Scottish Government
Riaghaltas na h-Alba

Scotland's AI Strategy 2026-2031

AI Scotland

Scotland's AI Strategy

Contents

Foreword

Scotland has helped to shape the modern world. For a small country on the edge of Europe, we have long been at the centre of innovation and new inventions. We have a proud history of leading scientific and technological change and our ideas, nurtured to enlightenment by our leading universities and colleges, have revolutionised whole schools of thought leading to breakthroughs in fields as diverse as philosophy, photography and physics.

It was the intellectual curiosity of pioneers such as Mary Somerville, who helped people understand the sciences in new ways, and John Napier, whose ideas transformed how we work with numbers, rather than the acceptance of orthodoxy, that shaped Scotland's tradition of discovery. Now, Artificial Intelligence (or AI) presents an opportunity for Scotland to rekindle that pioneering spirit, to lead instead of follow and, by doing so, to harness AI's potential for responsible, transformative economic growth.

AI is the great disruptor, re-shaping industries through the power of machine learning – but, as Scots, we have always been comfortable on frontiers.

This strategy sets out our ambition to build on Scotland's unique strengths, delivering tangible benefits for our people, businesses and communities. It shows how government, industry and academia will work together to shape our national response, and to ensure Scotland remains in the vanguard of this new technology in the years ahead.

Our ambition is clear: to secure the benefits of AI for everyone in Scotland. That means boosting our economy, closing the productivity gap and driving innovation while also supporting improvement to our health and education outcomes and increasing the efficiency and quality of our public services.

At the same time, we must recognise the wider risks and uncertainties that come with the rapid evolution of AI. People are rightly concerned about transparency, fairness, the impact on jobs and the accelerating pace of change. These concerns also reinforce the importance of ensuring that Scotland's people and industries are supported and safeguarded as technology advances.

Scotland's response is to address these issues openly and responsibly, demonstrating that progress and safeguards can go hand in hand. Above all, our approach to AI must be firmly rooted in our values and guided by the Scottish Government's commitment to Fair Work.

Scotland's extraordinary tradition of innovation gives us a strong foundation on which to build. We are ready to seize the opportunities that lie ahead.

Kate Forbes MSP
Deputy First Minister and Cabinet Secretary for Economy and Gaelic

Richard Lochhead MSP
Minister for Business and Employment

Introduction

Artificial Intelligence is reshaping economies, industries and public services around the world. It is revolutionising the way we live and work. It is both a disruptor and an extraordinary opportunity and demands a new perspective on the role of innovation and technology in driving economic success.

This Strategy sets out Scotland's ambition to harness AI responsibly, for the benefit of everyone. It focuses on supporting sustainable growth and strengthening public services while ensuring that Scotland remains competitive in an ever evolving global landscape. In doing so, it builds on Scotland's established commitment to the responsible use of AI and shows how we will keep pace with, and prosper as a result of, rapidly changing global technologies and markets.

The strategy includes a set of outcomes that encapsulate our vision for a Scotland in which the responsible use of AI delivers sustainable value to people, places and organisations across the country. It sets out the actions we will take to ensure that our outcomes can be delivered at scale. It does this through the use of a new model, the 'AI Stack', which describes a series of 'layers' in which action must be taken to ensure an effective response to the challenges and opportunities ahead.

Throughout the lifecycle of this strategy, we will publish regular reports on progress, iterating and evolving our action plan as technology advances and the context within which we work changes. We are committed to learning lessons and responding quickly as opportunities and challenges arise.

We will also maintain the level of informed consultation and collaboration that has underpinned the development of this strategy. This has included input from the Scottish Technology Council[1] and discussions at a series of consultation events hosted by partners such as the Data Lab[2], Prosper[3], ScotlandIS[4], the Scottish Council for Voluntary Organisations[5] and the University of Glasgow Centre for Data Science and AI[6].

Our aim is to build on these partnerships by tapping into expertise in business, our universities and colleges and the public sector, taking every opportunity to engage internationally and position Scotland amongst the nations who are seeking to lead in the world of AI.

"The global AI landscape is incredibly competitive – to make a real difference, we must capitalise on areas where we have built world-leading excellence over the last 60 years. But that cannot happen without making this excellence much more visible on the global stage to attract more talent and investment."

Prof Michael Rovatsos, Professor of AI, School of Informatics and Dean of Research and Innovation, College of Science and Engineering, The University of Edinburgh

"Scotland is quietly doing some of the most interesting work in AI anywhere. We have world-class universities leading the way in research, and we are increasingly seeing collaboration between start-ups and large enterprises to build practical AI applications. Collaboration will be key to competing on the global stage."

Rich Wilson, CEO and Co-Founder, Gigged.AI

Foundations

Scotland's AI Pioneers

Scotland's long association with visionary leaders in AI and related fields demonstrates the strength of our academic and research institutions and their ability to attract the finest minds.

Donald Michie

Worked with Alan Turing at Bletchley Park and later founded Europe's first AI research group at the University of Edinburgh in 1963. Helped to build FREDDY, one of the earliest intelligent robots.

Geoffrey Hinton

World-renowned "Godfather of AI," who completed his PhD at the University of Edinburgh in the 1970s and won the 2024 Nobel Prize in Physics for pioneering deep learning.

Joanna Bryson

University of Edinburgh graduate and leading international voice on AI ethics. Co-authored the UK's first national AI ethics framework and contributed to major global standards, including the EU AI Act and OECD AI Principles.

John Giannandrea

University of Strathclyde graduate who shaped major AI breakthroughs behind technologies like Alexa. Became Google's Chief of Search and AI, then Apple's Senior Vice President for Machine Learning and AI Strategy, overseeing the AI behind Siri.

Amanda Askell

University of Dundee graduate who co-authored the breakthrough GPT-3 paper at OpenAI and later helped create Constitutional AI at Anthropic, influencing how advanced AI systems behave worldwide.

Scotland's World-leading AI Research

Scotland has established itself as a global leader in artificial intelligence research and innovation. Its research institutions consistently punch above their weight in producing high impact academic work, attracting international collaboration, and securing competitive research investment. Five Scottish universities were placed in the UK's top 30 for AI research output in 2025.[7]

Much of Scotland's AI capability is concentrated in the Central Belt where research-focused universities, established technology clusters and strong digital infrastructure create favourable conditions for innovation. Edinburgh hosts multiple UKRI centres for Doctoral training in AI[8], the National Robotarium[9] and the Generative AI Laboratory[10].

Glasgow is home to the ISAC3 Centre[11], which is pioneering new research into 'cognitive cities' and the Centre for Data Science which aims to support collaborative and ethical research to tackle social challenges.

However, AI-driven activity is succeeding right across the country. Aberdeen enjoys a strong reputation for linking AI with the energy sector, industrial technologies and offshore applications whilst Dundee is increasingly prominent in the digital, creative, and health sectors. Inverness and other parts of the Highlands show strength in consultancy-led initiatives and rural applications of AI. The South of Scotland is building capability in both advanced manufacturing and responsible AI development.

These regional profiles reflect a distributed national ecosystem where local economic strengths and university research specialisms shape distinct forms of AI capability.

The University of Edinburgh

ARCHER2, the UK's national supercomputer is based here, and the University will also host the new £750 million UK National Supercomputing Centre, one of the most powerful AI research systems in the world.

The National Robotarium

Based at Heriot-Watt University, the Robotarium is driving breakthroughs in medical robotics, offshore robotics and autonomous systems, incubating 14 robotics companies in its first few years, in a sector projected to grow to £218 billion globally by 2030.

The University of Glasgow

Leading a UK wide consortium, backed by £3.5 million from Responsible AI UK, the University is developing the first open-source AI harm auditing tool designed for use by frontline workers, communities and policymakers, enabling organisations to identify risks such as bias or unintended social impacts.

University of Strathclyde

Hosts the Socially Progressive AI Lab (SPAI-Lab), an interdisciplinary research hub dedicated to ensuring that AI is developed in ways that serve the public good.

Scotland's Renewable Energy for AI

Scotland enjoys outstanding natural resources, with established onshore and offshore wind sectors and first mover advantage in floating offshore wind. Our Green Industrial Strategy describes how we intend to leverage these assets to realise the benefits of the global transition to net zero.

AI is energy-intensive and choices have to be made about the allocation of capacity. The potential of AI to improve social and economic outcomes across the country is critical in those judgements.

Scotland has an abundance of renewable electricity

In 2024 alone, we produced 38.4 TWh of renewable electricity, the highest annual total ever recorded, and a 13.2% increase on the year before.

Our renewable potential is unique to Scotland

Offshore projects such as *Seagreen* and *Neart na Gaoithe* have placed Scotland among Europe's emerging offshore wind powerhouses, with enormous future potential in deep-water floating offshore wind unique to Scottish waters.

Scotland is the home of wave and tidal power innovation

The European Marine Energy Centre (EMEC) in Orkney is the world's first and leading testing facility for wave and tidal energy devices, used by developers from around the world for over 20 years.

Scotland's renewables transformation is far from complete

There is 26.4 GW of new renewable capacity in planning or consented pipelines, including large volumes of onshore wind, offshore wind and solar. This pipeline is one of the largest in Europe relative to population.

Scotland's Business Leadership

Scotland is entering a new phase of accelerated growth in artificial intelligence, underpinned by a diverse and dynamic ecosystem of companies, research institutions and innovation partners. Independent assessments indicate that Scotland is home to an estimated 296 AI focused companies[12], spanning emerging start-ups, scale-ups, research institutions, innovation centres and specialist technical consultancies.

The announcement of Scotland's first AI Growth Zone in North Lanarkshire[13] marks a step-change in the nation's AI-enabled economic transformation. Backed by over £8 billion of private investment and designed in partnership with DataVita and CoreWeave, the Growth Zone is set to deliver more than 3,400 new jobs, including 800 high-value AI and digital infrastructure roles. It will also provide a community fund to support local programmes over the next 15 years.

At the same time, Scotland's entrepreneurial ecosystem continues to produce high-growth AI companies gaining global recognition.

Edinburgh-based **Wordsmith AI** has emerged as one of the UK's most successful legaltech start-ups, reaching a $100 million valuation just 18 months after launch, believed to be the fastest ever for a Scottish start-up.

Edinburgh based **Malted AI** is gaining international attention for its specialised approach to enterprise AI and positions Scotland at the forefront of next generation, efficient AI model design.

The Glasgow based company **Gigged.AI** is scaling rapidly as enterprises struggle with AI-driven skills shortages. Gigged.AI exemplifies Scotland's leadership in 'AI for productivity' and the future of work.

Scotland's AI Investment Landscape

Significant private sector investment in Scotland's AI infrastructure shows that global companies view Scotland as a competitive, future-focused location for advanced digital activity.

Scotland's enterprise agencies provide tailored consultancy and support to enable businesses to boost productivity, develop AI skills and accelerate innovation. Through Scottish Development International we engage globally to attract and enable vital inward investment.

The Scottish National Investment Bank enhances this further by supporting innovation-led companies and seeks co-investors with deep technical or strategic expertise to increase the capital available for emerging AI ventures.

This support, alongside Scotland's renewable energy strengths, emerging compute capability and growing pool of world class AI engineers, is helping to establish the country as a leading destination for sustainable AI development.

AI Pathfinder Investment in North Ayrshire
A £15 billion project will create a large-scale AI industrial park with up to 6,400 GPUs and hundreds of skilled jobs. This positions Scotland as home to one of Europe's most significant AI infrastructure developments.

CoreWeave and DataVita AI Facility
A £2.5 billion renewable-powered AI compute campus using next generation GPU technology in Lanarkshire will expand Scotland's green compute capability and strengthen its position as a leader in sustainable, carbon efficient AI infrastructure.

Lenovo AI Research and Development Hub
Lenovo is establishing an AI Research Hub focused on advanced model development and enterprise applications. This investment strengthens Scotland's innovation ecosystem and builds international confidence in Edinburgh as a growing centre for AI research and high value digital work.

AI in Scotland's Public Services

Scotland's AI future is dependent on further and faster adoption of AI across our economy. The public sector has a vital role to play in this. Firstly, because public sector adoption expands the market for innovative AI start-ups and businesses. Secondly, because public trust is a factor in AI adoption and the responsible use of AI by public services will help to build that trust.

Our public sector is already delivering an ambitious programme of digital transformation. Organisations are deploying AI tools to improve service quality, streamline administrative processes, and enhance analytical and decision-support capabilities.

This work is guided by two key national frameworks: Scotland's Public Service Reform Strategy: Delivering for Scotland[14] and the Digital Strategy for Scotland: Sustainable Digital Public Services Delivery Plan 2025–2028[15]. Together, these strategies set a clear direction for the modernisation of public services, ensuring the effective, responsible, and outcome-focused use of AI.

For example, in healthcare, research led by Professor Gerald Lip, Scotland's first Head of AI in Medicine at the University of Aberdeen, has shown how AI can support earlier and more accurate breast cancer detection. Working in partnership with NHS Grampian, he has demonstrated how AI tools can improve diagnostic performance and speed up notification for patients, highlighting the potential of trusted, clinically led innovation to strengthen frontline care.

The NeurEYE project

Using nearly 1 million anonymised retinal scans collected through high-street optometrists to develop AI that can detect dementia risk at an early stage, offering transformative potential for earlier intervention in neurodegenerative disease.

NHS Grampian's GEMINI project

Using the AI screening tool Mia to detect 12% more breast cancers than standard practice, modelling up to 30% reductions in clinician workload and marking a major step forward in early cancer detection.

The **AI-TRiPS** clinical trial

One of the world's first randomised evaluations of AI in emergency trauma care, supporting clinicians by predicting life-threatening complications such as severe blood loss, improving the prospects for severely injured patients.

SPARRAv4

A major upgrade to Scotland's national emergency admissions prediction tool, using AI to analyse over 4.8 million health records and identify people most at risk of emergency hospital care in the next year, improving patient outcomes and reducing pressure on A&E.

Scotland's Sectoral Focus

The ambition of our National Strategy for Economic Transformation (NSET) is to shift Scotland toward a fairer, greener and more innovative economy. AI will be one of the central enablers of this transformation, influencing productivity, innovation, skills, and public sector reform.

Within the overarching framework set by NSET, Scotland's National Innovation Strategy[16] identifies the sectors in which Scotland has sustainable competitive advantages and where AI is helping to retain the country's leadership position.

Healthcare and Life Sciences

AI is accelerating drug discovery, supporting advanced manufacturing and improving health-tech development. Scotland has established strong foundations for AI-enabled healthcare through initiatives such as the Precision Medicine Scotland Innovation Centre[17], Living Lab environments, and the Imaging Centre for Excellence[18]. These initiatives are advancing capabilities in medical imaging, genomics, and data-driven medicine, supporting both innovation and adoption within clinical settings.

The Life Sciences Strategy for Scotland: 2035 Vision[19] sets out a long-term, collaborative framework to transform Scotland's life sciences ecosystem. The Strategy unites government, industry, academia and the NHS to further accelerate growth through the effective use of digital, data and AI technologies.

Advanced Manufacturing and Robotics

AI is helping manufacturers improve production processes, reduce waste and optimise energy use. Scotland's National Manufacturing Institute Scotland (NMIS)[20] is strengthening this transformation by supporting firms to adopt AI and data-driven methods, including real-time industrial monitoring technologies deployed at its Digital Process Manufacturing Centre (DPMC)[21] to improve environmental and machine-performance visibility.

At the same time, Scotland's robotics sector continues to expand, underpinned by internationally recognised research at the Edinburgh Centre for Robotics[22], and by applied innovation at the National Robotarium[23], a global leader in robotics and AI research.

Financial Services and FinTech

Scotland's financial services and FinTech sector is advanced in its use of AI across core functions such as fraud detection, customer support, compliance and investment analysis. FinTech Scotland[24] provides a national focal point for Scotland's FinTech cluster, while initiatives such as the Financial Regulation Innovation Lab[25], the Finance and Health Lab[26] and the Smart Data Foundry[27] enable testing and safe access to financial data for research and development.

Renewable Energy and Climate Science

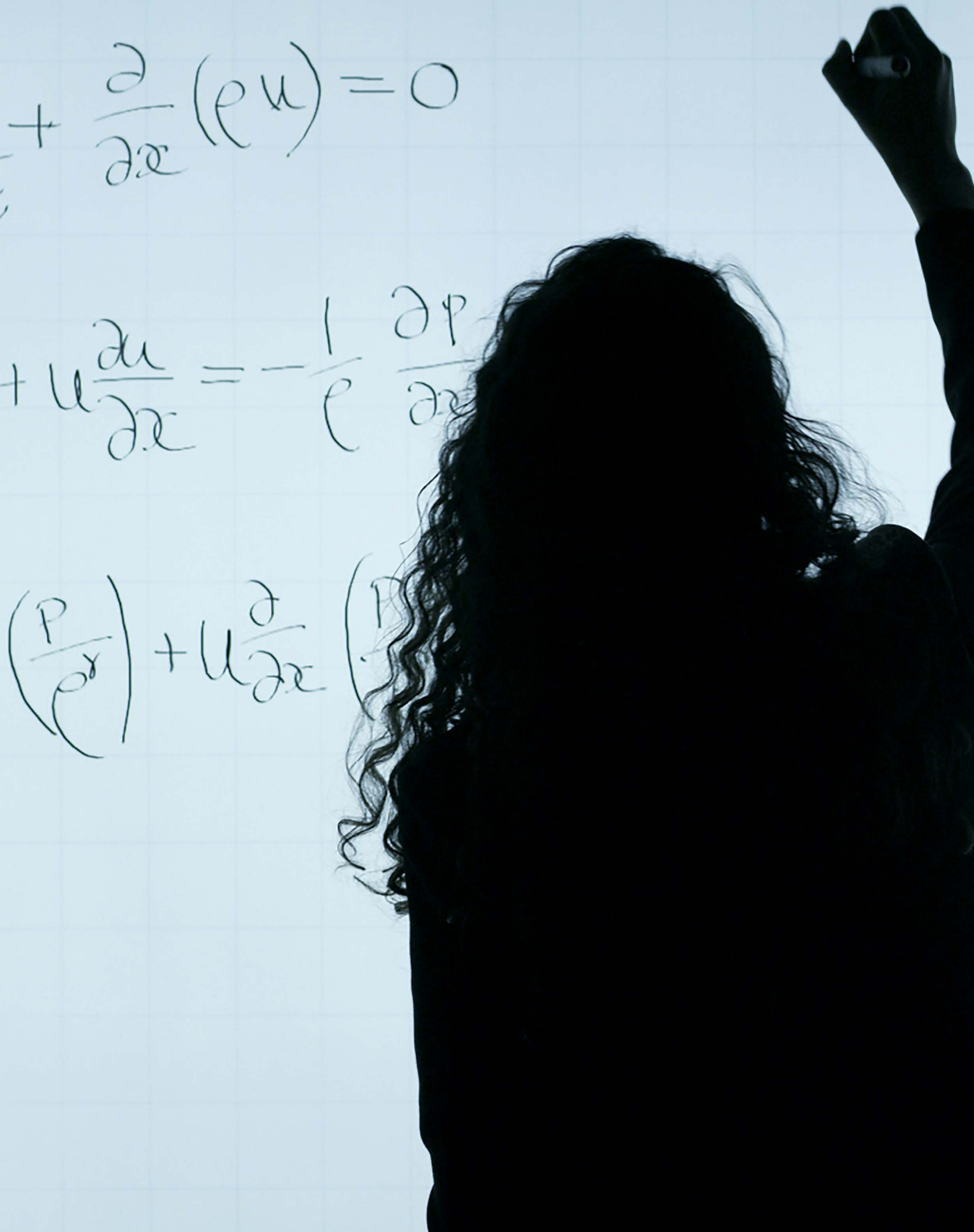
AI is critical to Scotland's net-zero ambitions and Scottish organisations are developing AI solutions for environmental monitoring, biodiversity assessment, land-use planning and grid optimisation. While satellite imagery analysis and AI-enabled sensing technologies support data-driven environmental stewardship at scale, businesses in Scotland are also adopting AI to support energy systems, forecast demand, optimise grid performance and reduce emissions. These capabilities reinforce Scotland's leadership in green technologies and ability to attract environmentally focused investment.

Space and Satellite Technology

AI plays a major role in Scotland's fast-growing space and satellite sector. AI is integral to satellite data processing, geospatial analytics, climate monitoring and environmental compliance. Scottish companies are developing advanced AI systems that analyse satellite data at scale, enabling rapid and accurate insights that support areas such as climate resilience and disaster response for domestic and international applications. AI is deeply embedded across the sector's value chain and continued international collaboration and investment are reinforcing Scotland's position as a leader in AI-enabled space intelligence.

Creative Industries

AI is creating new opportunities across Scotland's creative sectors by enabling new forms of digital creativity. Publishing Scotland supports this through practical guidance on AI tools and a framework for developing responsible AI principles, helping organisations adopt new technologies safely and with confidence. However, the sector also faces risks, including concerns about intellectual property and the impact of AI on creative work. Protecting creators' rights, supporting ethical practice and ensuring people can benefit from ethical and trustworthy AI will be essential to sustaining a fair and resilient creative economy.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Case for Change

Seizing Scotland's AI Opportunity

Artificial intelligence is advancing rapidly and offers enormous economic potential. GC Insight has estimated that, with the right investment and leadership across our economy, there is scope for AI to generate more than an additional £23 billion in annual GDP by 2035, with a potential cumulative additional GDP generated of £140.75 billion over the period 2025 to 2035[28].

The Office for Budget Responsibility anticipates that productivity benefits at the UK level could begin to materialise within the next decade as adoption scales[29]. Rapid developments in agentic and autonomous AI show how quickly new capabilities are emerging. Yet adoption remains uneven. Only 30.7% of businesses currently use AI, and many leaders report low confidence in adopting these tools safely and effectively[30].

At the same time, demand for public services is rising amid tightening public finances. AI has already shown promise in enabling preventative approaches, improving planning, reducing costs and supporting frontline decision-making. Used well, it can improve outcomes and focus capacity where it is most needed. Scotland must innovate in the adoption of AI within public services but do so carefully and transparently so that we maintain public trust.

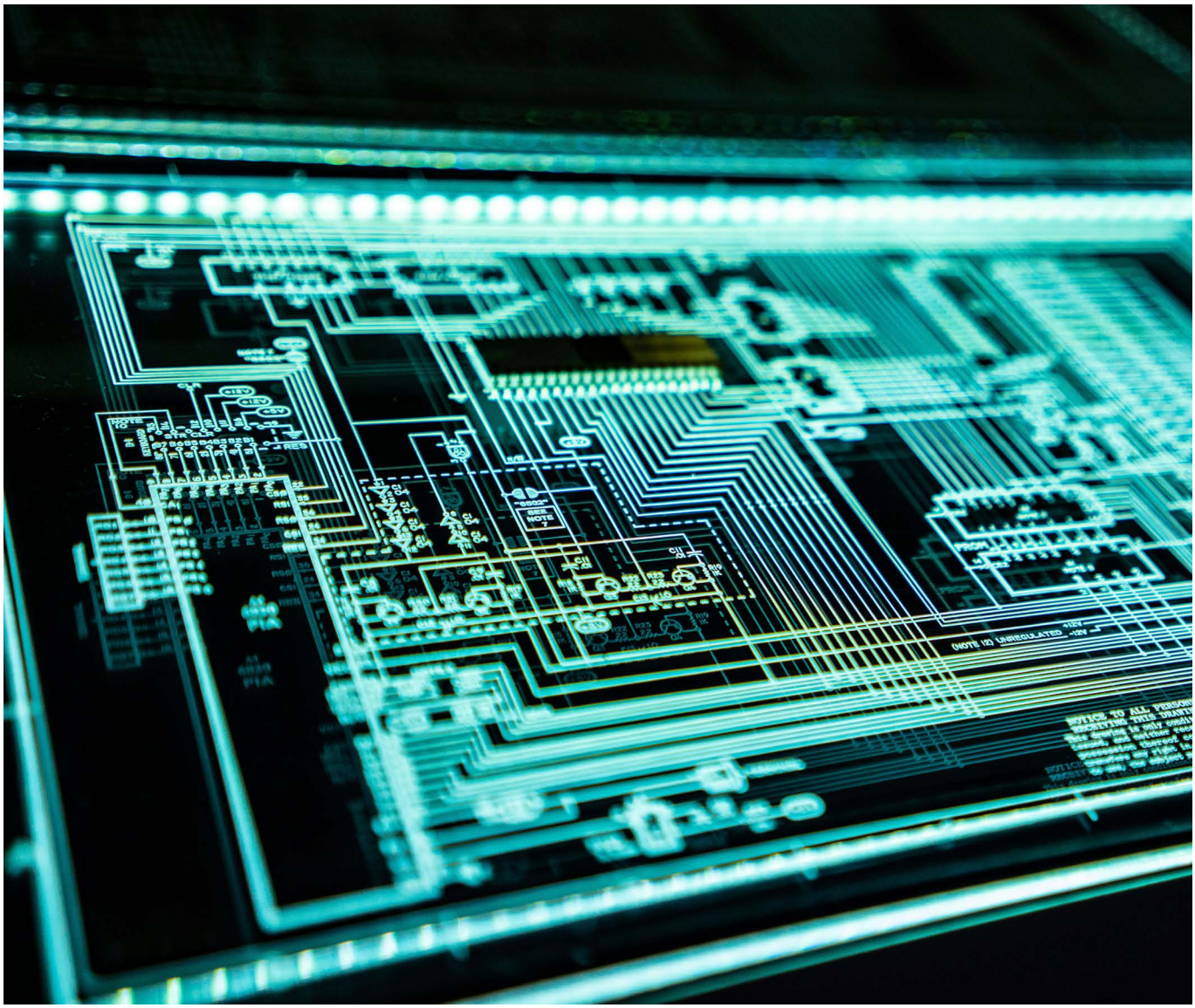
Data is critical but Scotland's public sector data is often fragmented and difficult to access. Improving data sharing and governance is essential, not to drive unchecked innovation but to support safer, more effective services and research which will ultimately make a difference to people's lives. Other countries are moving quickly to modernise their data architecture and Scotland must utilise its data assets for good while ensuring trust, privacy and high ethical standards are maintained.

The global environment is volatile and competitive. A worldwide innovation race is underway, and emerging international standards – including the OECD AI principles[31] and the EU AI Act[32] – are shaping expectations of fairness, transparency and safety. Scotland must promote itself internationally and pursue research, business and inter-governmental collaboration where this adds value. We will seek to influence, and remain aligned with, evolving principles and standards so that organisations can innovate with confidence and maintain access to key markets.

AI also places new demands on our critical national infrastructure. Scotland's strengths in renewable energy provide a strong platform, but targeted action is needed to ensure AI develops in a sustainable, inclusive and environmentally responsible way. Choices need to be made about the allocation of power and the ability of AI to transform our economy and improve public services and outcomes will be critical in those judgements.

Scotland has a strong research base, but investment and global partnerships are required so that our research continues to have global impact and translates into commercial opportunities, particularly for start-ups and scale-ups. Scotland has a vibrant entrepreneurial ecosystem and with support from our economic development agencies we can both stimulate new AI start-ups and support the application of AI to innovation and productivity improvements across the wider business base. In parallel, we will address skills shortages at all levels so people and businesses can benefit from the opportunities AI creates.

The case for change is clear. Scotland must act now to ensure that AI is introduced in ways that are safe, fair and focused on public benefit. This Strategy sets out how Scotland will do this, harnessing the potential of responsible AI to improve outcomes across our economy and at every level in our society.



Purpose & Outcomes

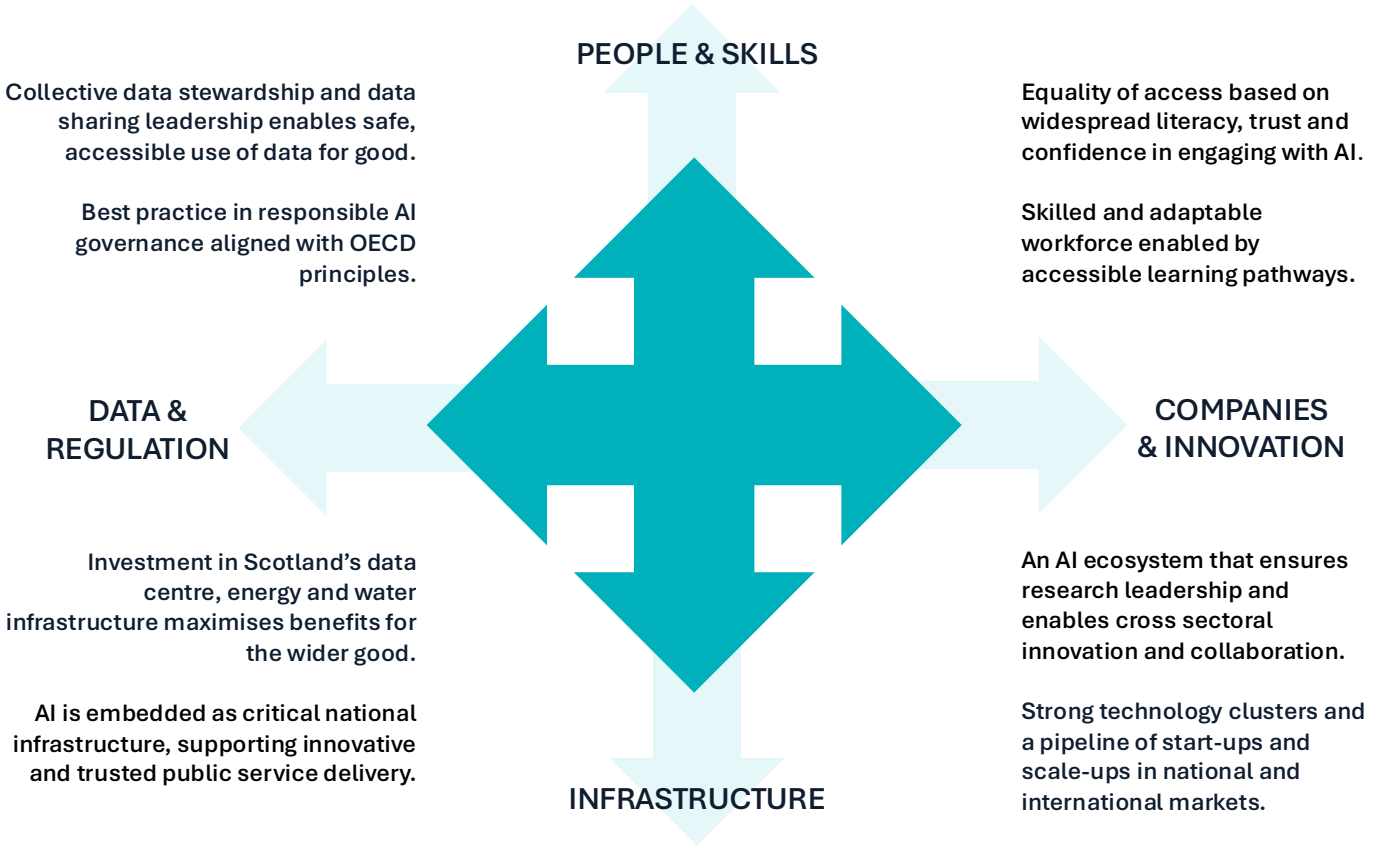
Based on the Case for Change, the Scottish Government has defined a clear and ambitious purpose for this Strategy: **to harness the potential of AI to drive responsible and inclusive growth across our economy and make a positive difference at every level of society.**

This purpose statement provides a single, coherent objective for the work included in this Strategy. It demands an ethical approach to the development and application of AI and a relentless focus on ensuring that we harness the potential to improve lives, transform productivity, stimulate economic opportunity and improve the quality and efficiency of services.

We have done this by thinking about what we intend to achieve under four headings: People and Skills, Companies and Innovation, Infrastructure, and Data and Regulation.

In each case, we have considered 'what success looks like' to form simple, clear statements of the things we expect to see by the end of this Strategy's life cycle in 2031. These are shown in the diagram below. Later in this document, we will break these outcomes down further as part of our delivery approach.

Outcomes



Actions

Ten key actions will be completed before the end of March 2027 to make significant early progress in delivering the purpose and outcomes of this strategy.

1. Position AI Scotland as the national flagship programme driving strategy delivery and showcasing Scotland's AI strengths on the global stage.
2. Appoint AI Industry Champions across priority sectors and regions, reporting to an independent Expert Advisory Board.
3. Launch a nationwide engagement programme, to listen to concerns and develop solutions that ensure public trust and confidence.
4. Implement a rigorous, trusted framework to ensure safe, ethical and efficient use of AI across health and social care services.
5. Roll out a revitalised national AI adoption programme to accelerate SME productivity and competitiveness, including a new AI Leadership Academy.
6. Establish a Future Jobs Panel to assess AI's workforce impact and guide national skills planning.
7. Pilot an AI Scale-up Accelerator connecting high-growth companies with experienced entrepreneurs and investment networks.
8. Launch an innovation programme that applies commercial and research expertise in AI to the delivery of public services.
9. Work with partners to promote Scotland as a centre for green data centre(s) and maximise the economic potential of the Lanarkshire AI Growth Zone.
10. Launch a data matchmaking pilot enabling organisations to access trusted public-sector datasets, to support data-driven innovation.

AI Scotland

Delivery of this strategy will be driven by AI Scotland, a new national transformation programme led by the Scottish Government and a consortium of partners, including The Data Lab, ScotlandIS and Enterprise agencies. The creation of AI Scotland fulfils a commitment set out in the Programme for Government 2025–2026.

Working across the triple helix of business, academia, and the public sector, AI Scotland will coordinate and amplify Scotland's collective efforts to implement the actions outlined in this strategy.

An early action will be the launch of a renewed and expanded AI Adoption Programme aimed at Small and Medium-sized Enterprises (SMEs). The first iteration of this programme, launched in 2025 by the Minister for Business and Employment, Richard Lochhead MSP, was supported by nearly £1 million of public funding and delivered practical, hands-on guidance to businesses seeking to adopt AI. The refreshed programme will build on this foundation, offering enhanced support tailored to the evolving needs and capabilities of Scottish SMEs.

All programmes and interventions delivered under the AI Scotland banner will reflect the Scottish Government's commitment to responsible and ethical AI. This includes promoting trustworthy deployment of AI technologies, addressing adoption barriers, supporting high-potential AI companies to scale, and improving access to high-quality data that can unlock growth and innovation.

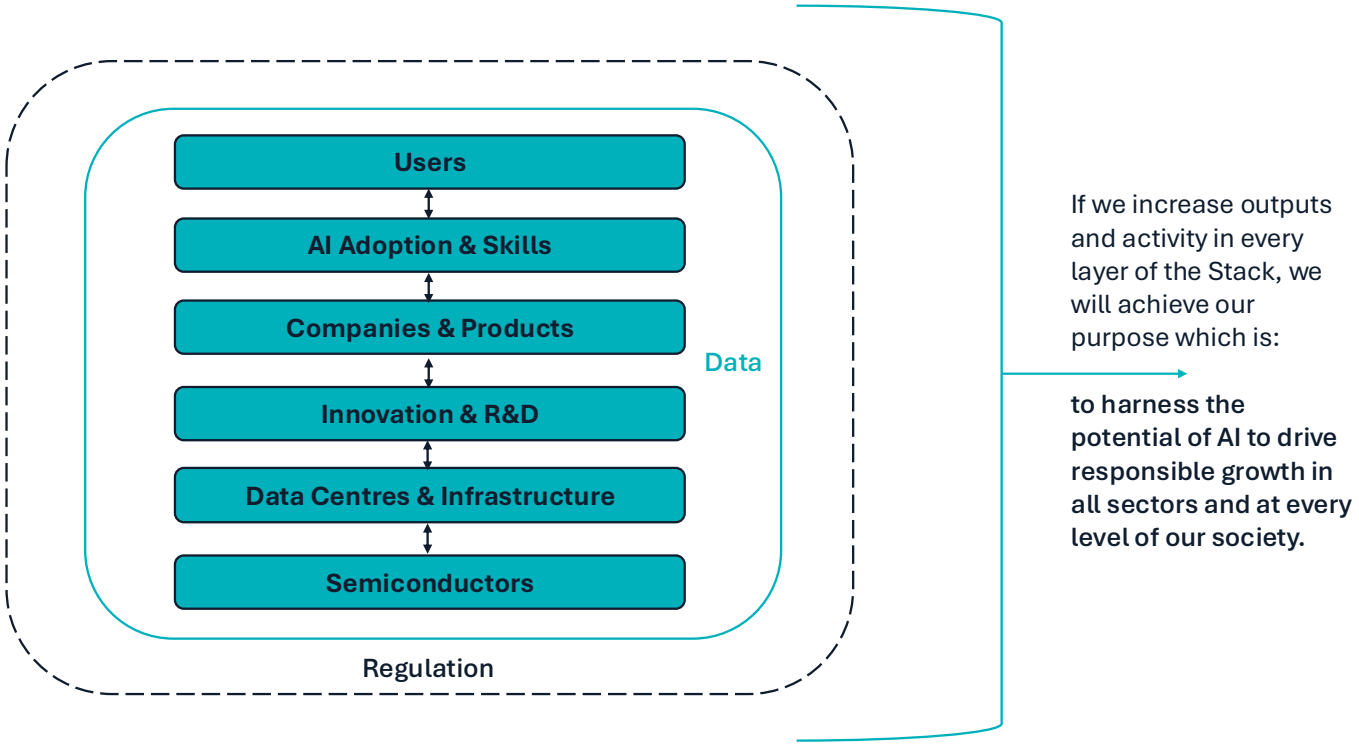
To ensure accountability and help shape future priorities, the Scottish Government will establish an Expert Advisory Board. This board will evaluate AI Scotland's activities, provide strategic advice, and guide the development of future programmes and interventions. Membership will include AI champions from key sectors and regions, alongside business leaders and technical experts who can help ensure that Scotland fully realises the opportunities set out in this strategy.

In the first year of this strategy, the Expert Advisory Board will also advise on the development of a comprehensive business case that sets out the preferred long-term organisational model for AI Scotland. Potential models under consideration include a cluster management organisation (CMO) or a non-profit company (NPC).

AI Action Plan

The AI Stack

To fulfil the purpose and achieve the outcomes of this Strategy, the Scottish Government has adopted a radical new approach to the problem of how government may determine, organise and deliver an effective response to an accelerating technology with implications for all areas of policy, in the form of the AI Stack.



The AI Stack aligns with Scotland's AI ecosystem and represents 'AI' in its broadest sense, encompassing all current and emerging applications. In this way, the Stack provides a frame of reference which is able to adapt as new forms of AI are developed.

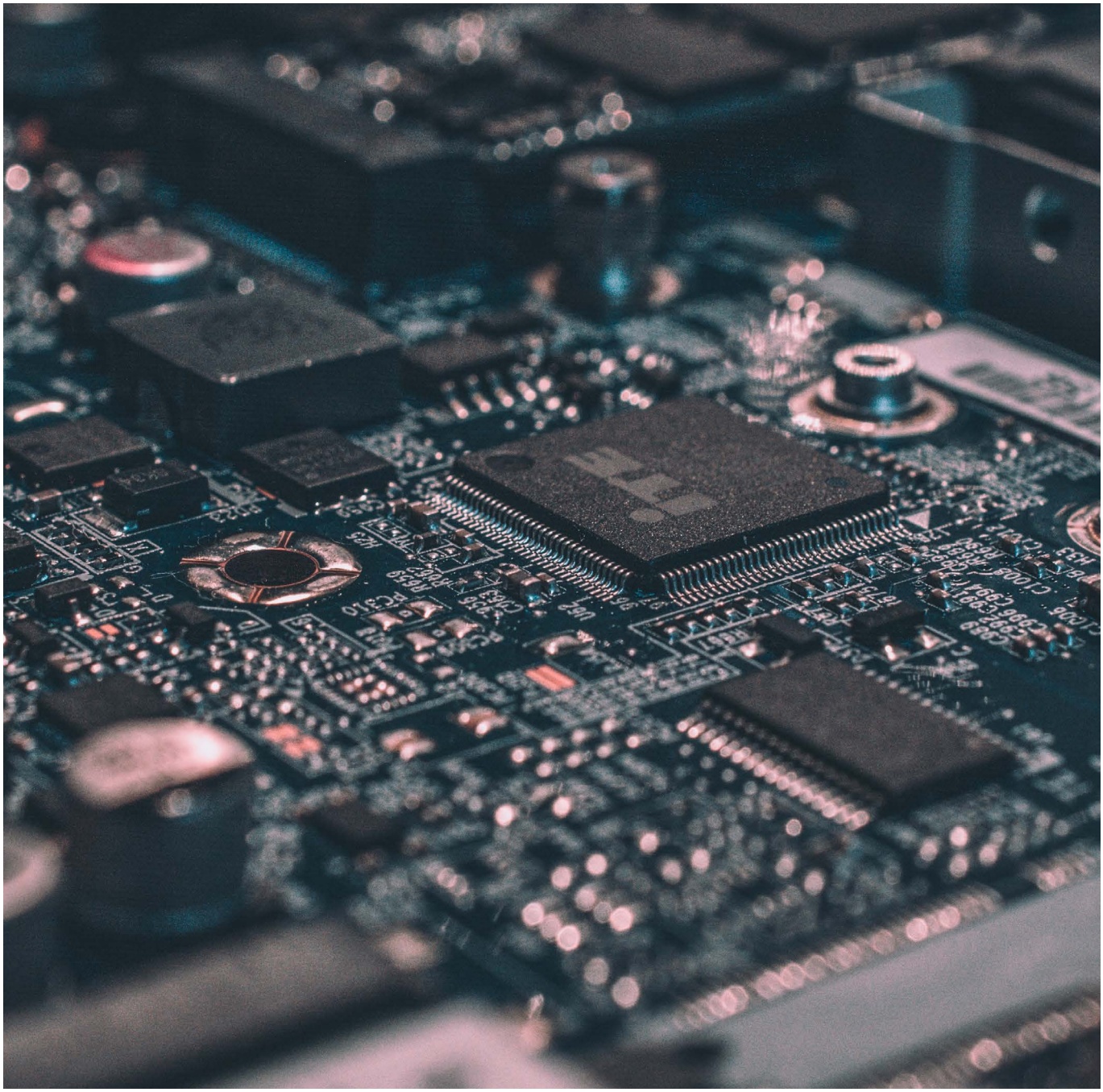
The Stack sets out non-hierarchical relationships between different components, or layers, all of which need to work together to deliver social and economic good. The position of each layer does not reflect its value or importance. All layers have interdependencies on and interact with all other layers.

The two encircling layers (data and regulation) appear as they do in the model to illustrate the extent to which they sit around, as well as within, all other layers. For example, AI innovation is data-dependent but also develops solutions to the technological and other challenges of AI-scale data processing.

In the sections that follow, our AI Action Plan sets out a case for change in relation to each layer of the AI Stack along with an initial set of immediate actions which will ensure progress against our outcomes.

To ensure the AI Action Plan can evolve as technology develops, it will be delivered in three phases. This iteration outlines the actions for phase 1. We will publish updates for phase 2 in 2027 and phase 3 in 2029, ensuring our actions continue to drive progress towards our 2031 outcomes.

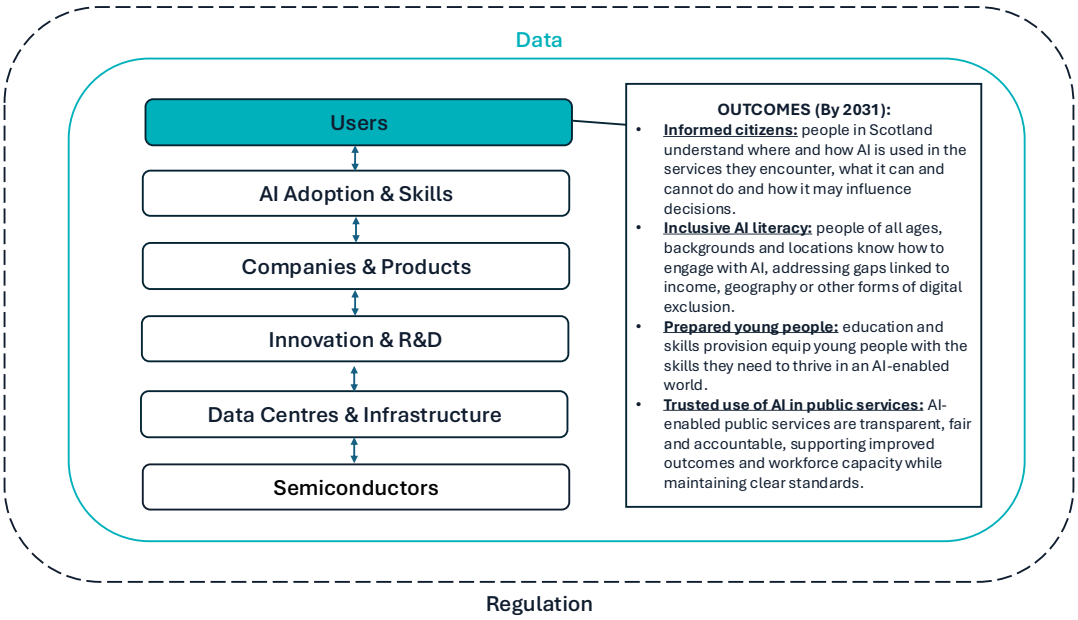
If we deliver our actions and outcomes, we will achieve our purpose.



Layer 1

Users

As AI becomes more embedded within public services, citizens are increasingly interacting with AI not only through private digital platforms but through essential services such as health and social care. While non-digital routes to accessing public services will still exist, AI offers clear benefits such as reducing administrative burdens, improving access to information and assisting clinical and care decision making. However, its use also introduces new considerations around transparency, understanding and trust.



The Digital Strategy for Scotland[33] sets a clear, shared vision for a nation where digital connects people to opportunities, supports economic growth and delivers improved public services. It establishes the foundations for inclusion, infrastructure and digital skills, and it recognises that ethical and inclusive digital transformation is key to delivering these ambitions.

The 2021 AI strategy[34] brought a vision for trustworthy, ethical and inclusive AI, guided by principles designed to ensure fairness, accountability and respect for human rights. That strategy established the ground for this strategy which in turn is building upon it and incorporating the pace and scale at which citizens now interact with AI-enabled digital systems.

Citizens' confidence and understanding of AI will vary significantly, particularly for those with lower levels of digital access and skills. Without sufficient AI literacy and clear communication, people may not understand when or how AI is involved in decisions that affect them, or what safeguards apply. As public services adopt AI at greater scale, supporting citizens to engage confidently and understand their rights, it becomes increasingly important to maintain trust and ensure equitable outcomes.

A human and user-centred approach through the Scottish Approach to Service Design is needed to complement and reinforce the principles of trustworthy AI. In this way, this Strategy can ensure that citizens' experience of AI-enabled systems supports their ability to engage confidently and fairly with digital life, helping to make the vision of a connected, inclusive and prosperous Scotland a reality.

Actions and Outcomes

Actions

By 2027, the Scottish Government will:

- Establish an independent Expert Advisory Board to provide advice and direction on the work of AI Scotland, ensuring that its programmes uphold Scotland's trusted, ethical, inclusive and values-led approach to AI.
- Launch a nationwide engagement programme to listen to concerns and develop solutions that ensure public trust and confidence.
- Implement a rigorous, trusted framework to ensure safe, ethical and efficient use of AI across health and social care services.
- Promote materials to ensure an understanding of AI and its role in everyday life, strengthening AI literacy through universally open access to AI learning.
- Work with public sector bodies and organisations to increase visibility and awareness of AI use across the public sector.
- Work with public sector bodies and organisations to increase confidence and trust in how AI is governed and applied, strengthening ethical and inclusive approaches, transparency and capability for AI use within public services.

Outcomes

By 2031, we will see widespread literacy and confidence in engaging with AI. This means:

Informed citizens – People in Scotland understand where and how AI is used in the services they encounter; what it can and cannot do; and how it may influence decisions.	**Inclusive AI literacy** – People of all ages, backgrounds and locations know how to engage with AI which will address gaps linked to income, geography or other forms of digital exclusion.
Prepared young people – Education and skills provision equip young people with the skills they need to thrive in an increasingly AI-enabled world, helping learners to engage effectively with emerging technologies.	**Trusted use of AI in public services** – AI-enabled public services are transparent, fair and accountable, supporting improved outcomes and workforce capacity while maintaining clear standards.

Case Study: Using AI to strengthen Safeguarding

Citizens Advice Scotland

The Extra Help Unit (EHU) within Citizens Advice Scotland (CAS) supports people in highly vulnerable situations with complex energy-related complaints. Between 2022 and 2024, the service experienced sustained crisis-level demand, handling 35,000 cases in 2024 with around 70% requiring urgent intervention. Traditional expansions in capacity and process change could not keep pace with need.

Through the Scottish Government's CivTech 8 programme, the EHU partnered with HelpFirst to develop an AI-enabled triage and safeguarding tool for high volume, high risk casework. Launched in October 2024, the system identifies and prioritises cases with indicators of significant harm, flags immediate safeguarding risks in real time, and alerts caseworkers instantly to support rapid and proportionate intervention. Crucially, the tool is designed to augment, rather than replace, the professional judgement of skilled caseworkers, ensuring decisions remain grounded in human expertise.

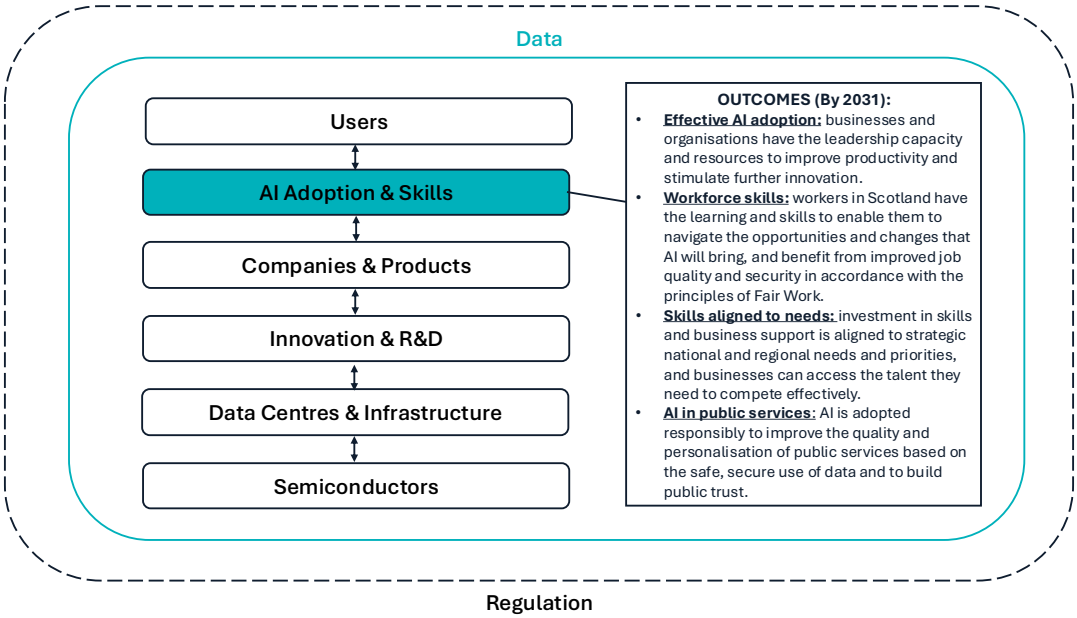
The tool has delivered measurable benefits: faster escalation of high risk cases, improved workforce resilience, more effective use of operational capacity, and stronger safeguarding governance through consistent, auditable risk identification. It has also deepened understanding of service users, with recent data showing that 75% of referrals involve people with mental or physical health conditions.

The EHU's AI-enabled safeguarding system demonstrates how well governed technology can enhance human decision making, protect vulnerable citizens, and build more resilient public services.

Layer 2

Adoption and Skills

AI adoption by organisations across all sectors of the economy helps deliver benefits and/or mitigate risks. Successful adoption does not necessarily mean the wholesale integration of AI into a business's operational model. It means that the organisation's leadership group has thought through the implications of AI for their data and operations, and in the context of its market position and future business strategy. It also means they have considered how to support their workforce in accessing upskilling opportunities and embedding AI safely and securely in their work.



Between July 2024 and June 2025, there were 5,700 job postings that required at least one AI skill across Scotland[35]. However, in March 2025, 61.9% of Scottish SMEs that responded to the latest Business Insights and Conditions Survey (BICS), reported that they are not using AI technologies[36]. Research suggests that there are acute skills shortages, particularly amongst small businesses and many firms do not offer any data or AI training for executives or staff.

This evidence makes a strong case for a renewed, national AI adoption programme that builds on learning from the initial 2025-26 programme. It should also leverage assets, such as the AI Adoption Framework being developed by The Data Lab, to provide targeted support and clear guidance with a focus on enabling organisational leaders to understand and respond to the potential of AI and the need for change.

As the adoption of AI accelerates across Scotland's business base, a concurrent shift is needed in the public and third sectors. The Digital Public Services Delivery Plan sets a clear direction for ethical, transparent and outcomes-driven use of AI, supported by the Scottish AI Register. Embedding these principles will help ensure Scotland's public services can lead by example and support confident, responsible AI adoption nationwide by helping to build public trust.[37]

AI has the potential to transform work across sectors, impacting tasks and relationships. Ensuring this change aligns with Scotland's Fair Work principles[38] is crucial. Successful AI adoption requires an engaged and skilled workforce. Fair work practices that involve workers and promote upskilling will help organisations adapt and leverage AI effectively.

SME AI Adoption Programme

To begin to address these challenges, in its Programme for Government 2025-26, the Scottish Government announced a £1 million SME AI Adoption Programme, delivered in collaboration with Scotland's enterprise agencies and The Data Lab, providing support for SMEs to more effectively adopt AI into their business operations.

The SME AI Adoption Programme was developed to increase awareness, build confidence and provide practical support for AI adoption among Scottish SMEs. It focused on helping businesses understand the potential of AI, develop leadership capability and begin implementing early AI projects through a blend of awareness raising activity, skills development and hands-on assistance.

Through roadshows, courses and case studies, the programme introduced SMEs to the benefits of AI and how it could be applied within their organisations. Targeted grants, mentoring and technical support enabled firms to explore priority use cases and progress initial AI projects, while leadership development strengthened the capability of senior leaders to drive responsible adoption. Dedicated rural activity ensured that businesses across Scotland, including those in remote areas, could access support.

More than 500 SMEs have engaged with the programme. Over 80 firms have been identified and scoped early AI use cases. More than 120 senior leaders participated in leadership development and over 160 companies received hands-on assistance, mentoring or exploration funding. The programme also generated a strong evidence base on SME readiness, informing future initiatives to support more advanced AI adoption and scale-up activity.

Actions and Outcomes

Actions

By 2027, the Scottish Government will:

- Roll out a revitalised national AI adoption programme to accelerate SME productivity and competitiveness.
- Pilot a new AI Leadership Academy for leaders of Scottish SMEs.
- Introduce a standardised AI readiness tool for SMEs, social enterprises and public bodies.
- Expand short, modular AI literacy training focusing on practical use cases, ethics and assurance.
- Establish a Future Jobs Panel to assess AI's workforce impact and guide national skills planning.

Outcomes

By 2031, we will see effective adoption of workforce skills via accessible pathways.. This means:

Effective AI adoption – Businesses and other organisations have the leadership capacity and resources to embed AI responsibly to improve productivity and stimulate further innovation.	**Workforce skills** – Workers in Scotland have the learning and skills to enable them to navigate the opportunities and changes that AI will bring and benefit from improved job quality and security in accordance with the principles of Fair Work.
Skills aligned to needs – Investment in skills and business support is aligned to strategic national and regional needs and priorities and businesses are able to access the talent they need to compete effectively.	**AI in the public sector** – AI is adopted responsibly to improve the quality and personalisation of public services based on the safe, secure use of data and to build public trust.

Case Study: Using AI to Scale Circular Lighting Manufacturing

EGG Lighting

EGG Lighting is a Scottish manufacturer delivering high-tech, circular lighting solutions through remanufacture, smart controls, and digital tracking.

With the support of the SME AI Adoption Programme EGG moved from ad-hoc use of AI to structured, business-wide adoption. Marketing teams have used AI to generate first draft content and cut preparation time by around 60%. Assembly and workshop teams have replaced paper-based processes with AI-assisted digital forms, saving 30–40 minutes per delivery and improving traceability. Developers are delivering internal applications far faster, producing working dashboards in days instead of weeks. Clear data use guidance has also ensured that staff can adopt AI safely and consistently.

AI has streamlined EGG's operations, with marketing teams using it to generate first draft content and cut preparation time by around 60%. Assembly and workshop teams have replaced paper-based processes with AI-assisted digital forms, saving 30–40 minutes per delivery and improving traceability. Developers are delivering internal applications far faster, producing working dashboards in days instead of weeks. Clear data use guidance has also ensured that staff can adopt AI safely and consistently.

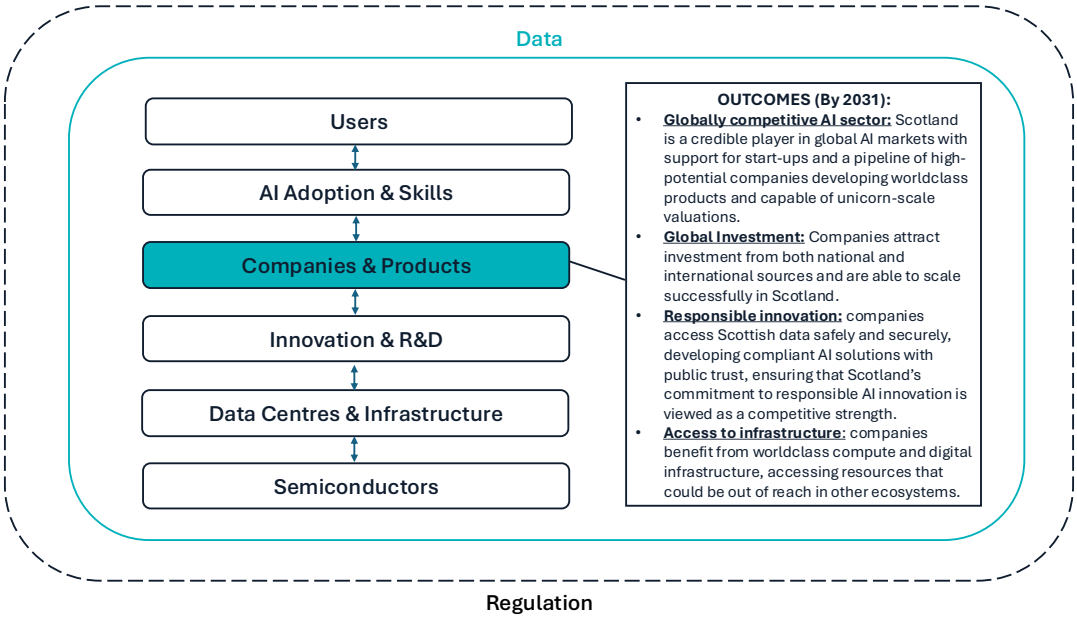
AI adoption at EGG is now part of how the business delivers, grows and proves performance. AI tools are actively used by staff, delivering an estimated £40k–£60k cost avoidance. EGG has scaled output without increasing headcount and now sees faster product iteration, supporting sensor-enabled lighting growth.


eGG
LIGHTING

Layer 3

Companies and Products

Scotland has the entrepreneurs, research and support networks to produce world-leading AI companies.



McKinsey's global survey found that 71% of global leaders see sovereign AI as an existential or strategic imperative, driven by concerns over dependency on foreign models and infrastructure.[39] Countries are increasingly treating sovereign AI as a strategic necessity because the ability to control your own compute, data and models is now a central factor in national competitiveness.

For Scotland, having home-grown AI companies will help to ensure control over sensitive data, especially in areas like health, public services and national infrastructure. Every successful AI company produces specialised, high productivity roles and these jobs anchor skilled workers in Scotland, rather than losing them to other countries. These jobs also support a wider ecosystem, including universities and colleges, start-ups, incubators and investors to create long-term economic resilience.

Being a producer, not just a consumer of AI, ensures Scotland isn't left behind as AI reshapes global economies. AI is becoming a core driver of competitiveness and countries that build their own AI capabilities, capture the value, set standards and shape how the technology is used. Those that do not, risk falling behind.

Actions and Outcomes

Actions

By 2027, the Scottish Government will:

- Pilot an AI scale-up Accelerator connecting high-growth companies with experienced entrepreneurs and investment networks.
- Deliver at least one national stakeholder event, focussed on convening and celebrating Scotland's AI companies and the wider ecosystem.
- Work with ecosystem partners to undertake a national assessment of AI company needs, mapping barriers to scaling across sectors and identifying requirements in compute, data access, talent, investment and export readiness.
- Work with existing asset owners to increase the accessibility of compute power for Scotland's AI companies.
- Co-ordinate activity with Techscaler[40] and public agencies to strengthen international investor engagement and increase visibility of Scottish AI firms.

Outcomes

By 2031, we will see a Scottish ecosystem which supports companies to access talent, compute power and innovation. This means:

A globally competitive AI sector – Scotland is a credible player in global AI markets with support for start-ups and a pipeline of high-potential companies developing world-class products and capable of unicorn-scale valuations.	**Global Investment** – Companies attract investment from both national and international sources and are able to scale successfully in Scotland.
Responsible innovation – Companies access Scottish data safely and securely, developing compliant AI solutions with public trust, ensuring that Scotland's commitment to responsible AI innovation is viewed as a competitive strength.	**Access to enabling infrastructure including compute** – Companies benefit from world-class compute and digital infrastructure, accessing resources that could be out of reach in other ecosystems.

Case Study – Using AI to Help Enterprises Cut Hiring Time and Costs

Gigged.AI

Gigged.AI, based in Glasgow, works with enterprises in the UK and beyond, including Fortune 500 and FTSE 100 companies, to fill critical skill gaps and keep projects on track.

Digital roadmaps within large enterprises are ambitious and timelines for delivery are accelerating, yet many leaders are still facing month-long waits to onboard critical hires. The result is that projects stall, spend increases and transformation slows.

Gigged.AI's project hiring platform uses artificial intelligence and proprietary talent matching algorithms to reduce time and cost in sourcing tech expertise.

Gigged.AI's on demand talent feature provides access to vetted contractors across more than 500 skills, supported by an AI-powered Statement of Work (SoW) generator that converts requirements into outcome based or time and materials SoWs within minutes. Alongside this, its Workforce Intelligence capability maps internal skills and existing AI agents, using real time analytics to highlight opportunities for internal mobility and productivity gains.

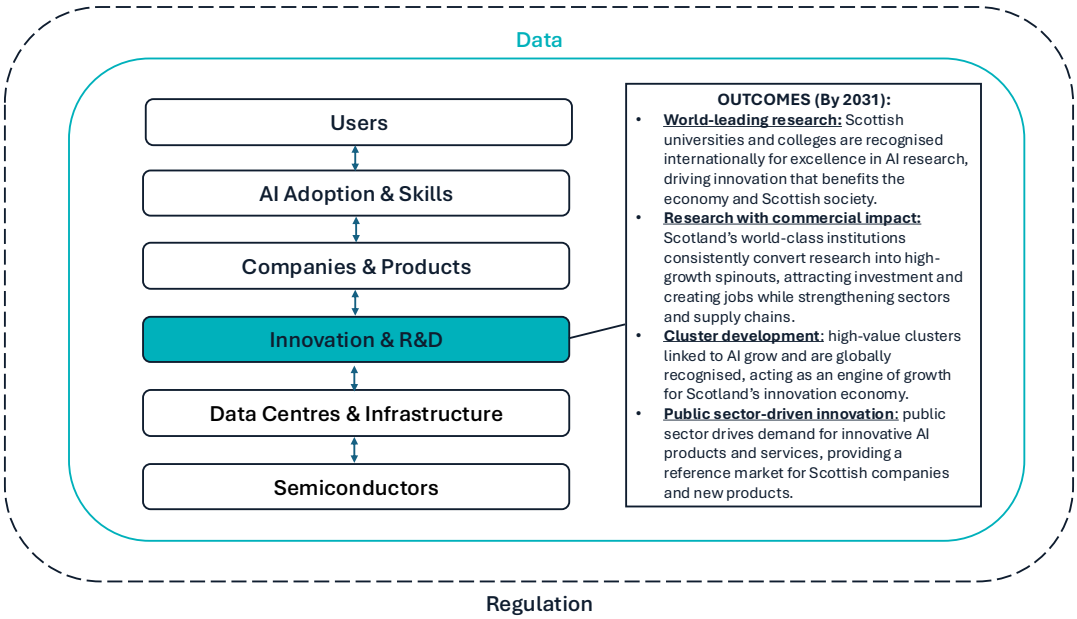
Gigged.AI also focuses on key challenges such as transparency, using its proprietary algorithm to provide weighted scores and clear justification for each match; data quality, supported by SFIA accredited skills taxonomy; and compliance, delivered through integrated IR35/W2/1099 checks and vetting via partners Amiqus and QDOS.

Together, these capabilities deliver measurable impact for enterprises, including 30% lower contingent hiring costs, a 50% faster time-to-hire, averaging five days from SoW creation to onboarding, and a 15% improvement in employee retention through enhanced internal mobility.

Layer 4

Innovation, Research and Development

Scotland has an internationally recognised research base and strong academic performance in AI related fields, yet this excellence is not converting into economic impact at the scale it should. There is significant potential to build further upon universities' and colleges' impact and contribution to Scotland's regional and national economies.



Scotland's universities continue to perform strongly internationally in research around AI and related disciplines. However, whilst Scotland consistently produces high quality scientific and technological research we can go much further in translating it into commercial products or services.

The issue is not the quality of research, but the limited translation of that research into economic value, leaving significant potential underused. To capture the economic opportunities from its world leading research, Scotland must strengthen its innovation ecosystem, ensuring ideas move from research to commercial application more effectively.

The strategic opportunity is not only economic but competitive. Scotland has the research assets and institutional infrastructure necessary to position itself as a leader in ethical, inclusive, trustworthy and mission-driven AI. This is an area where global demand is growing and regulatory expectations are rising. We will only achieve this however if we make best use of our intellectual property, strengthen our position in international markets, increase access to venture funding and attract inward investment into emerging technology clusters. We must expand the concept of our AI ecosystem to one that embraces appropriate academic and business partnerships across the globe.

Actions and Outcomes

Actions

By 2027, the Scottish Government will:

- Launch an innovation programme that applies commercial and research expertise in AI to the delivery of public services.
- Establish a national cluster scheme, aligning AI as a critical enabling technology across all clusters.
- Develop financial support and guidance to enable clusters to emerge, grow and compete internationally, making best use of global research partnerships.
- Work with delivery partners to pilot a new approach to university commercialisation, bringing together all the essential elements of commercialisation into a Venture Creator.[41]
- By progressing with the initiatives identified in the Scottish Spin-out Report with our ecosystem partners, we will continue to strengthen Scotland's research commercialisation pipeline.

Outcomes

By 2031, we will see a strong pipeline from research institutions to commercial impact. This means:

World-Leading AI research – Scottish universities and colleges are recognised internationally for excellence in AI research, driving innovation that benefits the economy and Scottish society.	**Research with commercial impact** – Scotland's world-class institutions consistently convert research into high-growth spin-outs, attracting investment and creating jobs while strengthening sectors and supply chains.
Cluster development – High-value clusters linked to AI grow and are globally recognised, acting as an engine of growth for Scotland's innovation economy.	**Public Service driven innovation** – Public sector drives demand for innovative AI products and services, providing a reference market for Scottish companies and new products.

Case Study – Using AI to Transform Chemical Manufacturing

Chemify

Chemify, a University of Glasgow spin out, uses artificial intelligence and robotics to automate and accelerate chemical synthesis.

Traditional synthesis is slow, labour intensive and highly dependent on specialist expertise, leading many organisations to face long development cycles, high failure rates and escalating costs. Chemify set out to apply AI to overcome these barriers, supported by UK and Scottish Government innovation programmes and Scottish Enterprise.

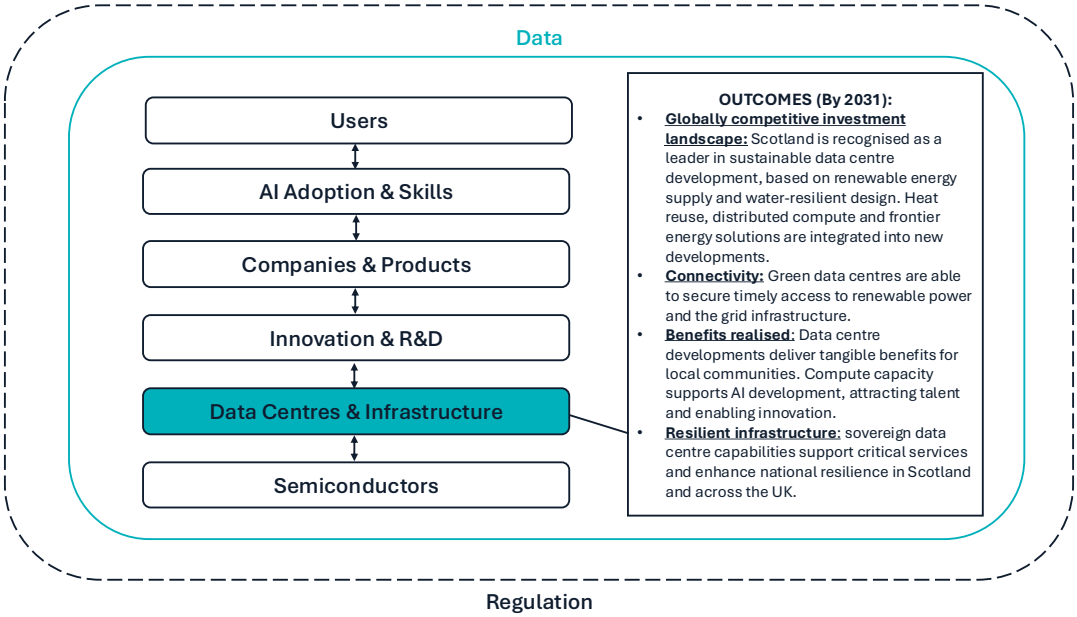
Chemify has built an AI-enabled platform that integrates robotics, machine learning and cloud-based software to design, execute and optimise chemical reactions automatically. By digitising the entire workflow, the company created a standardised, repeatable approach to synthesis. It invested in proprietary algorithms and purpose-built hardware and partnered with major pharmaceutical and research organisations to validate and scale the technology. In 2025, Chemify raised a significant Series B round to expand its engineering capability and accelerate global commercialisation.

Chemify has reduced development timelines from months to days in selected projects, opened a £12 million Chemifarm facility in Maryhill to support international pharma partnerships, and created over 180 high-skilled jobs across chemistry, engineering and data science. It has attracted major investment, including a $50 million Series B raise, and strengthened Scotland's position as a global leader in digital chemistry and life sciences. Its platform is now helping drive greater productivity, sustainability and innovation across high value manufacturing.

Layer 5

Data Centres and Infrastructure

In an increasingly digitised global economy, the ability to host critical national infrastructure such as data centres is central to data sovereignty and the development of domestic AI skills and capabilities to realise economic growth and societal value. Governments around the world are actively competing to attract leading global technology firms. Establishing AI and advanced compute infrastructure within a country's borders is widely recognised as being strategically and economically significant.



Infrastructure is often the anchor of investment and innovation, with companies more inclined to cluster activity, talent and capital around existing assets. A strong and diverse AI infrastructure base in Scotland will therefore catalyse growth across the wider AI stack, supporting skills development, research and the practical application of AI across the economy.

Water infrastructure

Whilst many modern datacentres are significantly reducing water consumption, sustainable management of precious water resources remains a critical consideration. Scottish Water is therefore advising the data centre industry on several fronts: guiding location decisions to support the most sustainable use of water; encouraging the reuse of treated wastewater; and promoting the adoption of closed-loop systems to reduce overall demand.

Improving Grid Connection Timescales

For Scotland to compete in this global race to secure digital infrastructure capabilities, its electricity grid infrastructure must be capable of servicing strategically important investment opportunities such as data centres. Despite Scotland's strengths in generating renewable energy, the ability to realise the full benefits of this resource in our AI ambitions requires changes to current grid infrastructure and the means of accessing it.

While this is an area of policy reserved to the UK Government, the National Energy Systems Operator (NESO)'s Grid Connection Reform Process[42] is a welcome development. The Scottish Government is engaging collaboratively with NESO, and the UK Government on its Connections Accelerator Service, to enable projects to be connected as soon as feasible.

Improving Hyperscale Investor Confidence

The Scottish Government and its enterprise agencies are developing the Scottish Green Compute proposition: AI powered by clean energy in Scotland. For identified sites with proximity to necessary infrastructure, the option of local authority-designated 'Green AI-Ready' zones will be explored. Subject to local authority decisions, where conditions are supportive, planning approvals/designations could be utilised within Local Development Plans.

Strengthening Distributed Compute Deployment

Hyperscale data centres secure significant capital investment and associated benefits but this alone will not secure a comprehensive set of digital capabilities. The potential for distributed compute throughout Scotland has been enabled by investment in a national fibre backbone. Realising this potential, where local considerations are favourable, will support an improved offer to investors.

Distributed compute offers a quicker route to deployment, subject to local agreements. The aim of securing distributed compute – and its associated benefits around AI utilisation, inference capabilities and heat reuse – will be a major focus moving forward. Priority tasks are understanding what is limiting deployment of distributed compute and what programme of activity can be developed to overcome this.

Actions and Outcomes

Actions

By 2027, the Scottish Government will:

- Work with UK Government and ecosystem partners to ensure effective delivery of the Lanarkshire AI Growth Zone and support the identification of further investment.
- Work with partners to explore the development of a dedicated AI Accelerator linked to the Lanarkshire AI Growth Zone.
- Work with potential investors to progress the pipeline of data centre investment opportunities through the promotion of Scotland's strengths in renewables, digital connectivity and water infrastructure.
- Work with partners to identify and mobilise heat offtake opportunities on data centre sites, correlating sites to planned district heat networks.
- Publish guidance on what factors are prevalent in a 'green' data centre.

Outcomes

By 2031, we will see investment in Scotland's digital, energy and water infrastructure maximising benefits for the wider good. This means:

Globally competitive investment landscape – Scotland is recognised as a leader in sustainable data centre development based on renewable energy supply, water-resilient design and sustainable water stewardship. Heat reuse, distributed compute and frontier energy solutions are integrated into new developments.	**Benefits realised** – Data centre developments deliver tangible benefits for local communities. Compute capacity supports AI development, attracting talent and enabling innovation.
Resilient infrastructure – Sovereign data centre capabilities support critical services and enhance national resilience in Scotland and across the UK.	**Connectivity** – Green data centres are able to secure timely access to renewable power and the grid infrastructure.

Case Study – Community Led Renewable Energy Transforms the Isle of Eigg

Isle of Eigg Heritage Trust & Eigg Electric

The Isle of Eigg in Scotland is the first island in the world to generate all its electricity from renewable energy. Isle of Eigg Heritage Trust manages the island for the community while Eigg Electric runs a renewable microgrid supplying 24-hour electricity.

Formerly, Eigg lacked mains electricity, faced limited infrastructure, and relied on noisy, costly diesel generators operating only a few hours a day. The island's geographical location also meant connecting to the mainland power network was not viable.

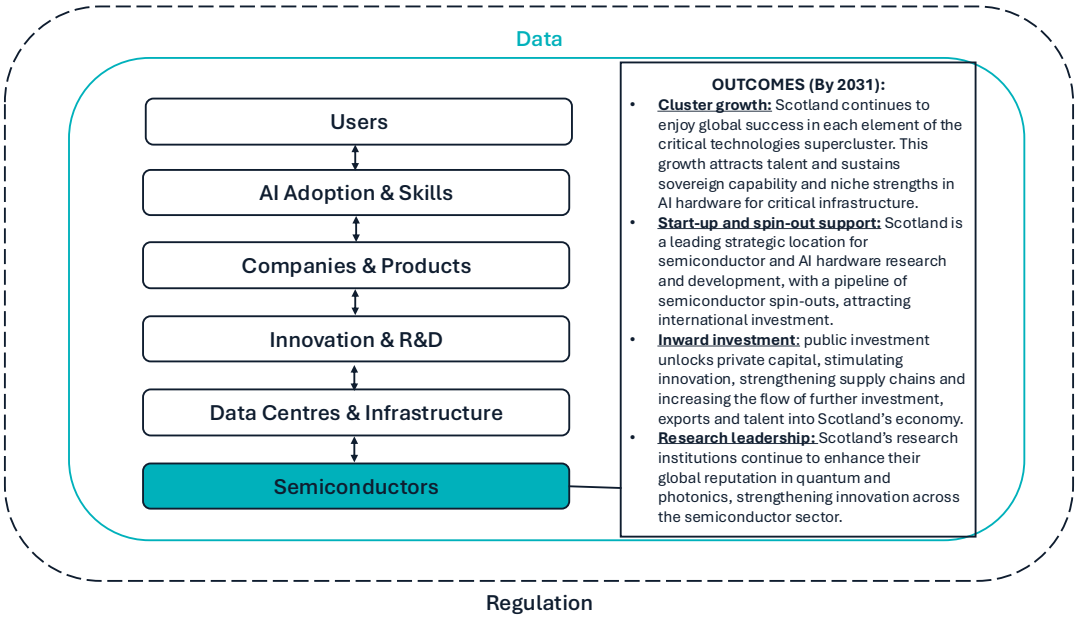
To address this, the community designed an off grid renewable system combining hydro, wind and solar power. The system delivers 90–95% renewable electricity through a 24-hour microgrid supported by battery storage. Eigg's renewable system now includes a 110 kW hydro scheme, 24 kW of wind generation and an expanding solar array that has helped boost total capacity to 280 kW. The island has upgraded transformers and distribution infrastructure to support new homes, electric vehicles and continued growth. The Scottish Government has committed £859,648 through the CARES programme to strengthen community energy on Eigg, including a recent £185,662 award from the 2025/26 Community Energy Generation Growth Fund to further advance the island's decarbonisation plans.

Eigg became the world's first community to run entirely on renewable electricity in 2008, replacing diesel with reliable, 24-hour power that has lowered costs for residents. Since the community buyout, the population has grown by 75%, supported by better infrastructure, new businesses and sustainable tourism, and the island has earned major awards including the £300,000 NESTA Big Green Challenge and the Ashden UK Gold Award. With new investment set to double generation capacity within three years, Eigg is now on track to achieve zero-emission heating, cooking and transport by 2030.

Layer 6

Semiconductors

The strategic importance of semiconductors and related microprocessor technologies in the AI era cannot be overstated. As AI models grow exponentially in size and complexity, the demand for specialised processing hardware, energy-efficient architectures, high-throughput accelerators, and photonics-enabled connectivity is surging.



For Scotland, supporting and accelerating existing capabilities is a prerequisite for national competitiveness in AI, and an opportunity to capitalise on existing niche capability. AI adoption across the economy depends on access to advanced compute technologies, while global investors increasingly assess the strength of a country's semiconductor ecosystem when making decisions.

Other countries such as Finland, Denmark, New Zealand and Japan are already embedding semiconductor and photonics capability into national AI strategies and investing in regional fabrication and research hubs. Scotland can do likewise but differentiate globally by leading in low-energy, semiconductor-enabled data centre and edge-AI technologies.

Scotland's Critical Technologies supercluster coordinates action across the four mutually supportive sub-sectors of photonics, quantum, semiconductors and connectivity and sensing. The semiconductor cluster is diverse and growing rapidly, with over 50 companies across the full supply-chain, multiple open-access industrial facilities and a turnover of over £1.2 billion annually[43]. Specialisms include image sensors, AI architectures, advanced packaging for space and photonics and automotive applications.

Scotland has substantial opportunities in semiconductor architectures, power electronics, high-speed connectivity between processors and quantum computing hardware. Work in these areas involves the Edinburgh University Scottish Microelectronics Centre[44], Glasgow University, the James Watt Nanofabrication Centre[45], Strathclyde University, the National Advanced Semiconductor Packaging and Integration Centre (NASPIC)[46], the Fraunhofer Centre for Applied Photonics[47] and companies like Sivers Photonics[48] and Vector Photonics[49].

Focusing on growing markets and niche strengths in photonics, semiconductor chip design, power electronics and advanced packaging, Scotland can deliver sovereign capability in key parts of the supply-chain. This will enable Scotland to compete on focused innovation for selected applications. By leaning into these capabilities, we can target higher-value market segments and higher value-add manufacturing, strengthening the domestic ecosystem to reach global markets.

Actions and Outcomes

Actions

By 2027, the Scottish Government will:

- Engage Scotland's CTSAB (Critical Technologies Supercluster Advisory Board) to identify strengths and coordinate research and development.
- Enable the growth of high potential AI hardware spin-outs by working with the CTSAB to ensure that support, infrastructure and investment priorities are aligned with Scotland's Deeptech strengths.
- Ensure that future workforce planning reflects the needs of Scotland's advanced technology industries by working with academia and public bodies to align the response to skills demand.

Outcomes

By 2031, we will see strong and growing technology clusters with capacity to support data centres. This means:

Inward investment – Public investment unlocks private capital, stimulating innovation, driving cluster productivity, strengthening supply chains and increasing the flow of further investment, exports and talent into Scotland's economy.	**Start-up and spin-out support** – Scotland is a leading strategic location for semiconductor and AI hardware research and development, prototyping and production, with a pipeline of semiconductor spin-outs.
Cluster growth – Scotland continues to enjoy global success in each element of the critical technologies supercluster. This growth attracts talent and sustains sovereign capability and niche strengths in AI hardware for critical infrastructure.	**Research leadership** - Scotland's research institutions continue to enhance their global reputation in quantum and photonics, strengthening the scientific base that supports innovation across the semiconductor sector.

Case Study – Semiconductor Innovation in Scotland

Quantcore

Quantcore designs and manufactures advanced, superconducting components in Scotland to support both quantum computing and emerging low-energy classical computing systems.

Advanced computing systems can require extremely precise hardware made from superconducting materials. These materials can operate with very low energy loss, making them attractive not only for quantum computing but also for future classical processors designed to handle AI workloads more efficiently. However, manufacturing such components is complex and usually completely dependent on overseas suppliers, which can slow innovation and increase costs.

To address this, Quantcore established a specialist fabrication capability in Glasgow to design and produce superconducting circuits, components and sensors. They supply both standard and custom superconducting components, enabling universities, start-ups and established companies to prototype and test new ideas in quantum systems and energy efficient AI hardware.

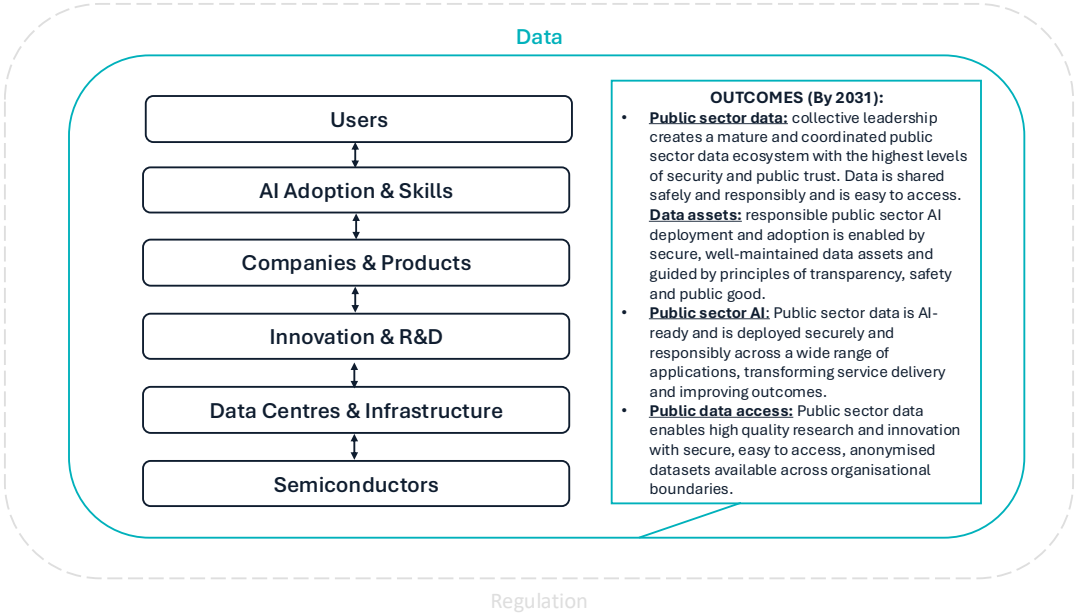
By building this capability within Scotland, they reduce reliance on international supply chains and shorten development cycles. Their work provides locally manufactured superconducting devices for UK researchers and industry, supports the development of quantum processors and next generation low power computing systems and enables exploration of more energy efficient AI hardware architectures.

Quantcore's work strengthens Scotland's growing advanced computing and semiconductor ecosystem, helping build a sovereign supply chain for quantum technologies.

Layer 7

Data

Scotland has strong foundations for the effective use of public sector data, with clear national strategies, trusted governance frameworks and established delivery mechanisms. However despite this progress, the full value of public data as a national asset is not yet being realised[50].



Data remains fragmented across systems and organisations. Access processes can be slow and complex, and infrastructure and workforce capability have not consistently kept pace with the scale, speed and interoperability required to support modern digital services and AI-driven innovation.

As other nations accelerate investment and streamline secure access, there is a growing risk that Scotland falls behind in research competitiveness, private investment and the development of data-enabled products and services.

The strategic direction set out by the Scottish Government through the Digital Strategy for Scotland: Sustainable Digital Public Services Delivery Plan[51] recognises public sector data as a central driver of more targeted, personalised and preventative services and highlights the need for improved data sharing, stronger information governance and greater data literacy.

Delivering this vision requires coordinated action to modernise secure data infrastructure, simplify and standardise access and enable safe reuse of data at pace and scale. Strengthening these foundations will unlock insights, support collaboration and create the conditions for trustworthy AI adoption, while ensuring that economic and social value generated from public data is returned to public services and the people of Scotland[52].

Actions and Outcomes

Actions

By 2027, the Scottish Government will:

- Launch a data matchmaking pilot enabling organisations to access trusted public-sector datasets, to support data-driven innovation.
- Work with public sector organisations to identify the barriers and enablers affecting access to public sector data for AI, ensuring that programmes address shared challenges and support responsible use.
- Launch an innovation programme that applies commercial and research expertise in AI to the delivery of public services.
- Deliver a more coordinated public sector approach to data through a joint leadership group with Local Government.

Outcomes

By 2031, we will see collective leadership of data-sharing enabling safe, accessible use of data. This means:

Public sector data – Collective leadership creates a mature and coordinated public sector data ecosystem with the highest levels of security and public trust. Data is shared safely and responsibly and is easy to access when needed.	**Data assets** – Responsible public sector AI deployment and adoption is enabled by secure, well-maintained data assets and guided by principles of transparency, safety and public good.
Public sector AI – Public sector data is AI-ready and is deployed securely and responsibly across a wide range of applications, transforming service delivery and improving outcomes.	**Public data access** – Public sector data enables high quality research and innovation with secure, easy to access, anonymised datasets available across organisational boundaries.'

Case Study – Trustworthy and Safe AI Lifecycle Framework

National Physical Laboratory (NPL)

NPL, the UK's National Metrology Institute, is improving the safety and trustworthiness of AI in Scotland through its Data Science & AI Hub at the University of Strathclyde. The Hub supports work across a strategic partnership involving NPL, Strathclyde and the University of Surrey, developing frameworks that help ensure AI systems are measurably safe, reliable and trustworthy.

AI introduces unique challenges because it relies on data, learns from experience and changes over time. Traditional methods for software testing and assurance cannot fully address these evolving risks. NPL identified the need for a structured way to measure trust and safety in AI systems, giving organisations clearer insight into how models behave and where risks may emerge.

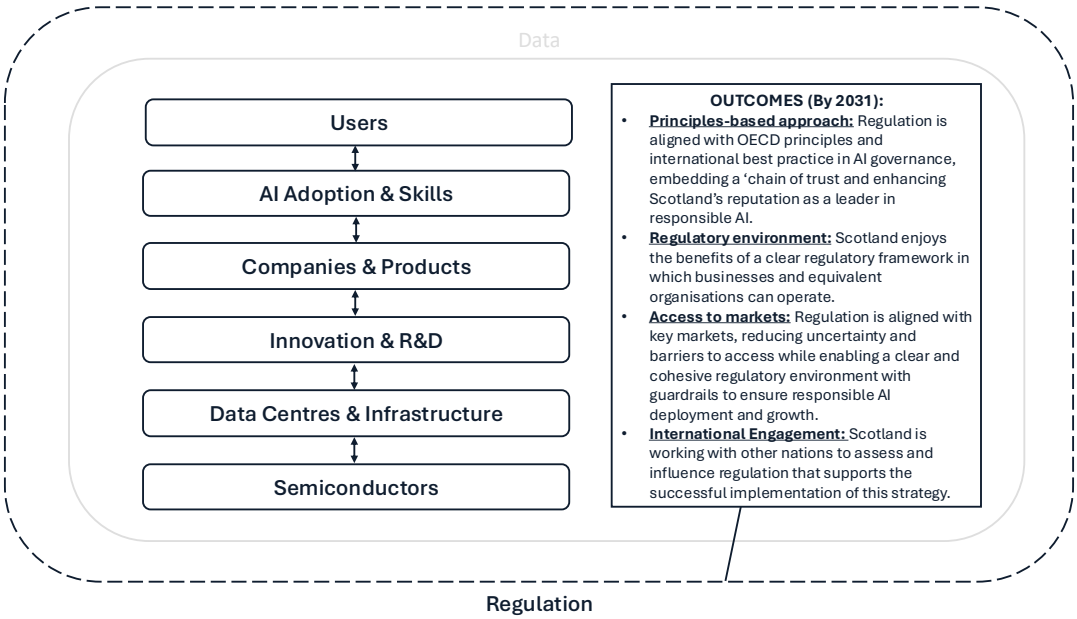
In response, NPL created a practical framework that adapts software development and testing processes to account for AI specific risks. It sets out clear steps for documenting, managing and mitigating risk, supported by trustworthiness metrics that can be measured throughout development. The approach has already been applied in areas including medical technologies, autonomous systems and manufacturing, and has been shared globally, influencing international best practice for trustworthy AI.

This work provides a repeatable, evidence-based method for assessing and assuring the trust and safety of AI systems. It helps developers and decisionmakers act on measurable insights, supports government and industry as they move towards emerging standards, and contributes to safer, more confident adoption of AI across sectors such as healthcare, transport and high value manufacturing.

Layer 8

Regulation

People in Scotland require certainty in respect of their rights to privacy, the proper safeguarding of personal data and intellectual property and their well-being. Businesses in Scotland (the 'Companies and Products' layer) require clarity in relation to the regulatory environment in which they do business.



Effective regulation can provide certainty at every level of the AI stack and help build business, investor and public confidence in AI. This requires collaboration and joint efforts by the Scottish and UK Governments, ensuring alignment between the Scottish and UK regulatory environments.

This strategy reaffirms the commitment in Scotland's first AI Strategy[53] that delivery would be guided by the OECD's principles, creating a 'chain of trust' and enhancing Scotland's reputation as an ethical place to do business.

This means that this Strategy, and the regulatory framework which has either been (or which is in the process of being) adopted by expert regulators around the UK and in Scotland are aligned on matters of principle. Specific reference to the OECD principles in UK legislation, regulations or guidance would place this alignment on a more certain footing.

Sectoral regulation and 'sandboxes'

In specific sectors where Scotland may have greater latitude around regulation, our approach will be driven by a determination to ensure that users are safeguarded from any potential negative impacts or risks arising from the use of AI in relation to individuals and their personal data. This can be tested through the use of 'sandboxes'[54], controlled environments in which changes to regulations can be tested. The Financial Conduct Authority (FCA) currently offers a regulatory sandbox and the UK Government has built on this example to develop proposals for a cross-economy 'AI Growth Lab'[55]. We will work with these and other examples, innovating where appropriate to ensure that our businesses are well placed to understand regulatory impacts and opportunities.

The EU AI Act goes further than the scope and aims of the UK Government's interventions in relation to AI regulation with statutory obligations imposed on providers of general-purpose AI models and the classification of certain AI models as presenting 'systemic risk' (Article 51).

In any crossover or interaction between a non-statutory and a statutory regulatory regime, the heavier burden of compliance falls on actors within the non-statutory framework, to prove rather than state compliance and provide such evidence as may be required, under whatever terms the statutory authority stipulates.

For these reasons (as well as the Scottish Government's established position on alignment with European institutions and markets), the Scottish Government intends to advocate for UK-level regulation of AI which addresses (so far as is practicable) the need for Scottish ventures and businesses to be able to access European markets, investment and opportunities.

Actions and Outcomes

Actions

By 2027, the Scottish Government will:

- Advocate on behalf of the AI sector and users of AI in Scotland, for a UK Government approach to AI regulation which places the OECD's five values-based principles for the responsible stewardship of trustworthy AI on a statutory footing, and which also enables alignment with it.
- Review and report on the scope and requirement to regulate to put in place additional appropriate sector-specific safeguards in relation to potential negative impacts or risks arising from the use of AI, where these impact on devolved areas.
- As part of the review, taking the opportunity to demonstrate closer alignment with the EU AI Act.
- Publish a report on the scope and requirement for AI regulation in Scotland.

Outcomes

By 2031, we will see alignment with OECD principles and best practice in responsible AI governance. This means:

Principles-based approach – Regulation is aligned with OECD principles and international best practice in AI governance, embedding a 'chain of trust' and enhancing Scotland's reputation as a leader in responsible AI.	**Regulatory environment** – Scotland enjoys the benefits of a clear regulatory framework in which businesses and equivalent organisations can operate.
Access to markets – Regulation is aligned with key markets, reducing uncertainty and barriers to access while enabling a clear and cohesive regulatory environment with guardrails to ensure responsible AI deployment and growth.	**International Engagement** – Scotland is working with other nations to assess and influence regulation that supports the successful implementation of this strategy.

Risks and Mitigations

As we deliver the actions in this Strategy, we will continue to deepen our understanding of the risks that AI growth may create. Not all risks are known at this stage, and the nature of these risks will evolve as technology develops and adoption increases.

The Scottish Government will work closely with its stakeholders, including trade unions, community groups, industry, academia and public sector partners, to explore emerging impacts and respond appropriately. The table below sets out the key risks identified so far and the measures in this Strategy that begin to address them.

Impact assessments will be undertaken as policies and implementation plans are developed to identify and address potential effects on equality, human rights, privacy, environmental sustainability and other relevant considerations. Conducted at an early stage, these assessments will inform decision-making, support compliance with statutory duties and ensure that AI adoption is responsible, transparent and aligned with Scotland's values and legal obligations.

Risks	Mitigating outcomes
Privacy & Data Protection AI systems may misuse personal data or operate without clear safeguards or accountability.	Alignment with Scotland's Cyber Resilience Framework to reduce vulnerabilities across sectors and ensure AI is deployed responsibly and accountably.
Workforce Impacts AI may change roles, increase skills demands and create uncertainty.	Quality jobs and future capability are supported through accessible reskilling. Fair Work principles are embedded in how changes are implemented.
Environmental impacts AI increases energy use, water consumption and hardware needs, creating broader environmental pressures.	Energy efficiency in data centres is improved through renewable powered compute and environmental considerations guide AI infrastructure planning.
Renewable Energy Capacity AI infrastructure increases demand for electricity, heat and water, putting pressure on renewable systems.	Renewable-powered compute, water-secure data centre development and energy-aware planning reduce pressure on energy systems and support sustainable infrastructure growth.
Gender Inequality AI systems can reproduce or amplify gender-based inequalities present in data or design.	Impacts are identified and mitigated, with equality considerations embedded in workforce planning and AI governance.
Sovereign Infrastructure Insufficient domestic compute or data infrastructure may reduce competitiveness and limit innovation.	Domestic infrastructure capability is strengthened, and sustainable data centre development supports long-term competitiveness and innovation.
Sector Specific Impacts AI disrupts business models, IP ownership and skills demand.	Sectoral impacts are identified and managed through industry engagement and policy alignment, ensuring AI adoption supports rather than undermines sectors.

Glossary of Terms

AI Ecosystem – The interconnected network of technologies, data, skills, organisations, and regulations that enable the development, deployment, and responsible use of AI. It includes developers, users, infrastructure, policies, and supporting industries.

AI Growth Zone (AIGZ) – A designated area or policy framework designed to accelerate AI-related innovation, investment, and infrastructure deployment. AIGZs typically offer tailored regulatory, connectivity, or planning advantages to support rapid scaling.

Clusters – Groups of related industries or organisations located within a region that benefit from shared skills, supply chains, and innovation networks. Clusters often accelerate investment, competitiveness, and growth.

Commercialisation – Commercialisation refers to the act of turning an idea into commercial products or services.

Compute – The processing power computers need to run AI systems and process large amounts of data. It is essentially the capacity of computers to perform complex calculations quickly.

Data sovereignty – The principle that data is subject to the laws and governance structures of the nation where it is collected, stored, or processed. It ensures organisations manage data in compliance with local legal and ethical requirements.

Distributed Compute – A computing model that spreads processing tasks across multiple geographically dispersed devices or data centres. This improves resilience, reduces delay, and enables more scalable AI workloads.

Green Compute – Energy-efficient computing practices and infrastructure that minimise environmental impact. This includes using renewable energy, optimising hardware and reducing carbon emissions associated with digital technologies.

Heat reuse – The practice of capturing and repurposing waste heat generated by data centres or computing systems. Reused heat can support district heating, industrial processes, or nearby buildings, improving energy efficiency.

Inference – The process by which an AI model applies what it has learned to new data in order to make predictions, classifications, or decisions. It typically occurs after the model has been trained.

Innovation – Innovation is the process of creating something new or improving upon something that exists already. It can be a new product or service or process that increases efficiency, improve quality, or create new value for customers. It can happen in a variety of forms, from incremental changes to radical breakthroughs and can be driven by advancements in technology and changes in regulation/policies.

Living Labs environments - Are open innovation ecosystems where research occurs in real-world settings. They use co-creation to prioritise citizens and end-users, ensuring solutions are innovative and practically relevant

Machine Learning – One particular form of AI, which gives computers the ability to learn and improve at a task from experience, without being explicitly programmed for that task. When provided with sufficient data, a machine learning algorithm can learn to make predictions or solve problems, such as identifying objects in pictures or winning at particular games, for example.

R&D – Research and development (R&D) defines the action that organisations undertake to innovate. This is usually the first step an organisation will take in the innovation process.

Sandboxes – A secure, isolated environment where software, code or applications can be run and tested without affecting the main system or network.

Scale-ups – A scale-up is a business that has moved beyond the start-up stage and is growing quickly, usually in revenue, customers, or staff. It is a company that has proven its product works and is now expanding at pace.

Scaling – The process through which a business grows and increases revenue and output without a matching increase in costs. It refers to expanding efficiently so the business can handle more customers, sales, or activity without losing quality or becoming overwhelmed.

Semiconductor – A semiconductor is a material that can conduct electricity under certain conditions, making it essential for electronic devices.

Spin-Outs – A spin-out is when an already existing business splits up the parts within itself to create a new company or area focused on a specific line of work.

Start-Ups – A start-up refers to a completely new business that wants to bring new ideas to a market and create innovative products and services.

Unicorn-Scale – Describes a company, product, or project valued at or capable of reaching a valuation of over $1 billion. Often used to signal high growth potential or exceptional market impact.

Value Chain – The full sequence of activities required to create and deliver a product or service, from research and development through to production, distribution, and customer support. It helps organisations understand where value is added.

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- Steven Drost, Executive Vice Chairman, CodeBase
- Kori Higgens, Operations Lead, Musubi Lab
- Georgios Leontidis, Professor of Machine Learning, University of Aberdeen
- Ewa Luger, Professor of Human Data Interaction, University of Edinburgh
- Stevie Revill, CEO and Co-founder, Urban Tide

Endnotes

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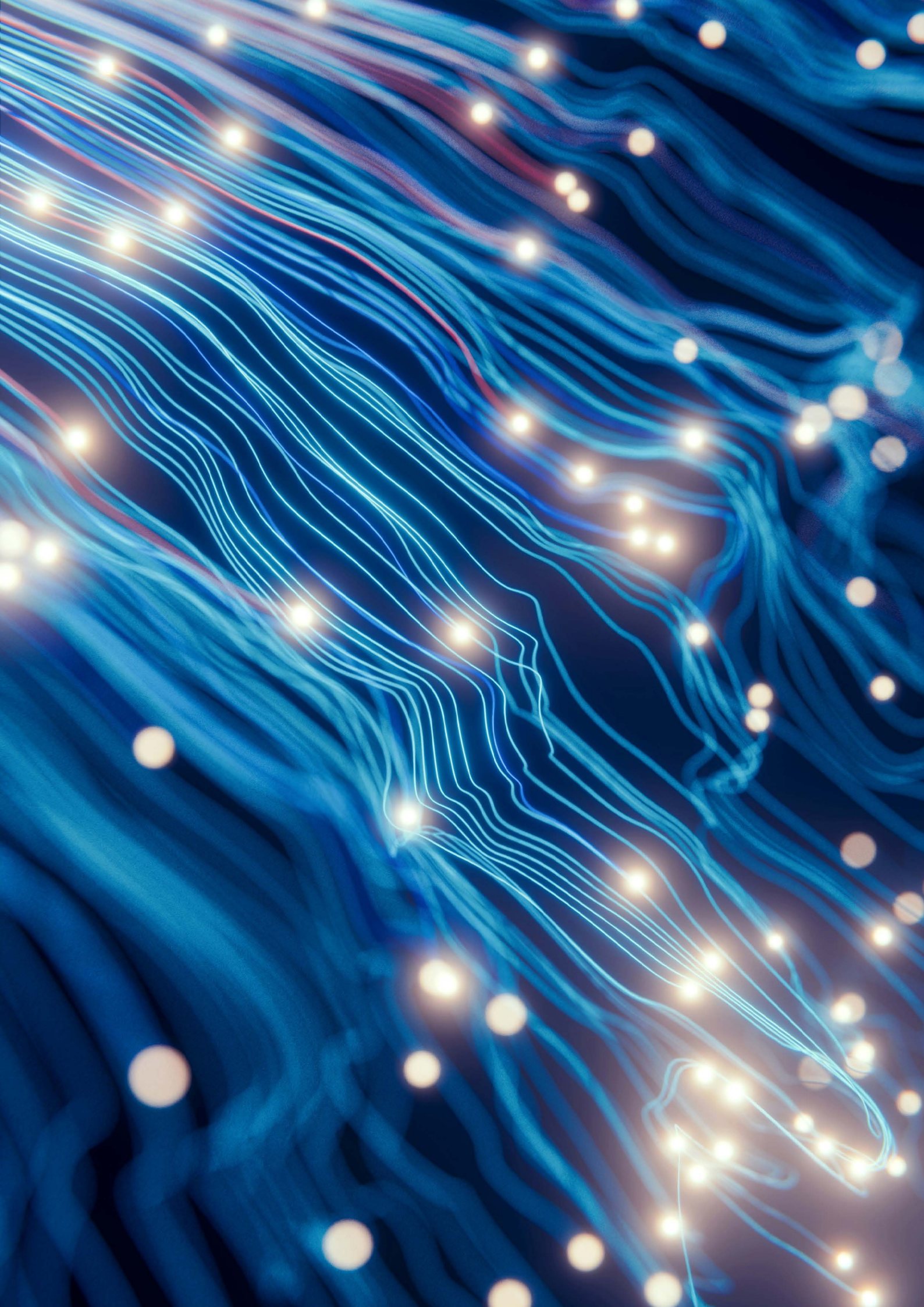

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