



Artificial Intelligence

The UK's offer

Definition

- Artificial Intelligence (AI) is simply intelligence exhibited by machines, and as such is a broad and diverse field encompassing areas such as machine learning, deep learning and natural language processing. At the heart of AI is the ability of a machine to mimic the cognitive functions that humans associate with other human minds, such as learning and problem solving.

Key fact

- The Artificial intelligence global market size is expected to reach \$19.5 billion by 2022, growing at a Compound Annual Growth Rate (CAGR) of 45.4% from 2016 to 2022.¹

Why the UK

Market Opportunity

- Accenture has estimated AI could add in the £654 billion (\$814 billion) to the UK economy by 2035².
- UK AI companies have applied technology solutions in a broad range of verticals: retail (e.g. Suzu), digital marketing (e.g. Adbrain), financial services (e.g. Aire Labs, Cytora), healthcare (e.g. Babylon Health), manufacturing (e.g. Genfour), travel (e.g. Skyscanner) & cyber security (e.g. Darktrace). CognicityX has a community of 7000 AI experts in the UK³ and the London Machine Learning & AI meet-ups have a combined membership of more than 5000⁴.

Ecosystem

- The UK already has a competitive advantage in AI, with some of the world's most innovative AI companies based here and a rich ecosystem of investors, employers, developers and clients. It is a fast-growing area for research and commercial investment, including by major global digital companies.
- The UK is home to some of the world's strongest university research groups in AI such as Cambridge, Edinburgh, Oxford and UCL and lie at the heart of the key UK AI clusters, each with experience of nurturing successful AI start-ups. (e.g. Cambridge – SwiftKey; Oxford – Deep Blue Labs; Edinburgh – Skyscanner).

Talent and skills

- With a strong AI research base, the UK is supporting the growth of the next generation of AI scientists and engineers, through vocational programmes such as apprenticeships as well as at universities. In 2017, for example, the UK Government announced £17 million in the development of AI technologies in universities.⁵

¹ <https://www.alliedmarketresearch.com/artificial-intelligence-market>

² <https://newsroom.accenture.com/news/artificial-intelligence-poised-to-double-annual-economic-growth-rate-in-12-developed-economies-and-boost-labor-productivity-by-up-to-40-percent-by-2035-according-to-new-research-by-accenture.htm>

³ <http://cognitionx.com>

⁴ <https://www.meetup.com/Artificial-Intelligence-Meetup-London>; <https://www.meetup.com/London-Machine-Learning-Meetup/members>

⁵ <https://www.gov.uk/government/speeches/artificial-intelligence-a-collaboration>

Innovation and collaboration

- The UK is one of the world's most prolific sources of successful AI start-up companies; there are more than 220 AI start-ups & SMEs in the UK⁶.
- The UK has a huge range of incubators and accelerators to support tech start-ups and entrepreneurs; some of these, such as Entrepreneur First (EF), are focusing strongly on AI.

Supportive environment

- AI companies are able to access technology funding through agencies like Innovate UK and tax breaks such as R&D tax credits, in a business-friendly environment.

Key stakeholders

- Innovate UK – the UK innovation agency's emerging and enabling technologies initiative has a specific focus on supporting machine learning and AI for digital applications.⁷
- CognitionX – This community market intelligence platform has 7000+ members and 40 events.⁸
- Digital Catapult – Runs events and workshops to improve competitiveness and productivity.⁹
- Alan Turing Institute (ATI) – The National Institute for data science, a partnership of five leading universities (Cambridge, Edinburgh, Oxford, UCL and Warwick).¹⁰
- Society for the Study of Artificial Intelligence and Simulation of Behaviour (AISB) – The largest AI Society in the UK, with membership from academia and industry.¹¹
- Cambridge Wireless (CW) – A networking group for companies in the mobile, wireless and IoT space runs regular events on techs including a conference on Artificial Intelligence & Mobility.¹²
- TechUK – This UK tech trade association runs programmes, hosts events / meetings and publishes articles on a range of technology-related areas, including AI.¹³

Policy highlights

- The government's Industrial Strategy set out four Grand Challenges where the UK must act now to put itself at the forefront of the industries of the future. AI and Big Data is one of these.¹⁴
- The AI and Big Data Grand Challenge is supported by the AI Sector Deal. Published in April 2018, more than 50 leading technology companies and organisations have contributed to its development. Worth almost £1 billion, it includes almost £300 million of private sector investment into the UK's AI sector.
- The AI Sector Deal includes training for future generations of AI workers and researchers, including 200 places for an industry-funded Masters programme; the establishment of a prestigious Turing Fellowship to keep and foster the best researchers; and 1,000 government-funded AI PhDs by 2025. It also sets out commitments to develop the broader ecosystem that will drive trade and attract AI investment to the UK, including through participating in trade missions, AI exhibitions and international conferences.¹⁵

⁶ <https://medium.com/mmc-writes/artificial-intelligence-in-the-uk-landscape-and-learnings-from-226-startups-70b9551f3e4c#.n8898das9>

⁷ <https://www.gov.uk/government/publications/funding-competition-emerging-enabling-technologies-round-2/competition-brief-emerging-enabling-technologies-round-2>

⁸ <http://cognitionx.com>

⁹ <https://www.digitalcatapultcentre.org.uk>

¹⁰ <https://turing.ac.uk>

¹¹ <http://www.aisb.org.uk>

¹² <http://www.cambridgewireless.co.uk>

¹³ <http://www.techuk.org/focus/programmes/cloud-data-analytics-and-ai>

¹⁴ <https://www.gov.uk/government/publications/industrial-strategy-building-a-britain-fit-for-the-future>

¹⁵ <https://www.gov.uk/government/publications/artificial-intelligence-sector-deal>