. We have also launched a dedicated Regulatory Innovation Office (RIO) that will work across government to identify and address significant regulatory barriers holding back science and technology development.[39] The RIO will deliver practical, implementation-ready solutions by accelerating regulatory approvals, reducing complexity, and supporting

regulatory experimentation. RIO focuses on technologies and sectors which have the greatest growth potential to get cutting-edge ideas to market safely and swiftly and is already benefiting the Digital and Technologies sector. For example, it recently launched a second year of the AI Airlock, the first regulatory sandbox for AI as a medical device product[40] and launched the second round of the Engineering Biology Sandbox Fund to accelerate pro-innovation regulatory reform, bringing new products to market for the benefit of consumers.[41]

Case study – Regulators Pioneer Fund

The RIO has just launched the fourth round of the Regulators' Pioneer Fund (RPF) which will invest around £5.5 million in projects led by regulators and local authorities to shape the regulatory environment and give businesses the conditions and confidence to invest.[42] Previous RPF rounds have supported our six frontier technologies. For example, the Office for Nuclear Regulation (ONR) delivered a pilot regulatory sandbox on AI in the nuclear sector,[43] while the Medicines and Healthcare products Regulatory Agency (MHRA) tested approaches to support the use of AI algorithms as medical devices and developed 'first of its kind' guidance for microbiome-based medicinal products.[44]

The Government is also taking action to address specific regulatory barriers, incorporating feedback from businesses. The Government is reforming regulation of nuclear power to support the delivery of new nuclear technologies such as small and advanced modular reactors which could enable co-location of new nuclear technologies with energy intensive facilities such as AI data centres. More broadly, we are exploring opportunities to clarify and provide greater certainty in digital regulation. As part of on-going regulation for growth commitments, we will assess how to improve regulatory coordination, support for small businesses, and pathways for frontier technology developers.

We are also committed to regulatory frameworks for data that allow digital and technology businesses to access reliable data in an ethical manner. The recently announced OpenBind consortium, backed with up to £8 million of investment from DSIT's newly established Sovereign AI Unit, will use breakthrough experimental technology to generate the world's largest collection of data on how drugs interact with proteins, the building blocks of the body.[45] This will be 20 times greater than anything collected over the last 50 years – cementing the UK's position as a global hub for AI-driven drug discovery. Our new National Data Library will also be an important resource for supporting businesses, helping join up data across the public sector.

The interventions

- **Making the UK's regulatory system more innovator friendly** by commissioning the Regulatory Horizons Council to develop a framework to help regulators take more proportionate risks when regulating technologies and innovation. We will also deliver the regulation recommendations of the AI Opportunities Action Plan in full by working closely with regulators to identify future AI capability needs and requesting that regulators publicly report on their activities to promote AI innovation.

- **Investing up to £12m in UK Data Sharing Infrastructure Initiatives from April 2026.** Learning from international practices, including the Common European Data Spaces, these will promote effective and more coordinated approaches to governance, legal considerations, regulations, data interoperability, security, and trust. Businesses will be able to adopt these approaches and receive guidance, lowering costs and improving their ability to harness data from different sectors.

- **Encouraging innovation and adoption of technology** by developing and implementing a Digital Standards Strategy to improve coordination and coherence around objectives.

Securing international partnerships

The approach

The UK has put digital and technology businesses at the heart of its approach to international partnerships and trade. Free trade agreements with Japan and Australia, the former of which includes a precedent-setting innovation chapter, will unlock opportunities for digital and technology businesses. New focused agreements such as the UK-Singapore Strategic Partnership, the UK-India Technology Security Initiative, and the UK-Republic of Korea Digital Partnership will create a platform for joint working with key countries.

We are continuing to strengthen academic alliances and support knowledge exchange with partner countries. Through the UK's association to Horizon Europe, our scientists, businesses and institutions can collaborate with partners across the globe as part of the world's largest research and innovation programme, worth over £82 billion.[46] This year, discussions with the EU have secured the UK access to the vast majority – over 95% – of Horizon Europe funding opportunities focused on AI, quantum and other key technologies.[47] We are also re-shaping our approach to international science and technology engagement and have re-launched our global science and innovation diplomatic network as the Science & Technology Network, with a greater focus on technology partnerships and a refreshed set of objectives in priority countries.

We will focus on the increasingly critical intersection between dual-use technologies and national security and resilience as international competition for technology supremacy intensifies. We will build on UK strengths in secure capital and supply chain diversity, addressing areas of vulnerability and national security threats where needed. In parallel we will continue to build partnerships to complement our clear strengths, recognising we cannot own all elements of technology value chains. The memorandum of understanding signed in September 2024 between the AUKUS countries – the UK, Australia, and the US – established a new trilateral collaboration that will strengthen strategic cooperation and address risks to supply chains.

The interventions

- **Building new international partnerships in digital and technologies** such as the UK-US economic deal opening the way to a future transatlantic technology partnership. We will support international engagement through the refreshed Science & Technology Network and the next phase of the International Science Partnerships Fund, which will be designed with a focus on delivery of our international digital and technology ambitions.

- **Alongside, investing in critical supply chains** to strengthen domestic capabilities through a whole-of-government effort including, from the next financial year, MoD spending at least 10% of its equipment budget on novel technologies.

- **Supporting UK regulators, expert bodies and our overseas trade teams** to shape the international operating environment and open markets to growth-driving sectors, including digital and technologies, through the new Trade Strategy.

Endnotes

1 Converted from US$1.2 trillion using an exchange rate of 1 USD = 0.79 GBP (2024 average, source: Bank of England). Dealroom (2025) UK Tech: *A Forward Look to 2025.* Note: half of this value has been created by companies that have already gone public or exited via Mergers and Acquisitions, and half is still pre-exit. Dealroom's proprietary tech taxonomy may include industries that are not covered in this sector plan.

2 Dealroom (2025) *UK Innovation Update – Q1 2025*.

3 Dealroom (2025) *UK Tech: A Forward Look to 2025*. Dealroom's proprietary tech taxonomy may include industries that are not covered in this sector plan.

4 Department for Business and Trade analysis using Office for National Statistics (2025) *GDP Low-Level Aggregates and Annual Business Survey.* The SIC system does not fully capture the detail and fast-changing nature of Digital and Technologies, and the estimate uses a set of SIC codes to proxy for the Digital and technologies sector from the data sources. GVA data for the SIC codes is either taken from the GDP Low-Level Aggregates, or from GDP Low-Level Aggregates GVA totals that are apportioned using lower level SIC GVA data from Annual Business Survey GVA. See Industrial Strategy technical appendix for further details on defining sectors and sector data sources.

5 The GVA projections are based on the compound annual growth rate between 2019 and 2023.

6 Department for Business and Trade analysis using Office for National Statistics (2025) *Workforce jobs by industry and Inter-Departmental Business Register data.* The SIC system does not fully capture the detail and fast-changing nature of Digital and Technologies, and the estimate uses a set of SIC codes to proxy for the Digital and technologies sector from the data sources. The number of jobs for each SIC code is either taken from Workforce Jobs, or from Workforce Jobs totals that are apportioned using lower-level Inter-Departmental Business Register employment count data from Department for Business and Trade analysis. See Industrial Strategy technical appendix for further details on defining sectors and sector data sources.

7 The employment projections are based on the compound annual growth rate between 2019 *and* 2023.

8 High GVA/employee estimates from Department for Science, Innovation and Technology (2024) *Semiconductors Sector Study*; Department for Science, Innovation and Technology (2025) *Digital Sector Economic Estimates Gross Value Added 2023*; Department for Science, Innovation and Technology (2024) *Artificial Intelligence Sector Study*; Department for Science, Innovation and Technology (2025) *Cyber security sectoral analysis 2025*. Note: GVA/employee varies depending on specialisms, productivity and company.

9   Office for National Statistics (2025) *Management practices and the adoption of technology and artificial intelligence in UK firms: 2023* Office for National Statistics investigated how technology adoption and use of artificial intelligence by businesses vary with management practices using the latest data from the third wave of the Management and Expectations Survey. The analysis focuses on the adoption of AI, robotics, specialised equipment, specialised software, and cloud-based computing systems and applications. These are official statistics in development.

10   A McKinsey report identifies 12 technology-driven arenas, such as AI, semiconductors, cybersecurity, biotechnology, and cloud services, that have experienced rapid growth from 2005 to 2020. McKinsey (2024) *The next big arenas of competition*.

11   Department for Business and Trade (2025) *Global Trade Outlook*. UNCTAD global import data, 2013-2023 (latest available years), mapped to industry sectors using sector definitions used in the Global Trade Outlook. USD converted to GBP using year average exchange rates, drawn from the Office for National Statistics. Aggregate growth was calculated keeping USD/GBP exchange rates constant.

12   QS World University Rankings (2025) *Top global universities*.

13   Department for Science, Innovation and Technology (2022) *International comparison of the UK research base, 2022*.

14   UK Government (2023) Independent Review of University Spin-out Businesses.

15   The Global Innovation Index 2024 captures the innovation ecosystem performance of 133 economies and tracks the most recent global innovation trends across four key stages of the innovation cycle: science and innovation investment, technological progress, technology adoption, and the socioeconomic impact of innovation. World Intellectual Property Organisation (2024) *Global Innovation Index 2024*.

16   Top UK-based investors by number of investments in UK R&D intensive companies since 2020, based on Department for Science, Innovation and Technology analysis of PitchBook Data. R&D-intensive businesses defined in line with British Business Bank's equity tracker, selecting PitchBook verticals which can be found on page 86 of the 2024 Small Business Equity Tracker: British Business Bank (2024) *Small Business Equity Tracker 2024*.

17   Financial Times Stock Exchange Russell (2025) *FTSE All-Share Indices – Factsheet*. Data as at: 31 March 2025. The FTSE All-Share Index is a market capitalisation weighted index representing the performance of equities of all eligible companies listed on the London Stock Exchange's main market. Based on ICB industry classification.

18   Department for Science, Innovation and Technology (2025) *Transformative £86 billion boost to science and tech to turbocharge economy, with regions backed to take cutting-edge research into own hands*.

19   Office for National Statistic (2024) *Business enterprise research and development statistics*.

20   EU Commission (2023) *EU Industrial R&D Investment Scoreboard*. Based on a comparison of the world top 2000 R&D investors from the UK in 2018 vs 2023.

21   Advanced Research + Innovation Agency (2025) *Scaling Compute*.

22   HM Treasury (2024) *Corporate Tax Roadmap*.

23   Department for Business and Trade (2025) *Invest 2035: the UK's modern industrial strategy*.

24   British Business Bank (2024) *Small Business Equity Tracker 2024*. Figure adjusted for GDP.

25   Department for Science, Innovation and Technology analysis of Dealroom (2025) *Funding Rounds*. Figures calculated by determining the proportion of venture capital investment from UK sources. Filters applied for seed stage investment: UK headquarters, minimum round size of $1.0m, maximum of $4.0m, year 2024. Filters for $250m+ stage: UK headquarters, minimum round size of $250m, year 2024. The use and interpretation of such data, as well as the conclusions, advice or other application or implementation hereof are made by Department for Science, Innovation and Technology and are our sole responsibility

26   British Business Bank (2024) *Small Business Equity Tracker 2024*.

27   HM Treasury (2025) *Statement of Strategic Priorities to the National Wealth Fund*.

28   British Business Bank (2024) *Press release - 14 November, 2024*.

29   HM Treasury (2025) *Pension schemes back British growth*.

30   British Business Bank's estimate based on private sector leverage (approximately 3:1 private to public sector ratio) from similar British Business Bank programmes.

31   Department for Education (2024) *Unit for Future Skills - Jobs and Skills Dashboard, 2024*. The number of vacancies caused by skills shortages has been calculated by multiplying the total number of vacancies by the percentage of skill-shortage vacancies, as provided in the "Demand" section of the dashboard. The analysis is based on SOC2010 definitions for STEM and digital/computing professions. Note: The definition of the STEM skill subset may include occupations not specific to the Digital and technologies sector. Department for Science, Innovation and Technology is currently working to improve how skills shortages in the sector are measured.

32   Prime Minister's Office, 10 Downing Street (2025) *PM launches national skills drive to unlock opportunities for young people in tech*.

33   Prime Minister's Office, 10 Downing Street (2025) *PM launches national skills drive to unlock opportunities for young people in tech*.

34   HM Treasury (2025) *Reeves: I am going further and faster to kick start the economy*.

35   Office for Gas and Electricity Markets (2023) *Open letter on future reform to electricity connections process* Over 40% (120GW) of all new generation capacity holding transmission connection agreements today have connection dates of 2030 or beyond.

36   Office for Gas and Electricity Markets (2023) *Ofgem announces tough new policy to clear 'zombie projects' and cut waiting time for energy grid connection*.

37   Office for Gas and Electricity Markets (2025) *Connections end-to-end review of the regulatory framework*.

38   HM Treasury (2025) *New approach to ensure regulators and regulation support growth*.

39   Department for Science, Innovation and Technology (2024) *Game-changing tech to reach the public faster as dedicated new unit launched to curb red tape*.

40   Medicines and Healthcare products Regulatory Agency (2024) *AI Airlock: the regulatory sandbox for AIaMD*.

41   Department for Science, Innovation and Technology (2024) *Engineering Biology Sandbox Fund*.

42   Department for Science, Innovation and Technology (2025) *Regulators' Pioneer Fund round 4*.

43   Office for Nuclear Regulation (2023) *Outcomes of nuclear AI regulatory sandbox pilot published*.

44   Medicines and Healthcare products Regulatory Agency (2024) *MHRA's AI regulatory strategy ensures patient safety and industry innovation into 2030*.

45   Department for Science, Innovation and Technology (2025) *UK to become world leader in drug discovery as Technology Secretary heads for London Tech Week*.

46   UK Research and Innovation (2025) *Working on EU-funded projects*.

47   Department for Science, Innovation and Technology (2025) *UK researchers access more quantum and space Horizon funding*.
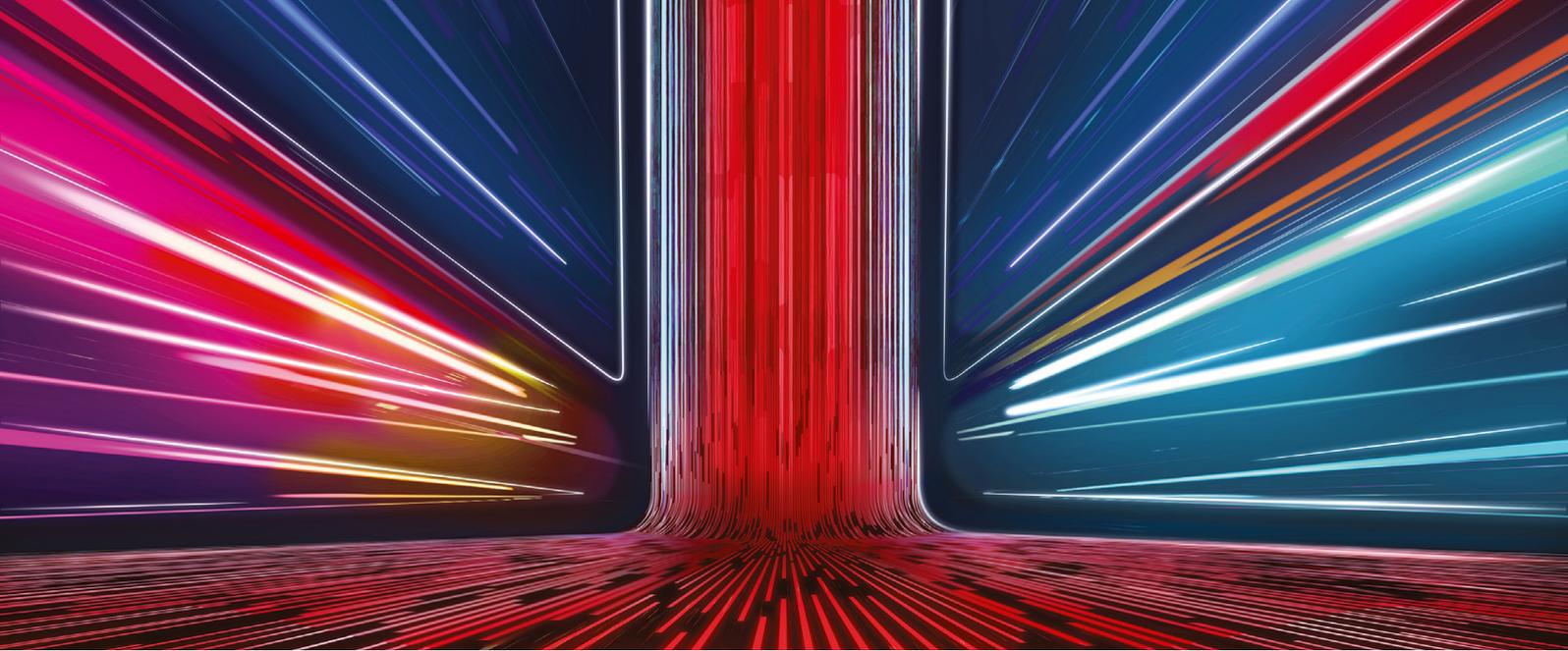
3. Supporting our frontier technologies

We will take steps to unlock growth in frontier technologies where we see the highest potential for growth – ACT, AI, cyber security, engineering biology, quantum technologies and semiconductors. These areas have been identified through rigorous, cross-government analysis and extensive stakeholder engagement.

The six frontier technologies build on UK strengths and comparative advantage. For example, the UK ranks second globally in quantum investment,[1] leads in engineering biology investment outside the US and China,[2] and has leading strengths in compound semiconductors, semiconductor design, IP and R&D.[3]

These technologies will unlock growth across all Industrial Strategy growth sectors, driving productivity and creating new products, services and business models. The adoption of emerging technologies, including these frontier technologies, has the potential to contribute up to 8.4% to the UK's real GDP by 2035, based on PwC's experimental analysis.[4] Drawing on a business survey, the analysis suggests that approximately half of the UK's projected GDP growth in the coming years could be attributed to emerging technologies.[5]

Artificial Intelligence (AI)

AI is a transformative technology that performs tasks normally requiring human intelligence – such as understanding language, recognising patterns, and making decisions. It has many use cases such as accelerating drug discovery in healthcare; summarising complex legal documents; and improving customer service through virtual assistants.

Generated **£14.2 billion** in revenue, contributed **£5.8 billion** in GVA, and employed **64,500 people** in the UK in 2023.

(DSIT AI Sector Study)

Cyber Security

Cyber Security is about protecting the technology we rely on for everyday life and work. This includes protecting critical infrastructure like power grids; securing personal data in healthcare systems; and safeguarding financial institutions from fraud. It is crucial for protecting our economy and ensuring our security online.

Generated **£13.2 billion** in revenue, contributed **£7.8 billion** in GVA, and employed **67,300 people** in the UK in 2023-24.

(DSIT Cyber Security Sectoral Analysis)

Advanced Connectivity Technologies (ACT)

ACT are cutting-edge technologies that enable the transmission of data in our increasingly digitised economy and society – connecting both people and things. These include technologies that make up advanced wireless systems, such as 5G and the transition to 6G, non-terrestrial networks, advanced optical networks, the growing integration of AI – and in time quantum – with communications.

A quarter of the UK telecoms sector can be attributed to ACT-linked activity, generating an estimated **£26.2 billion** in revenue and **£11.1 billion** in GVA globally. (ACT Market Scoping Analysis)

Engineering Biology

Engineering biology is the design, scaling and commercialisation of biology-derived products and services that can transform sectors or produce existing products more sustainably. It draws on the tools of synthetic biology to create the next wave of innovation in the bioeconomy.

Engineering biology could drive a **£1.6-3.1 trillion** global impact by 2040, with the UK well-positioned to lead the way. (McKinsey; Bank of England EXR)

Quantum Technologies

Quantum technologies have potential to enhance UK economic prosperity and national security. They leverage quantum mechanics to deliver new capabilities that have the potential to outperform classical technologies in specific areas across UK industrial sectors such as Life Sciences, Defence, Financial Services and Clean Energy.

Quantum computing alone could add over **£11 billion** to the UK's GDP by 2045.

(Oxford Economics)

Semiconductors

Semiconductors are materials that sit at the heart of electronic devices and digital technologies we use every day. They are crucial for our economy and are used to power smartphones and computers; and enable renewable energy and advanced medical devices.

Generated **£9.6 billion** in revenue, contributed **£7.4 billion** in GVA, employed 15,000 people in the UK in 2022.

(DSIT Semiconductors Sector Study)

Quantum technologies will revolutionise data analytics within the Financial Services sector; AI-driven efficiencies will significantly boost productivity in the Professional Business Services sector; and engineering biology is set to advance precision medicine, helping to tailor disease prevention and treatment in the Life Sciences sector. All of the frontier technologies have dual-use applications, enabling the UK defence sector to deliver economic growth and keep the UK and our allies safe.

The frontier technologies will play a central role in meeting our net zero commitments and wider environmental goals. Semiconductors are a crucial enabling technology for transitioning to net zero emissions across sectors; digitalisation, supported by AI and ACT, will ensure the decarbonised energy system is more efficient and stable; engineering biology can be used to find alternative uses for waste products and to develop sustainable fuel sources; and quantum technologies could improve water supply management and disaster prediction.

They will also bring significant benefits through convergence of technologies working together. Next-generation semiconductors and enhanced connectivity through advancements like 6G are the backbone for future technology development; advanced AI will accelerate breakthroughs in engineering biology and alter nearly every aspect of business in the UK; quantum computing has the potential to deliver rapid advancements in many areas; and cyber security and secure-by-design principles will be fundamental to successful application of all technologies.

Foundational industries

We will consider the foundational industries and inputs which are critical for a growing Digital and Technologies sector and the frontier technologies. Key minerals like gallium, germanium, silicon, and copper are crucial for semiconductors, and fibre optics for AI and communication networks. The construction sector is vital for developing new facilities such as data centres and research labs, with steel being fundamental across the sector.

The upcoming 2025 Critical Minerals Strategy aims to secure a steady supply of minerals, optimising domestic resources and enhancing international collaboration. The Government is also bringing forward the Steel Strategy with up to £2.5 billion in funding[6] and reforming the planning system, updating our infrastructure plan, and investing £625 million in construction skills to train new workers and support sector growth.[7]

3.1 Advanced connectivity technologies

ACT and the networks they underpin are becoming increasingly essential for industry, government and for citizens. The UK has a strong heritage in connectivity, from Marconi's first transatlantic radio transmission in 1901 to Vodafone completing the world's first satellite video call from a mobile in Wales in 2025. The UK has a significant ACT footprint – initial market analysis identified over 11,800 UK telecoms firms, with 2,800 firms undertaking ACT-related work either as part of their core or wider (hybrid) business, contributing an estimated global GVA £11.1 billion in 2024.[8]

The UK has a globally competitive research base in ACT, driven by our world-leading universities and innovators from SMEs through to BT, which is a leader among British companies holding AI patents. UK capabilities span all nations of the UK, from the Scotland 5G Centre in Glasgow to the Centre for Wireless Innovation in Belfast.

There is significant global focus on ACT. The EU, USA, Japan, South Korea, India, Taiwan and China are among those undertaking R&D programmes to shape 6G. The global nature of ACT development creates opportunities for innovative collaboration as well as competition.

The approach

ACT is estimated to deliver £14.6 billion productivity benefits to the UK's GDP by 2035.[9] The Government is already beginning to unlock this by investing and working closely with industry on gigabit-capable broadband and higher quality 5G roll-out. We have set out more detail on our ambitions for digital infrastructure in England's 10 Year Infrastructure Strategy. Alongside deploying the best technology now, technology and market advances also mean there is an opportunity to grow the UK's role in shaping and developing ACT for the future.

We have already begun to invest in ACT, with over £300 million spent since 2022 to promote R&D through the Open Networks Programme[10] and Technology Missions Fund;[11] building the UK Telecoms and SONIC Labs, establishing Federated Telecoms Hubs and a Centre for Doctoral Training in future, open secure networks.

Our ambition by 2035 is for more technologies developed in the UK to be used in networks around the world and to have built a thriving UK ACT ecosystem of homegrown and global companies that crowds in private sector investment. We will have maximised the benefits of 5G and gigabit broadband and made the UK a leader in developing ACT by leveraging areas of UK technology strength that are high growth and enhance our security.

The interventions

- **Driving greater ACT development in the UK** through a four-year targeted research programme, initially with £240 million of funding, that brings together industry and academia with an increased focus on commercialisation, leveraging UK strengths and priority applications, such as defence, transport and future telecoms networks, including satellites.

- **Providing UK ACT firms with the facilities they need to grow** by strengthening our world-class lab infrastructure through an initial £130 million – including increasing the capabilities of the UK Telecoms Lab and establishing a new partnership on ACT between the Digital, Compound Semiconductor Applications and Satellite Applications catapults.

- **Ensuring spectrum availability to support ACT** by working with international counterparts ahead of the World Radio Conference 2027 and collaborating with Ofcom to promote efficient, innovative spectrum allocation and regulation, which continues to support the development and deployment of ACT.

- **Deepening our international collaborations with other leading ACT-developing countries** including Japan, India, the US and EU and continuing to play a leading role in the Global Coalition on Telecoms. We will use these collaborations to shape technical standards so that when 6G is deployed in the 2030s it will improve digital inclusion and coverage and be based on technologies that are secure and improve sustainability.

Case study – pureLiFi

pureLiFi, spun out from the University of Edinburgh in 2012, is a global leader in LiFi – an advanced communication technology that uses light to transmit data and offers benefits compared to Wi-Fi. pureLiFi's secure technology is dual-use and can be applied in civilian and military settings. Their Kitefin communications system has sold over 1,000 units to the US military, which is deploying them globally.[12]

In 2023, pureLiFi received £1.8 million through the Future Telecoms Technology Missions Fund, delivered by UKRI.[13] According to PitchBook Data Inc., the company has also raised over £30 million in private equity.[14] The widescale adoption of ACT like LiFi across different sectors could significantly improve productivity, digital inclusion, net zero impacts, and data security.

3.2 Artificial intelligence

AI is playing an increasingly crucial role in driving technological advancements and economic growth, transforming entire industries by enhancing efficiency, enabling innovation and creating new opportunities for businesses and society. The UK's AI footprint is growing rapidly, with more than £44 billion in private sector investment in UK AI businesses since July 2024.[15]

Key AI hubs are located in Cambridge, Manchester, Edinburgh and London. Between 2021 and 2024, AI firms in London raised £6.7 billion in venture capital, making it the third largest global cluster for venture capital investment.[16] Isomorphic Labs, an AI-driven drug discovery company, raised £474 million in its first external funding round earlier this year.[17]

The UK ranks first in Europe and fourth globally in the Tortoise Global 2024 AI Index, reflecting our strong AI research, talent and commercial ecosystem.[18] The UK also ranks fourth globally for AI unicorns and start-ups.[19] The presence of global AI leaders[20] such as Arm, Google DeepMind, OpenAI, Anthropic and Meta AI, and emerging businesses such as Wayve, further strengthens the UK ecosystem, attracting investment and fostering innovation.

The global AI landscape is highly competitive, with many countries developing national strategies and major investment programmes. For example, the US government recently launched the Stargate Project with an initial, multi-billion dollar investment and plans to commit additional funds over the next four years from major corporations such as OpenAI, SoftBank and Oracle Corp.[21] In France, more than £93 billion in investments for infrastructure projects was announced during the 2025 Paris AI Summit.[22]

The approach

The AI Opportunities Action Plan sets out an ambitious roadmap for the UK to strengthen its global leadership in AI. The Government has accepted all 50 recommendations and delivery is underway to unlock AI's full potential. The Spending Review set out a commitment to invest over £2 billion to drive delivery of the plan.

We have launched the AI Growth Zone application process and announced the first AI Growth Zone in Culham. AI Growth Zones will unlock investment in AI-enabled data centres across the UK by improving access to power and streamlining planning. These zones will help drive innovation, create high-skilled jobs, and reinforce the UK's global AI leadership. We have received hundreds of expressions of interest from local authorities, regions, and industry, proposing potential sites that could host 500 megawatts or more of AI infrastructure by 2030.[23]

We are also expanding public compute capacity to address historic underinvestment and ensure the UK remains at the forefront of AI development and deployment. The UK's AI Research Resource will be fully operational this summer, with two powerful supercomputers – Isambard-AI in Bristol (named as one of the most powerful in the world) and Dawn in Cambridge.

We are carefully considering the energy and sustainability challenges that come with this scale of infrastructure. To ensure our AI ambitions are aligned with the UK's net zero goals, we have established the AI Energy Council, which is exploring bold, clean energy solutions from next-generation renewables to small modular reactors. The Government recently announced it will invest over £2.5 billion to enable one of Europe's first small modular reactor programmes.

We are making sure the benefits of AI are felt across the whole economy by investing in the skills people need to use these technologies with confidence. We will work with industry to upskill 7.5 million people to use AI by 2030.[24] We are also driving adoption of AI across the public sector and have developed citizen facing AI applications including GOV.UK Chat, and embedded AI within the GOV.UK App. We have signed a Memorandum of Understanding with Anthropic to identify opportunities for AI applications in public services.

Case Study – Matillion

Founded in 2011, Matillion is a global leader in cloud-based data integration and transformation solutions, with headquarters in Manchester, UK, and Denver, USA.[25] Matillion uses AI to automate data workflows, enhance data quality and provide advanced analytics, all of which improve productivity for businesses.

Matillion has attracted substantial private investment over the last few years, including from Databricks Ventures, Snowflake Ventures, Citi Ventures and a large Series E funding round led by General Atlantic.[26] Matillion's Manchester headquarters is helping to drive innovation and boosting job opportunities in the North West region.

The interventions

- **Strengthening the UK's position as a global hub for AI R&D** by committing £1 billion to scale up the UK's AI Research Resource capacity by at least 20 times by 2030, and up to a further £750 million to build a new supercomputer in Edinburgh.[27]

- **Maximising the UK's stake in frontier AI** by investing £500 million in the creation of a new Sovereign AI Unit. The unit will draw on an investment offer, working closely with the British Business Bank, alongside access to data, compute and talent to build UK capabilities in partnership with the private sector.

- **Delivering an AI and copyright framework that supports AI development in the UK.** The Government wants to support rightsholders in licensing their work in the digital age while allowing AI developers to benefit from access to creative material in the United Kingdom. The right approach here will unlock new opportunities for innovation across the whole economy. The Government is analysing responses to the consultation on delivering a copyright and AI framework, looking at all options. The Government recognises the need for this to be done properly and carefully in a considered, measured and reasoned way, to develop any future proposals. The Government will set out a detailed economic impact assessment on all options under consideration and a report on the use of copyright material for AI training, transparency and technical standards. This analysis will inform the Government's position, alongside a series of expert working groups to bring together people from both the AI and creative sectors on the issues of transparency, licensing and other technical standards to chart a way forward.

- **Promoting AI adoption across the UK with targeted initiatives** including a new AI Adoption Fund and regional business support. These measures will provide businesses with the targeted expertise and skills they need to integrate AI into their operations and ensure the continued innovation of cutting-edge solutions in industrial contexts, fuelling growth.

- **Accelerating AI-enabled scientific breakthroughs** in targeted areas of UK strategic priority. The programme will support AI tool development, interdisciplinary research and strengthen the UK's AI capabilities in science.

3.3 Cyber security

Cyber security is crucial for economic stability. It protects businesses from financial losses, reputational damage and disruptions caused by cyber attacks. The impact of cyber attacks has become more prominent in recent months, with high profile attacks on the retail sector affecting both businesses and citizens.

The UK's cyber security industry is already world leading, generating £13.2 billion in revenue across more than 2,000 firms, and the UK is recognised as one of the most committed countries to cyber security globally.[28] Key hubs like the South West, Greater Manchester and Lancashire, and Belfast are becoming centres of innovation. Cyber security exports continue to boost the UK economy, growing from £4.1 billion in 2020 to £7.2 billion in 2023.[29] AI offers a significant opportunity to deliver cyber security more effectively and at greater scale as the industry continues to grow in the UK.

Solidifying our position as a true global leader in this space will help the UK to continue attracting major cyber companies such as Alfac, Liberty Mutual and AllState who have established cyber security teams here to support their global businesses. Other international heavyweights like IBM have significantly grown their UK cyber businesses and have reinvested in the UK cyber sector with major contributions to support skills programmes like CyberFirst.

Alongside these global players, UK-founded companies like Darktrace, NCC Group, and BAE Systems are exporting world-leading cyber solutions and services around the globe. Their rapid international expansion – driven by cutting-edge innovation and trusted expertise – demonstrates the UK's growing role as both a destination for foreign investment and a powerhouse of global cyber resilience.

The approach

We will support more domestic researchers and innovators, including by unlocking access to data, to help them create new products and services. This includes supporting programmes such as the Cyber Academic Startup Accelerator Programme (CyberASAP), which has helped 34 start-ups to spin out of academia and raise over £40 million in funding,[30] and CyberFirst, now part of TechFirst, which has supported 415,000 cyber students.[31] The Government's Cyber Essentials scheme supports organisations to protect themselves against the most common online threats. Uptake continues to increase, boosting the cyber security sector through a growing network of over 380 certification bodies who carry out the scheme's assessments.

We are building the new National Cyber Innovation Centre in Cheltenham to foster collaboration between business, government, and academia in tackling the most pressing cyber threats. This national asset will catalyse the creation of ambitious, world-leading cyber companies and attract an additional £1 billion of investment into the Golden Valley development. Already home to Government Communications Headquarters and a thriving ecosystem of cyber businesses – from startups to global primes – Cheltenham is one of the UK's foremost hubs for cyber security innovation and growth.

The interventions

- **Supporting commercialisation of cyber research** through an initial £10 million to expand Cyber ASAP to support 25 academic teams annually and confirming £2 million for the Cyber AI Hub in Belfast.

- **Providing support to start-ups** through an initial £6 million to build on the work of our Cyber Runway accelerator to support 60 start-ups annually across all growth stages through mentoring, skills development and access to networks.

- **Growing domestic technology talent and creating high-quality jobs in under-served areas** through further CyberFirst bursaries from the TechFirst package. We will also develop partnerships that focus skills initiatives to support the development of the National Cyber Force and wider defence and intelligence communities.

- **Promoting the adoption of technologies that are secure by design** through an initial £24 million to promote using the Capability Hardware Enhanced RISC Instructions (CHERI) blueprint for designing the next generation of secure chips.

- **Publishing a Cyber Growth Action Plan** in summer 2025 to provide a roadmap for future growth, based on independent advice from experts at Bristol University and Imperial College London.

Case study – SCI Semiconductor

SCI Semiconductor, founded in Cambridge, designs advanced chips using CHERI technology, building on the UK's strengths in secure hardware design. The Government-funded Digital Security by Design (DSbD) programme has been crucial for SCI's growth, expanding its team from 4 to 20 engineers[32] and advancing its technology from Technology Readiness Level (TRL) 4-6 to TRL 7-9. This initiative has facilitated collaboration across multiple companies while attracting significant end-user engagement. The DSbD initiative has helped SCI unlock over £2.5 million in private seed funding,[33] in addition to generating revenue and potential future projects with identified customers. SCI projects a valuation of £100 million in five years, positioning itself as a leader in secure semiconductor technology.
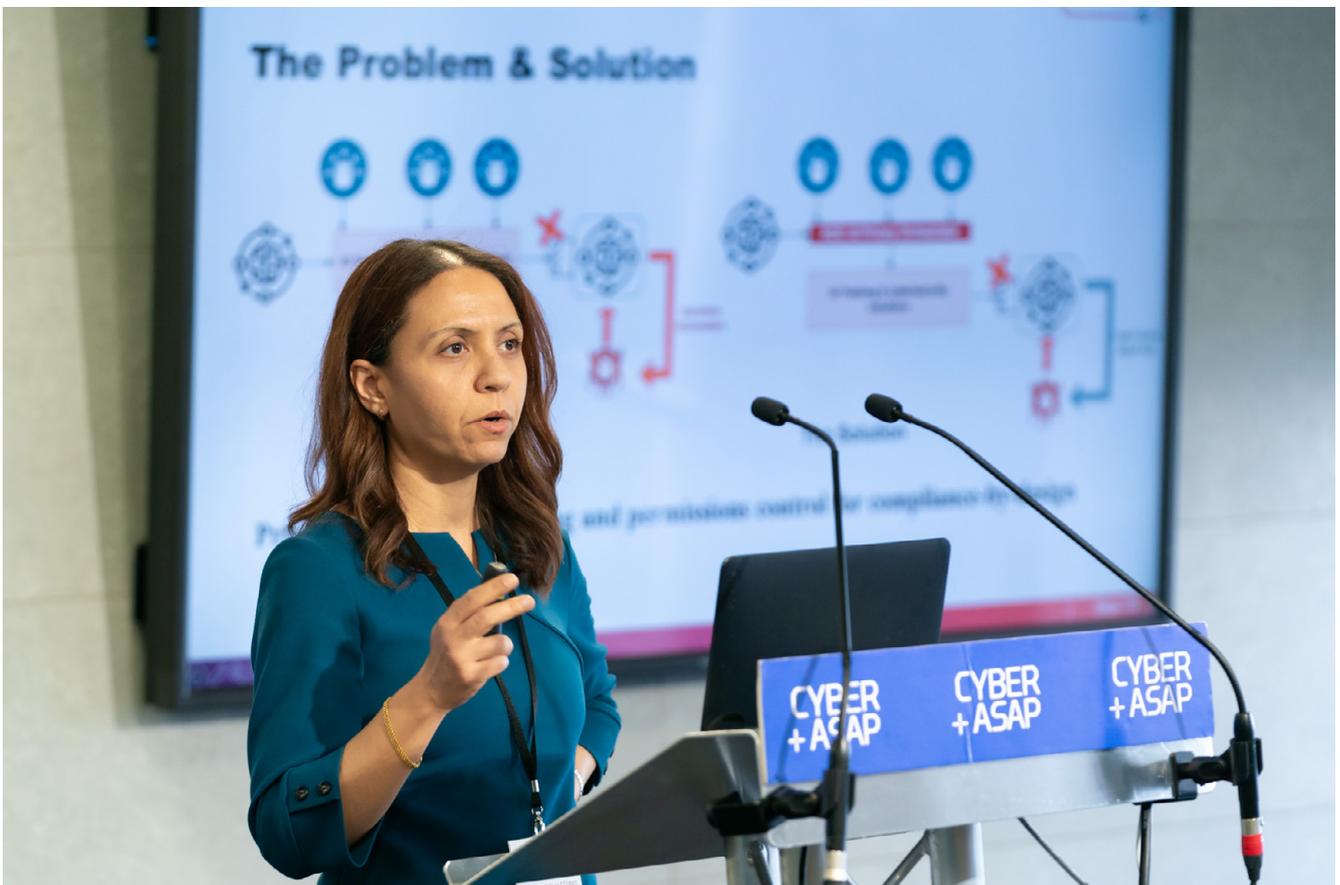
3.4 Engineering biology

Engineering biology technologies are transforming industries, from healthcare through to novel vaccines, to sustainable production methods in the fashion and textile supply chain in the Creative Industries sector. They are also supporting the environment and sustainable farming through low-carbon fuels and precision-bred crops. The UK's engineering biology ecosystem is thriving, with over 1,000 businesses innovating across different sectors.[34]

The UK is well-positioned to capitalise on this growth opportunity. The UK boasts strengths in multiple regions, from mammalian genetics research in Edinburgh to preventing plastic pollution in Portsmouth. Clusters include Bristol (ScienceCreates engineering biology accelerator), Scotland's Central Belt (Edinburgh's Genome Biofoundry and Glasgow's Industrial Biotechnology Innovation Centre), London (home to the Cell and Gene Therapy Catapult and Eyebio and Multus scale-ups), and Cambridge (the Wellcome Genome Campus and Medical Research Council laboratory of Molecular Biology).

The UK engineering biology ecosystem is considered the strongest globally outside the USA and China, supported by high levels of public funding, regulatory innovation and world-class universities.[35] The USA is the leading nation in the technology, with its wider bioeconomy valued at nearly $1 trillion.[36] China is becoming a global leader and its market is expected to grow 32.4% annually from 2021 to 2026.[37] The European Commission has identified biotechnology[38] as a priority technology,[39] with countries like India and Japan also ramping up investment in the sector.[40]

The approach

The UK retains its position as Europe's leading biotechnology hub attracting 40% of total VC investment across the continent.[41] In 2024, the UK biotechnology sector experienced substantial growth in equity financing, raising £3.7 billion – an increase of 106% compared with 2023.[42] In February 2024, the Government invested £100 million into the Engineering Biology Mission Hubs and Mission Awards,[43] enhancing research capacity and technology development across the country.

The UK has a strong legacy of research in the biological sciences including long-term investments over the last decade which have delivered significant economic dividends. More than £100 million was invested through UK Research & Innovation (UKRI) into the Synthetic Biology for Growth programme between 2014-2022.[44] This drove significant economic activity with over 300 collaborations, including 47 new spinout and start-up companies.[45] The estimated net additional GVA ranges from £360 million to over £1 billion, representing a return on investment of between three and nine times the initial investment.[46]

We are reforming our regulatory approach to engineering biology, with a dedicated Engineering Biology Regulators Network, innovative regulatory sandbox programme and the new Regulatory Innovation Office. The Genetic Technology (Precision Breeding) Act (2023) will create a new regulatory framework and enable a route to market for precision-bred products, encouraging investment and innovation in agritech. The global plant breeding and CRISPR plants market is projected to grow to nearly £11 billion by 2030,[47] and the Act positions us at the forefront of this growing sector.

The interventions

- **Driving cross-economy innovation through R&D** with an initial £196 million for a National Engineering Biology Programme to fund researcher-led projects. Driving targeted critical research and development for transformative applications of engineering biology, it will support investment into engineering biology monitored through metrics such as R&D collaborations and investment leveraged.

- **Partnering with the sector to enhance adoption and manufacturing capabilities.** Through an initial £184 million for an Engineering Biology Scale-up Infrastructure Programme to build and upgrade pilot and scale-up facilities, as well as ensure these are connected to the needs of innovators.

- **Building on the success of the engineering biology regulatory sandbox to accelerate regulatory reform.** Partnering with the RIO to smooth the path for responsible adoption of engineering biology products and services, including through new projects under the Engineering Biology Sandbox Fund.

- **Connecting all parts of the ecosystem** by building networks of researchers, innovators and larger companies through new schemes like the UKRI Engineering Biology Innovation Network.

- **Taking the next step on international leadership** by working bilaterally and multilaterally with trusted partners to shape the global engineering biology research, innovation and business environment to ensure that the UK remains a priority destination for investment.
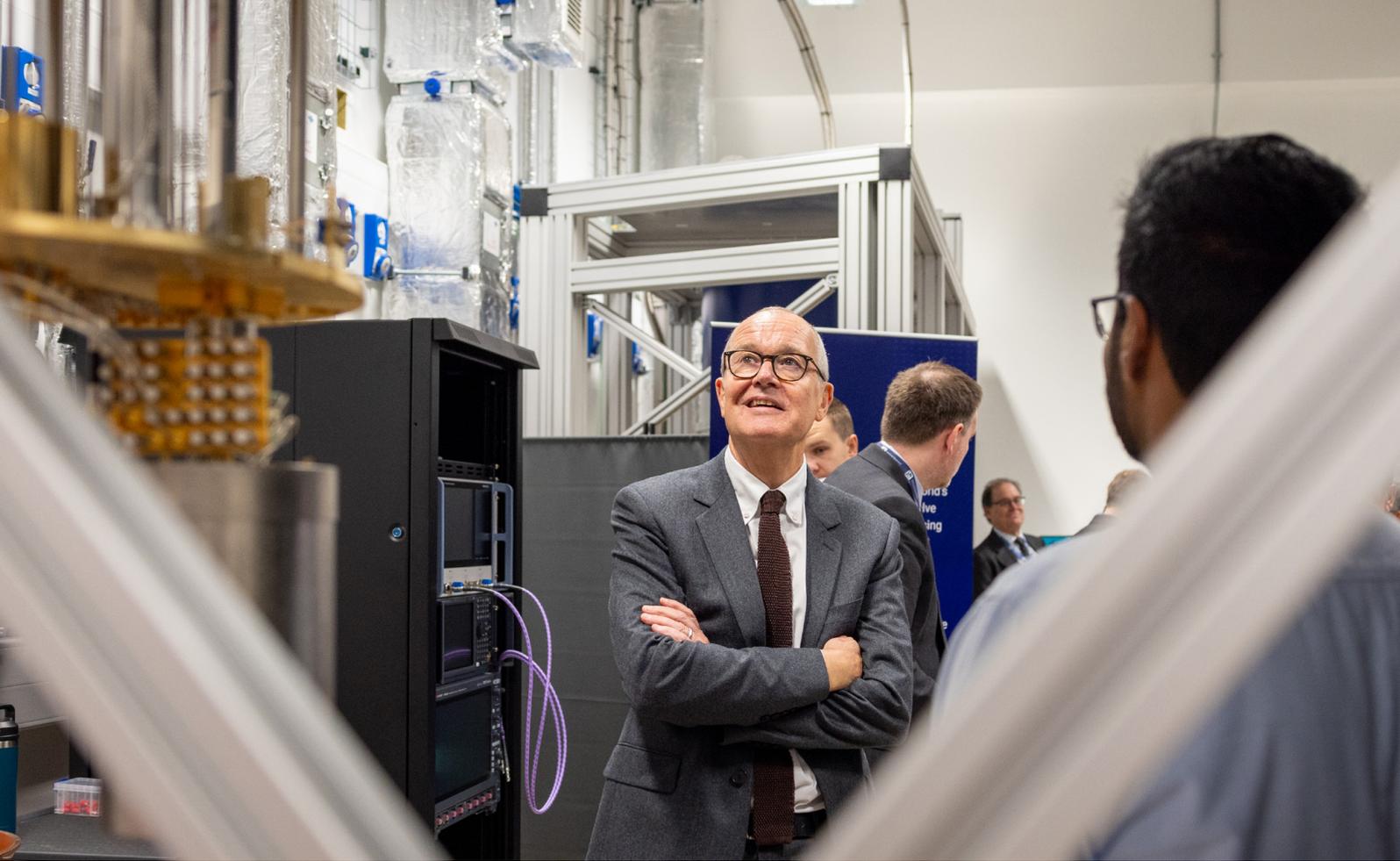
3.5 Quantum technologies

Quantum computing, sensing and communications technologies promise major benefits for the UK economy and society. For example, quantum computers and sensing will help to accelerate drug discovery and optimise hospital logistics helping to reduce waiting time in hospitals and providing new alternatives to treat illnesses.

The UK is already a global leader in quantum technologies. Our quantum footprint ranked second worldwide in 2023 and continues to attract significant private investment. It has benefited from consistent government investment through the National Quantum Technologies Programme over the last 10 years.[48] The Oxford-Cambridge Growth Corridor alone has received over £782 million investment into quantum since 2000 supporting a vibrant international ecosystem with key companies like Oxford Instruments, Oxford Ionics and Oxford Quantum Circuits, as well as Riverlane, Quantinuum and NuQuantum.[49]

Estimates suggest the global quantum market could reach £137 billion by 2040.[50] The UK is well-positioned to capture a significant proportion of this growth. Quantum computing alone is estimated to contribute £2.3 billion to the UK's GDP and support 26,900 jobs by 2034, rising to £11 billion and 126,100 jobs by 2045.[51]

The approach

We will launch an ambitious long-term quantum programme to consolidate UK leadership, support commercialisation and scale-up, build skills, enable access to key infrastructure and unlock private investment. By 2033, we aim to secure a 15% share of the global quantum technologies market and attract 15% of global private equity investment into quantum technologies.[52]

Through the 10-year National Quantum Technologies Programme, the Government has collaborated with academia and industry to translate research into real world applications. The programme has invested over £1.1 billion since 2014, generating world-leading research strengths in the UK across all quantum technologies and driving investment and business growth and has already committed to continue with five new hubs and Centres for Doctoral Training.[53] Our long-term commitment has crowded in significant private investment. Innovate UK has awarded £273 million to quantum companies to fund collaborative programmes and buy early products since 2018 which has helped catalyse £692 million in private investment.[54]

International investment in quantum technologies is growing. Thirty-three countries have their own national programmes with multi-billion-dollar commitments.[55] The UK collaborates closely with global quantum leaders like the US, Japan, Canada, Australia and European partners, on R&D, talent exchange, and standards development and must continue these partnerships.

The interventions

- **Progressing five National Quantum Missions** to: deploy quantum navigation systems; maintain critical national infrastructure, ensure NHS trusts benefit from quantum sensing; deploy the world's most advanced quantum network at scale; and have UK-based quantum computers capable of significantly outperforming supercomputers by 2035. This includes £670 million to drive the development and adoption of quantum computers in the UK.

- **Providing a 10-year funding commitment for the UK's flagship National Quantum Computing Centre (NQCC)** to expand its work on quantum computing development, readiness and adoption. Enabling access to infrastructure, developing an innovative regulatory environment and delivering a series of deep international collaborations across research, industry and regulation.

- **Develop a skills action plan with the sector**, informed by the recommendations and findings of the Quantum Skills Taskforce, to ensure we have the necessary skills to capitalise on the opportunities presented.

Case study – Cerca Magnetics

Cerca Magnetics, a Nottingham-based company, is developing world-leading, quantum-enabled brain scanning technology that could significantly enhance our ability to diagnose and understand neurological and psychiatric conditions.[56]

Cerca is an academic spinout from an Engineering and Physical Sciences Research Council-funded quantum research hub, and has benefited from Innovate UK funding to develop, trial and commercialise their pioneering technology with the UK's National Health Service (NHS).

Since its inception in 2020, the company has grown to over 20 employees and has deployed cutting-edge systems in world-leading institutions in Europe, North America and Australia.[57] In the UK, Cerca is working closely with clinicians to develop systems for deployment within the NHS, with initial clinical use cases likely to be in patients with epilepsy.

3.6 Semiconductors

Semiconductors are fundamental to the world's digital infrastructure, delivering on AI opportunities, and the development of advanced technologies. The UK's semiconductor industry has grown at an annual rate of 8% over the past decade, and revenues are estimated to reach up to £17 billion by 2030.[58] The industry has high productivity, with GVA per employee estimated at £460,000.[59] South Wales is home to the world's first dedicated compound semiconductor cluster, which supported a total of £434 million of GVA in the UK economy in 2024.[60] Other clusters include Cambridge, Scotland and Bristol, with companies ranging from chip design and fabrication, to semiconductor equipment manufacturing and packaging.

The approach

The UK can capitalise on its globally recognised research base and existing strengths in chip design, compound semiconductors and next generation technologies including photonics.

UK semiconductor start-ups benefit from government support, including via our world-leading ChipStart incubator programme, which provides targeted mentorship, networking opportunities and state-of-the-art software to accelerate commercialisation. Companies from the first two ChipStart cohorts are on track to raise over £40 million in private investment.[61] The National Wealth Fund has announced a £60 million direct equity investment into Pragmatic Semiconductor,[62] a world leader in manufacturing integrated flexible circuits, which will help scale up the domestic supply chain of semiconductors in the North East of England.

To address the UK's reliance on international markets, we are forging strategic international partnerships to improve supply chain security. We are engaging with the EU's Chips Joint Undertaking to pool R&D resources, foster cross-border collaborations and attract private investment into advanced chip design and manufacturing.

The interventions

- **Establishing a new UK Semiconductor Centre** to bring together industry, academia and government, and provide cross-sector leadership on semiconductor innovation, alongside ecosystem building and business services. With funding of up to £19 million, the Centre will also develop long-term R&D and infrastructure roadmaps to guide future investment in semiconductors.

- **Funding Innovation and Knowledge Centres (IKCs)** to help bring chip technologies to market, with £25 million to launch two new IKCs in Neuromorphic Computing Hardware and Heterogeneous Integration System Design joining existing IKCs in Photonics and Power Electronics.

- **Boosting the UK's chip design capability** through a new Chip Design Enablement Programme with up to £5 million initial funding to provide state-of-the-art tools, talent support, and technical expertise to boost innovation in chip design, including for AI and emerging architectures.

- **Improving the semiconductor talent pipeline** through a £35 million UK-wide skills programme, including semiconductor bursaries to boost enrolment in priority degree courses and semiconductor-focused STEM outreach activities. A new Centre for Doctoral Training in Future Semiconductor Skills will help build deep technical expertise in strategically important areas.

Case study – Arm

Arm, a British semiconductor and software design company headquartered in Cambridge, is a world-leading designer of semiconductor IP. Arm's focus on power-efficient compute means its architecture can be found in many of the world's smartphones, as well as the growing segments of Internet of Things devices, robotics, the automotive industry, digital infrastructure and AI. Arm's initial public offering (IPO) in 2023 valued the company at over £43 billion, with its market capitalisation climbing significantly since.[63]

Arm has supported innovation through its Flexible Access programme, offering zero or low-cost access to technology blueprints for academia, start-ups and scale-ups. Arm supports education and R&D through initiatives such as the Semiconductor Education Alliance, Cambridge University's CASCADE Research Centre and the SoC Labs at the University of Southampton.[64]

Arm anchors Cambridge's globally renowned semiconductor design cluster and through sites in Manchester, Bristol and Sheffield, has cemented the UK as a hub for semiconductor design. It employs around 3,000 people in the UK and over 6,500 globally[65] and represented about 25% of the UK's total semiconductor revenue in 2022.[66]
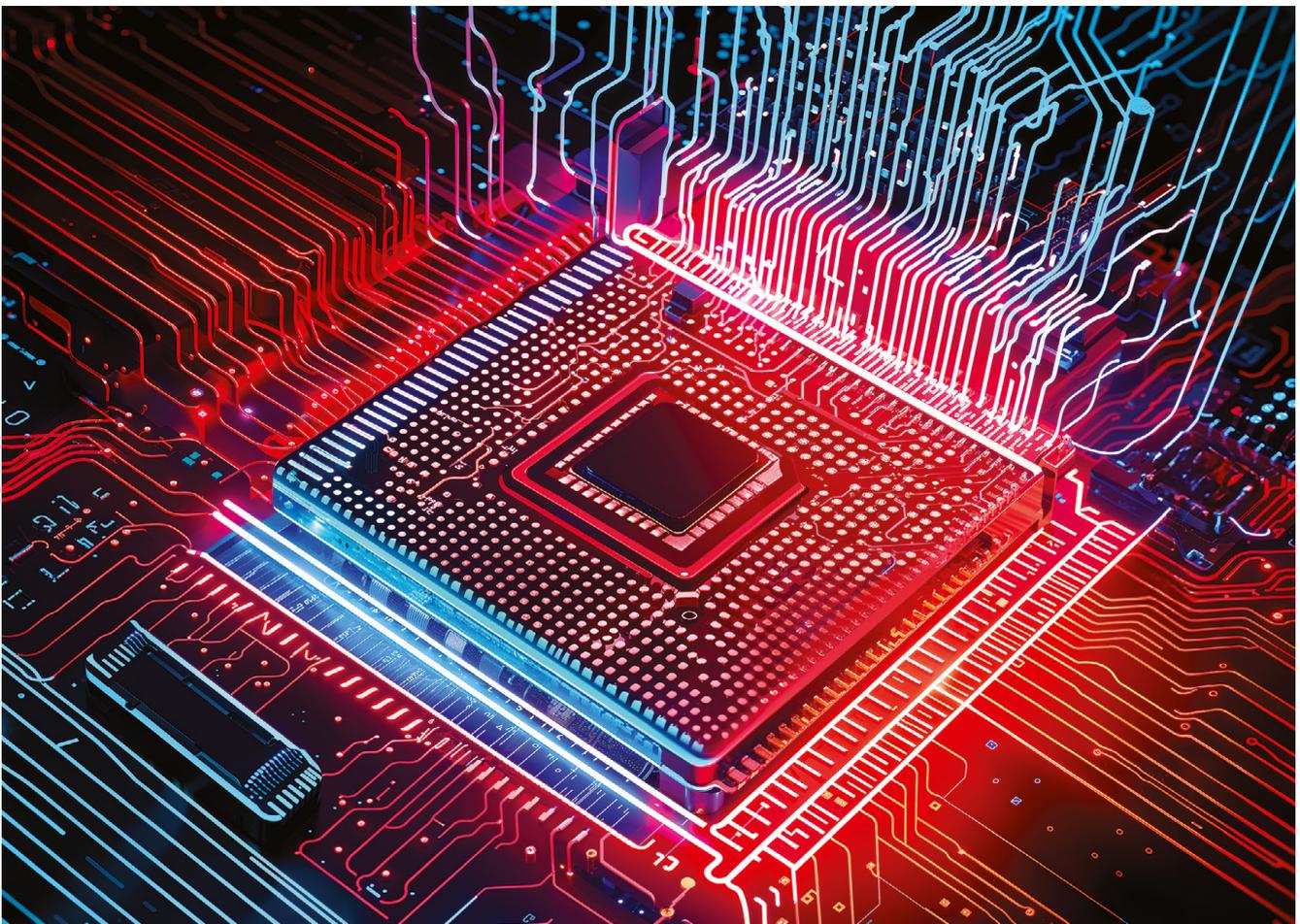
3.7 Technology adoption

We need to create pathways for the adoption of our frontier technologies in the UK to maximise their impact on innovation, productivity and growth across the economy. We welcome the analysis from the Technology Adoption Review which fed into the Industrial Strategy, and will take steps to drive adoption through:

- **Identifying adoption opportunities and shaping joint action with industry** to support pull-through of technology applications from each frontier industry. This includes working with the other growth-driving sectors across the Industrial Strategy to create the conditions for businesses to adopt novel, high-growth potential technologies.[67]

- **Working with industry through the R&D Missions Accelerator Programme** to supercharge development solutions that will deliver our national missions. Each Research and Innovation challenge the programme funds will have a clear route through to impact, including defined adoption measures.

- **Exploring how the new Commercial Innovation Hub can enhance technology capabilities tailored to public sector needs** and facilitate clear public procurement pathways for our frontier technologies, including in defence.

Case study – The Hartree Centre

The Hartree Centre, part of the Science and Technology Facilities Council (STFC), helps UK businesses and the public sector explore and adopt supercomputing, data science and AI technologies for enhanced productivity, smarter innovation and economic growth.

Its flagship programme, the Hartree National Centre for Digital Innovation, is a £210 million, five-year collaboration between the STFC's Hartree Centre and IBM.[68] The programme aims to de-risk the adoption of advanced tools to increase productivity in other Industrial Strategy growth-driving sectors such as Clean Energy Industries, Advanced Manufacturing and Life Sciences.

We will also work with industry on the standards, norms and values that are essential to safe and effective adoption of new technologies, including through the following:

- **Working with the Regulatory Horizons Council** which provides government with independent expert advice on the implications of technological innovation, and on the regulatory reform required to support its rapid and safe introduction.

- **Accelerating innovation and investment in AI assurance** to drive the adoption of safe and responsible AI across the UK. For example developing a skills and competencies framework and establishing an AI Assurance Innovation Fund, setting the value of the UK's assurance market on a clear trajectory towards £6.5 billion GVA by 2035.[69]

- **Working with industry to support development of new applications** in line with our values, responsive and ethical governance frameworks and transparent assurance processes.

Endnotes

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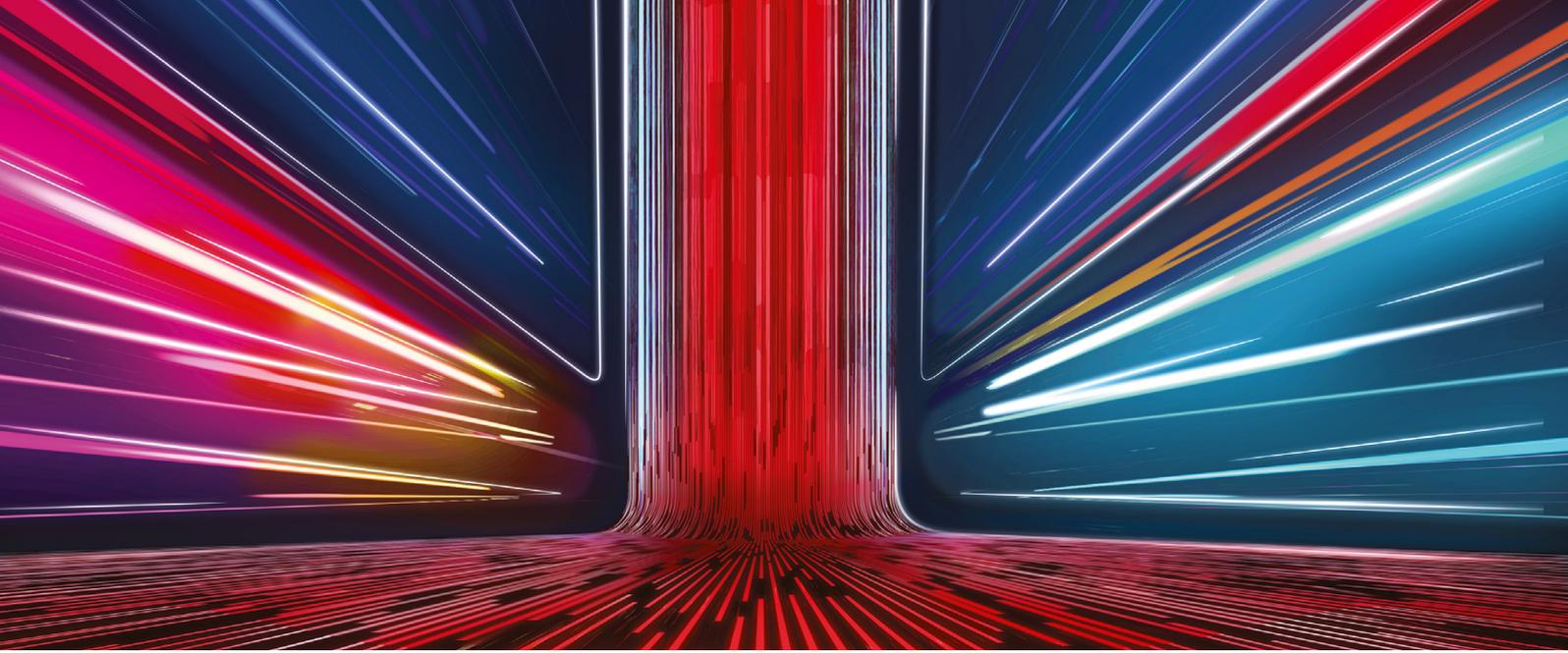
4. Supporting the UK's city regions and clusters

Unleashing the full potential of our city regions and clusters is a core objective of our modern Industrial Strategy. Digital and technology clusters are spread across the UK and building on the existing strengths of different places is a priority for growth of the sector.

City regions are key to digital and technology-driven growth. The co-location and density of institutions like universities, R&D infrastructure, anchor businesses, supply chains and skills, facilitates the rapid spread of new ideas and, crucially, the translation of scientific breakthroughs into real-world applications. Multi-technology ecosystems in city regions also support convergence between different frontier technologies. The map below highlights examples of digital and technology clusters across the UK which have strengths in multiple frontier technologies highlighted by this plan.

Figure 4: Regional strengths

1 Scotland (Dundee, Glasgow, and Edinburgh City Regions)

AI, Eng Bio, Semiconductors, Quantum

- Home to two of the UK's five new Quantum Hubs, with involvement in all five.[1]
- 10 of the top 30 global semiconductor companies have operations in Scotland.[2]
- Cutting-edge AI research network and R&D infrastructure - Edinburgh Genome Biofoundry and Industrial Biotechnology Innovation Centre.[3,4]

2 Northern Ireland (Belfast City Region)

AI, Cyber, Eng Bio, ACT, Semiconductors

- Home to key R&D infrastructure - Cyber-AI Hub, Centre for Secure Information Technologies, Artificial Intelligence Collaboration Centre, Artificial Intelligence Research Centre, Cognitive Analytics Research Laboratory, and the Centre for Quantum Materials and Technologies.
- Strong Omics cluster with 47 distinct companies.[5]

3 Greater Manchester

AI, Cyber

- The North West Cyber Corridor hosts around 300 cybersecurity companies and could contribute up to £2.7 billion per year in GVA.[6]
- Significant AI cluster – with around 250 companies, 13,500 employees and £1.8 billion turnover.[7]
- Ecosystem of intelligence and defence organisations such as GCHQ Manchester and the GM Digital Security Hub supports 177 thriving cyber security companies with a turnover of £1.7 billion.[6,7,8]

4 Liverpool City Region

AI, Eng Bio, Quantum

- Home to STFC Daresbury Laboratory and the Hartree National Centre for Digital Innovation in partnership with IBM, plus PsiQuantum's world-leading R&D lab.[9,10]
- One of the world's first Civic Data Cooperatives and city-scale digital twinning platform.[11]
- Underpinned by the 214-km gigabit-capable LCR Connect fibre backhaul network completed in 2024.[12]

5 West Midlands

AI, Cyber, ACT

- One of the fastest-growing tech hubs in the UK.[13]
- Supply-side strengths in AI, Quantum, Cyber, and ACT hosting the UK Telecoms Lab, Wolverhampton Cyber Research Institute, Birmingham Institute for Quantum Technologies, and the Sir Peter Rigby Digital Futures Institute.
- The region produces 66,000 tech graduates each year and is home to the country's first multi-city 5G testbed and the Diatomic Digital Twin.[14,15,16]

6 Cambridgeshire and Peterborough

Cyber, Semiconductors, AI, Quantum, Eng Bio

- Home to Microsoft, Apple, Google, Deepmind, and Samsung research bases, plus the DAWN supercomputer, Darktrace, FiveAI, Riverlane, and Featurespace.
- Cambridge generates 18% of the UK's tech value with 3% of the UK's investment.[17]
- Home to the world smart city of Peterborough, Cambridge's West Innovation District, and global Innovation Hub.[18,19,20]

7 Oxfordshire

Cyber, Semiconductors, AI, Quantum, Eng Bio

- University of Oxford, ranked the best university in the world according to Times Higher Education World University Rankings.[21]
- Home to the Culham AI Growth Zone, Harwell Science and Innovation Campus, and the National Quantum Computing Centre.[22,23,24]
- Prescence of key R&D companies – Oxford Instruments, Sophos, and Oxford Ionics.

8 Greater London

AI, Cyber, Eng Bio, ACT, Semiconductors, Quantum

- A global leader in AI, home to 50% of cyber and 18% of quantum companies in the UK.[25]
- Gateway for technology companies entering the UK, supporting regional growth through flagship events including London Tech Week.
- London Growth Plan details proposals to boost AI, quantum, engineering biology and innovation clusters: Knowledge Quarter, the Queen Elizabeth Olympic Park, White City.[26]

9 Wales (Cardiff Capital Region, Swansea City Region, Newport)

Eng Bio, ACT, Semiconductors, AI

- Base for compound semiconductor companies (e.g. KLA, Vishay Newport, Cadence Design Systems).
- Growing AI presence such as Microsoft.
- Public data assets - Companies House, IPO, ONS and NHS Wales.
- Key R&D infrastructure - Cyber Innovation Hub supports cyber cluster including Thales' centre for CNI & OT security and Compound Semiconductor Applications Catapult.[27,28,29]

10 West of England

AI, Quantum, Eng Bio, Semiconductors

- Hosts the £225m Isambard AI supercomputer at the National Composites Centre.[30]
- Key R&D infrastructure including Smart Internet Lab and Compound Semiconductor Applications Catapult's Future Telecoms Hub.
- Co-located facilities including Bristol Digital Futures Institute, Quantum Technology Innovation Centre, and Temple Quarter Enterprise Campus, unlocking convergence between technologies.

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Realising the economic potential of the Digital and Technologies sector in city regions and clusters

The Government is backing clusters in every part of the UK. We are partnering with Science Creates to support the rapid growth of engineering biology start-ups and scale-ups in Bristol. We have invested in the new National Quantum Computing Centre at Harwell in Oxfordshire and are supporting quantum hubs in five locations. We are working with the University of Glasgow and University of Birmingham on UK-GRAFT: The UK Graphene Research and Fabrication Technology foundry and we have launched the Cyber-AI Hub in Belfast. We have also backed investment in Vishay's new compound semiconductor facility in South Wales.

To ensure our cities and clusters thrive we must also foster networks and connections between them. The Industrial Strategy builds on transport connectivity between city regions and clusters across the UK and sets out the intention to strengthen connections between city regions and clusters to make them globally-competitive hubs across the Industrial Strategy's eight growth-driving sectors: including the Oxford to Cambridge Growth Corridor, a corridor across our Northern city regions, the Edinburgh-Glasgow Central Belt, London and Birmingham, and connections between Wrexham and Liverpool and Bristol and Cardiff. These places have considerable strengths in digital and technologies, including STFC Daresbury in Liverpool, Wales' compound semiconductor cluster, and Bristol's Isambard-AI supercomputer.

The investments and broader actions set out within this plan are aligned with these broader goals and go further to deepen partnerships in digital and technology across the whole of the UK.

> The Government will build on its existing support to clusters through a series of regionally-focused interventions:
>
> - **Investing up to £500 million in the Local Innovation Partnerships Fund**, a new programme to grow high-potential innovation clusters across the UK. This will empower local leaders to decide how to target R&D investment in their region and unleash their full innovation potential. The fund earmarks at least £30 million each for 10 regions across the UK: Greater Manchester, West Midlands, West Yorkshire, Liverpool City Region, South Yorkshire, the North East, Greater London, and, working with the devolved governments, a place within each of Northern Ireland, Scotland and Wales. It will also include a competition for clusters in all other parts of the UK to bid for support to grow their innovation ecosystems.

- **Establishing the AI Growth Zones (AIGZs) set out in the AI Opportunities Action Plan**. The Government will confirm locations in due course, and is committed to delivering AI Growth Zones in strategic locations across the UK, in line with our growth and energy missions.

- **Investing £30 million through Research England in multiple university-led projects to develop place-based ecosystems.** This includes £4.8 million over three years in the Cambridge × Manchester Innovation Partnership (CBG×MCR), the UK's first cross-UK innovation partnership.

- **Launching a new Cluster Champions programme** through the British Business Bank. Individuals with deep expertise and local knowledge will coordinate investment-readiness programmes, strengthen financial networks, and connect high-potential firms in the eight Industrial Strategy sectors, including digital and technologies, to investors in 10 clusters: Greater Manchester, West Yorkshire, the West Midlands, Liverpool City Region, South Yorkshire, the North East, the West of England, Glasgow, Cardiff and Belfast, backed by a £100 million expansion to the BBB's existing Nations and Regions Investment Funds (NRIF).

- **Showcasing the Cardiff and Newport Investment Zone** which aims to grow the region's compound semiconductor cluster by establishing a manufacturing hub in Newport and a science park for R&D in Cardiff. Key interventions include strengthening the supply chain, fostering innovation partnerships, and supporting spinouts to grow quickly.

How we are working with devolved and regional leaders

We are working in partnership with the devolved governments to drive growth in Scotland, Wales and Northern Ireland. We will continue to hold discussions with each nation to align this plan with their strategies, including the Scottish Government's National Innovation Strategy and AI Strategy, the Welsh Government's Economic Mission and Northern Ireland's Software and Cyber Sectoral Action Plan.

The Digital and Technologies sector will be at the heart of many of the ambitious 10-year Local Growth Plans (LGPs) being developed by Mayoral Strategic Authorities (MSAs) in England. We will have an active dialogue with these MSAs to maximise the synergies between local plans and our national Sector Plan. We will also work with MSAs and local authorities more broadly to ensure that businesses across the UK can access national skills, technology, and funding programmes where appropriate.

5. Creating an enduring partnership with business

5.1 How we have worked with industry

Digital and technology businesses are investing alongside government to deliver this plan. For example, 11 industry partners have signed up to government's plan to upskill 7.5 million workers in AI by 2030. NVIDIA's recent decision to expand its AI lab in Bristol to other parts of the country is a vote of confidence in the UK.

This Sector Plan builds on extensive engagement with industry, academia, trade unions, devolved governments and local and regional leaders. We have analysed responses to *Invest 2035* and held a series of events with groups including TechUK, Startup Coalition, the Digital Skills Council, the Federation of Small Businesses, UKQuantum, the Semiconductor Advisory Panel and the Engineering Biology Advisory Panel to develop our thinking.

5.2 How we will work with industry over the next 10 years to implement this plan

We will engage regularly with businesses, research organisations and trade associations to work together on implementation of this Sector Plan. Engagement will be through a number of stakeholder advisory panels and councils in our frontier technology areas, including: the forthcoming **Advanced Connectivity Technologies Council**, the **AI Energy Council**, the **Cyber Growth Partnership**, the **Engineering Biology Responsible Innovation Advisory Panel**, and **Engineering Biology Advisory Panel**, the **Quantum Strategic Advisory Board**, and the **Semiconductor Advisory Panel**.

We will also work with the Department for Business and Trade and HM Treasury to engage the **Industrial Strategy Council**, which will hold the Government to account on delivery of the overall Strategy and inject the boldest ideas into our policy making.
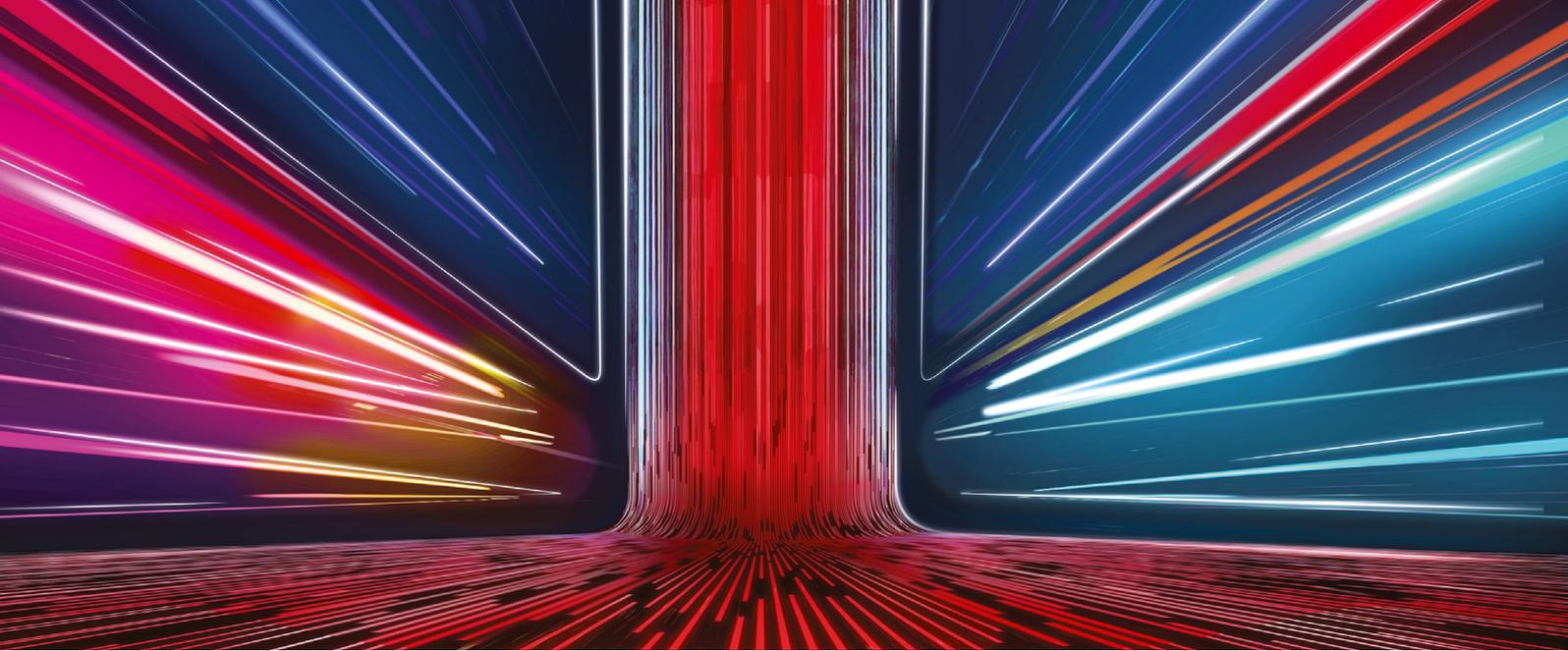
6. Implementation

We will establish a robust approach to measuring the impact of this Sector Plan. We will use official data and established economic statistics, combined with innovative approaches and experimental methods to capture the dynamic nature of the sector and the complex relationship between technology and growth. We will draw on a range of sources, including sectoral and regional data, and develop new datasets and surveys where appropriate to fill evidence gaps.

The impact of this Sector Plan will be monitored by the Industrial Strategy Council through a range of microeconomic and macroeconomic metrics at the economy-wide, place, and sector level: exports, business investment, gross value added, productivity growth, labour market outcomes and the number of large new 'home grown' businesses. These metrics create a robust set of indicators that will capture the multi-faceted impact of the policies within this Sector Plan.

The monitoring and evaluation framework will also track progress on delivery, with key performance indicators linked to the Sector Plan objectives. The framework will be guided by a Theory of Change that is being developed alongside the Sector Plan and will adopt a long-term horizon, recognising elements of the Sector Plan will take time to have impact. Metrics are illustrative and subject to the definition of the Digital and Technologies sector.

1. **By 2035, we will have maintained and built a strong ecosystem of digital and technology businesses across the UK**

   This will be assessed by tracking:

   • Number of businesses by type

   • Number of businesses by cluster and region

2. **By 2035, we will have helped new, innovative and R&D-intensive technology businesses to scale rapidly**

   This will be assessed by tracking:

   - VC investment value and distribution by funding stage

   - Value of business turnover

3. **By 2035, we will have supported a pro-innovation environment for digital and technology businesses**

   This will be assessed by tracking:

   - Value of business R&D spending

   - Number of research publications, patents, and spinouts

4. **By 2035, we will have built a highly skilled workforce for digital and technology businesses**

   This will be assessed by tracking:

   - Number of people enrolled in STEM and digital courses or apprenticeships

   - Number of visas issued for STEM and digital professions

5. **By 2035, we will have attracted international investment in our Digital and Technologies sector and accessed associated opportunities in global markets**

   This will be assessed by tracking:

   - Value of international trade and foreign direct investment

   - Number of international partnerships and collaborations

Accountability table

Frontier Technology	Action	SRO
Advanced connectivity technologies (ACT)	Driving greater ACT development in the UK through a 4-year targeted research programme Providing UK ACT firms with the facilities they need to grow by strengthening our world-class lab infrastructure Support availability of spectrum to ACT Deepening our international collaborations with other leading ACT-developing countries	DSIT Director of Digital Infrastructure
AI	Strengthening the UK's position as a global hub for AI R&D Maximising the UK's stake in frontier AI Delivering an AI and copyright framework that supports AI development in the UK Promoting AI adoption across the UK with targeted initiatives Accelerating AI-enabled scientific breakthroughs in targeted areas of UK strategic priority	DSIT Director of AI Opportunities
Cyber security	Supporting commercialisation of cyber research Providing mentoring, skills and networking support to start-ups Growing domestic technology talent and creating high-quality jobs in under-served areas Promoting the adoption of technologies that are secure by design Publishing a Cyber Growth Action Plan in summer 2025	DSIT Director of Cyber Security and Digital Identity

Frontier Technology	Action	SRO
Engineering biology	Driving cross-economy innovation through R&D Partnering with the sector to enhance adoption and manufacturing capabilities Building on the success of the engineering biology regulatory sandbox to accelerate regulatory reform Connecting all parts of the ecosystem Taking the next step on international leadership	DSIT Director of Technologies, Growth and Security
Quantum	Progressing five National Quantum Missions Providing a 10-year funding commitment for the UK's flagship National Quantum Computing Centre (NQCC) Develop a skills action plan with the sector	DSIT Director of Technologies, Growth and Security
Semiconductors	Establishing a new UK Semiconductor Centre Funding Innovation and Knowledge Centres to help bring chip technologies to market Boosting the UK's chip design capability through a new Chip Design Enablement Programme Improving the semiconductor talent pipeline	DSIT Director of International and Economic Security

PLAN THROUGH TO 2035

2025

- AI: 2025: Design and procurement begins for AI Research Resource expansion programme
- AI: 2025: The UK will have announced several AI Growth Zones
- Cross-Cutting: 2025: Procurement for next National Supercomputer at Edinburgh launches
- Engineering Biology: June 2025: Innovation Network launch
- Cyber/Semiconductors: Q3 2025: One million chips designed using the CHERI blueprint enter the UK market
- Cyber: 2025: Cyber Growth Action Plan published
- Cyber: 2025: Cyber Security and Resilience Bill introduced to Parliament
- Engineering Biology: Q3 2025: Round two of regulatory sandbox commences
- Engineering Biology: Q4 2025: Full implementation of the Genetic Technology (Precision Breeding) Regulations 2025
- Quantum: 2025: 10-year funding commitment to National Quantum Computing Centre
- ACT: 2025: Hubs and innovative business support extended to drive cutting edge R&D and innovation

2026

- AI: 2026: Network of regional AI Adoption Hubs launched
- AI: 2026: Construction will begin on several AI Growth Zones
- AI: 2026: Industrial Strategy AI Adoption Fund launched.
- Cyber/Semiconductors: Q2 2026: Publish Version 1.0 of the Memory Safety Technical Specification subject to approval by the ETSI Technical Committee, to support secure memory practices and improve the resilience and trustworthiness of digital systems.
- Semiconductors: 2026: Semiconductor skills package delivered with 300 electronic engineering bursaries

2027

- Cross-sector: 2027: 500 PhD tech candidates supported via TechFirst programme.
- Cross-sector: 2027: the new National Supercomputer at the University of Edinburgh launches.
- Engineering Biology: Q1 2027: Food Standards Agency regulatory sandbox on cell-cultivated protein completed.
- ACT: 2027: Appropriate spectrum is secured to support ACT and space companies to grow by negotiating with international counterparts at the World Radio Conference.
- Cyber: An additional 30 academic teams recruited onto the CyberASAP programme, and 40 academics introduced to commercialisation via the CyberASAP Pathfinder programme.

2028

- Cyber: 2028: National Cyber Innovation Centre opens, leveraging £1 billion in investment.
- Engineering Biology: 2028: Regulatory sandbox round two project completed.

2029

- Cross-sector: 2029: 1 million students reached across every secondary school in the UK and offered the chance to learn about technology and gain access to new skills training and career opportunities.

2030

- AI: 2030: Several AI Growth Zones will be operational, delivering new AI infrastructure capacity
- AI: 2030: The UK has a small number of national champions recognised as being at the forefront of global AI development
- AI: 2030: 7.5 million people upskilled to use AI.
- AI: 2030: UK's AI Research Resource capacity increased by at least 20 times.
- Cyber: 2030: Over 250 cyber companies supported, and 28 new academic spinouts created through the cyber accelerator programme and CyberASAP.
- Engineering biology: 2030: The UK is a world leader in responsible innovation, making a positive impact on global health, economic and security outcomes.
- Quantum: 2030: goal reached to deploy Quantum sensing in the NHS and quantum navigation deployed in aircraft.
- Cross-sector: 2030: Milestone of 4,000 graduates supported by TechFirst programme reached.

2029

- Cross-sector: 2029: 1 million students reached across every secondary school in the UK and offered the chance to learn about technology and gain access to new skills training and career opportunities.

2033

- Quantum: 2033: Reached goal for UK to secure a 15% share of the global quantum market and attract 15% of global private equity investment in quantum technologies.
- Quantum: 2033: Reached goal for 75% of relevant UK business actively exploring or adopting quantum applications.

2035

- Overall: 2035: The UK has its first trillion-dollar technology business.
- Cyber/Semiconductors: 2035: CHERI-based cybersecurity ecosystem expanded to reduce memory safety vulnerabilities in new deployments by up to 70%
- Quantum: 2035: Reached goal to deploy the world's most advanced quantum network
- Quantum: 2035: Reached goal to build a fault-tolerant, UK-based quantum computer capable of running a trillion operations
- ACT: £14.6 billion benefit that advanced connectivity is estimated to deliver to the UK's GDP through productivity gains to the economy is achieved.
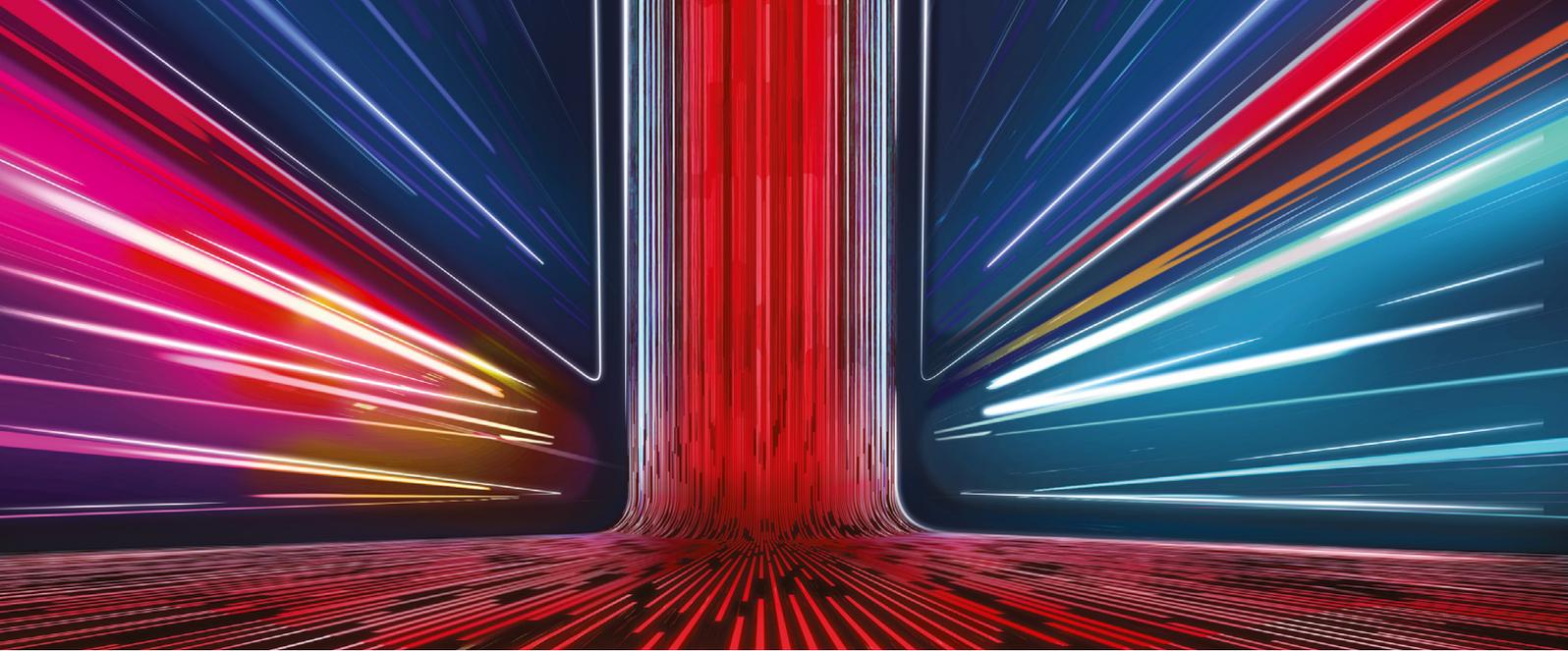
Technical Annex

Measurement of the Digital and Technologies sector

The digital and technologies sector includes companies that develop and apply advanced technologies and digital tools to drive transformative changes in our economy and society. These technologies are foundational, enabling other innovations and transformation across other sectors. Many are emerging, novel and untested, and will therefore take some time to be fully developed, but amongst these will be the potential for high economic growth.

Technologies related to Advanced Manufacturing, Clean Energy, Defence and Life Sciences are excluded as they are covered in separate Industrial Strategy Sector Plans. There may be some overlaps in the Industrial Strategy growth sectors' definitions based on Standard Industrial Classification (SIC) codes.

A SIC code-based definition of the digital and technologies sector is used to maintain consistency with other Industrial Strategy sectors. This SIC-derived definition builds upon the SIC-based definition of the Digital Sector used in the Digital Sector Economic Estimates Series, but it is not limited to that definition.

The SIC system is internationally recognised and temporally consistent, making it useful for providing comparable analysis across sectors, countries and time. It is also used by the Office for National Statistics (ONS) to generate economic statistics. However, it does not accurately reflect emerging or fast-changing sectors – such as the digital and technologies sector.

The digital and technologies sector includes both dedicated companies – focused solely on digital and technology products and services – and diversified companies, which offer some digital and technology products and services but operate broader business models. This SIC-derived definition may not fully capture the extent of diversified companies in the sector.

Table 1: SIC Codes in the SIC-Derived Definition of the Digital and Technologies Sector

Description	SIC code
Manufacture of computer, electronic and optical products	26.110, 26.120, 26.200, 26.300, 26.301, 26.309, 26.400, 26.511, 26.512, 26.513, 26.701, 26.800
Manufacture of electrical equipment	27.310, 27.320, 27.900
Wholesale of computers and electronics	46.510, 46.520
Publishing activities	58.110, 58.120, 58.130, 58.140, 58.141, 58.142, 58.190, 58.210, 58.290
Film, TV, video, radio and music	59.110, 59.111, 59.112, 59.113, 59.120, 59.130, 59.131, 59.132, 59.133, 59.140, 59.200, 60.100, 60.200
Telecommunications	61.100, 61.200, 61.300, 61.900
Computer programming, consultancy and related activities	62.010, 62.011, 62.012, 62.020, 62.030, 62.090
Information service activities	63.110, 63.120, 63.910, 63.990
Engineering activities; technical testing and analysis	71.121, 71.122, 71.129, 71.200
Scientific research and development	72.110, 72.190
Repair of computers and communication equipment	95.110, 95.120

Based on this definition, in 2023 the digital and technologies sector generated an estimated £207 billion in Gross Value Added (GVA) (9% of the UK economy) and employed an estimated 2.6 million people (7% of UK total employment).[1]

DSIT is exploring innovative approaches to more accurately define the sector and the complex relationship between technology and economic growth (see DSIT (2024) Semiconductors Sector Study; DSIT (2024) Artificial Intelligence Sector Study; DSIT (2025) Cyber Security Sectoral Analysis 2025).

Endnotes

1   Department for Business and Trade analysis using Office for National Statistics (2025) GDP Low-Level Aggregates, Annual Business Survey, Workforce jobs by industry, and Inter-Departmental Business Register data. The SIC system does not fully capture the fast-changing nature of digital and technologies, and the estimate uses a set of SIC codes to proxy for the Digital and Technologies sector from the data sources. GVA data for the SIC codes is either taken from the GDP Low-Level Aggregates, or from GDP Low-Level Aggregates GVA totals that are apportioned using lower level SIC GVA data from Annual Business Survey GVA. The number of jobs for each SIC code is either taken from Workforce Jobs, or from Workforce Jobs totals that are apportioned using lower-level Inter-Departmental Business Register employment count data from Department for Business and Trade analysis. See Industrial Strategy technical appendix for further details on defining sectors and sector data sources.

UK Government