

National strategies on Artificial Intelligence A European perspective in 2019

Country report – United Kingdom



In April 2018, the government of the United Kingdom (UK) published their national AI strategy entitled [AI Sector Deal](#) (United Kingdom, 2018). This strategy has been updated after one year in May 2019. A dedicated [web portal](#) developed by the Ministerial Department for Business, Energy & Industrial Strategy and the Ministerial Department of Digital, Culture, Media & Sport presents an update of the progress. These ministries have developed an [Office for Artificial Intelligence](#) in charge of coordinating the implementation efforts set out in the AI Sector Deal.

The objective of the AI Sector Deal is to prepare the economy and society for the transformations that AI brings along. It provides the foundations to foster UK's global position as a leader in developing AI technologies. To this purposes, the strategy is focusing on improving UK's position in the following five key areas:

- Ideas - the world's most innovative economy;
- People - good jobs and greater earning power for all;
- Infrastructure - a major upgrade to the UK's infrastructure;
- Business environment - the best place to start and grow a business;
- Places - prosperous communities across the UK.

The government has earmarked a budget of £0.95 billion for the implementation of the AI Sector Deal, which is supplemented with £1.7 billion stemming from the Industrial Strategy Challenge Fund.

1 Human capital

In terms of **formal education and training** towards increasing AI-related skills and competences of future generations in the UK, the government is proposing the following policy initiatives:

- The creation of 16 [New Centres for Doctoral Training](#) at universities across the country, delivering 1,000 new PhDs over the next 5 years;
- Industry-funding for [new AI Masters places](#). In addition, 2,500 places have been created for AI and data conversion courses starting in 2020;
- Funding to encourage education in mathematics, digital and technical fields to foster [skills in STEM-related subjects](#) (£406 million);
- The creation of a pilot for a [Teacher Development Premium](#) ((£42 million). In this pilot budget will be allocated for high-quality professional development for teachers in less developed areas.

The AI Sector Deal strategy has also a range of policy initiatives **towards lifelong learning and reskilling/upskilling opportunities** in order to foster the workforce's knowledge and skills in AI:

- New prestigious [AI Turing Fellowships](#) to attract and retain the top AI researchers;
- The creation of a new [National Retraining Scheme](#) providing reskilling opportunities, with a dedicated investment budget for digital training.

2 From the lab to the market

As stated in UK's AI strategy, the long-term objective for research support in general is to raise the total R&D investment to 2.4% of the GDP by 2027. To foster research in the short run, UK's government recently increased the rate of R&D expenditure credit to 12 per cent. The government actions to **support research in AI** include:

- A wide range of funding instruments from the Engineering and Physical Science Research Council ([EPSRC](#)):
 - Funding for research in "data science and AI" (£300 million), which complements the new centres for doctoral training;
 - Funding for 179 AI grants in [Artificial Intelligence Technologies Research Area](#) (£157 million);
 - Funding for the [Alan Turing Institute](#) (£42 million in the period 2015-2020), complemented with funding from private partners (£30 million);
- The AI Sector Deal strategy of May 2019 announced the current funding of three research projects on analysing consumer attitudes in AI and on exploring the use of AI in the insurance and law sector;
- New AI programmes are also announced on engineering, urban planning and healthcare (£79 million);
- UK's government is providing £50 million funding for the launch of a [Centre for Industrial Digitisation, Robotics and Automation](#) to support industry in Northern Ireland;
- UK's government is also funding the [Early Diagnosis Mission](#), a programme aiming at developing early diagnosis and treatment of chronic disease using AI technologies.

In addition to policies boosting research activities in AI, UK's government outlines a wide range of policies towards increasing **innovation in the public and private sector**, including funding programmes and instruments to foster business development and efficiency of public services:

- The government's [Industrial Strategy Challenge Fund](#) provides funding to conduct leading research and find innovative solutions to tackle important societal and industrial challenges. A budget of £725 million has been allocated for the period 2018-2019 to tackle grand challenges on artificial intelligence, clean growth, the future of mobility and meeting the needs of ageing society:
 - A part of the Industrial Strategy Challenge Fund is devoted to the fields of [robotics and AI](#) in extreme environments programme (£93 million);
 - The development of AI applications in the [service sector](#) is funded by the Industrial Strategy Challenge Fund with an investment of £20 million. This will include a network of Innovation Research Centres and opportunities for collaborative R&D to develop new applications of AI and data-driven technologies in service sectors;
 - The launch of [centres of excellence in medical imaging and digital pathology](#) using advanced artificial intelligence technologies.
- More efficient public services through innovative solutions amongst others in AI are stimulated by the [GovTech Fund](#) (£20 million). This fund supports technology businesses in developing innovations for the government;
- An [Investment Fund](#) of £2.5 billion has been launched by the British Business Bank to foster high-growth potential firms. This fund will help firms to scale up and to fully reap the benefits of their innovative business models;
- Other funding instruments to support high-growth businesses such as the Enterprise Investment Scheme ([EIS](#)) and Venture Capital Trusts (VCTs), are reformed to allocate £7 billion of new investment into those firms over the next 10 years.

With respect to the public sector, the UK Government has published a guide on how to build and use [artificial intelligence in the public sector](#). These guidelines will be updated, as public sector use of AI evolves, to incorporate new learnings and best practices.

3 Networking

UK's government is also taking policy actions for **networking and partnerships in AI**. Following policy initiatives aim at bringing together leading industry experts, innovation support professionals, and recognised scientist to improve multidisciplinary research and innovation:

- Establishment of the [AI council](#) to strengthen networking opportunities between academia, industry, and the public sector by sharing expertise and fostering dialogue among them;
- The creation of data-driven innovation hubs such as the [Bayes Centre](#) in Edinburgh, a centre for data science and AI (funded for £30 million by the government).

Policies boosting the **international attractiveness of UK in the field of AI** for both foreign talented researchers and leading industries include among others:

- Increasing the amount of [Exceptional Talent](#) (Tier 1) visas (up to 2,000 per year) to attract the best and brightest talent in a wide range of scientific fields, including science, technology and AI specialists. Dialogues are ongoing with [Tech Nation](#) to outline best ways to promote this policy;
- The [immigration rules](#) for leading scientists and researchers with an Exceptional Talent visa, offering the possibility to apply for an accelerated settlement after 3 years;
- The red tape to hire international researchers has been significantly reduced in order to facilitate recruitment of highly-skilled candidates;

4 Regulation

To build trust for the usage, adoption and development of AI across society, UK's government is putting in place governance regimes for data-driven AI. This includes among others the development of ethical guidelines for a sustainable, transparent, replicable use of AI with clear definitions on responsibilities, liabilities, and data protection issues. To this purpose, UK's government has created the following centre:

- A [Centre for Data Ethics and Innovation](#) has been established to provide recommendations for a sustainable, safe, and ethical use of AI;

In collaboration with the Government Digital Service, the Office for Artificial Intelligence has recently published a [guidance on AI ethics and safety](#). This guidance is part of a wider collection on [Using Artificial Intelligence in the public sector](#).

In terms of legislation, UK's AI Sector Deal mentions the need to provide legal certainty about data sharing, data usage and data protection. Reforms to the **legal framework** are taken up by the following initiative (and also in data trust frameworks as presented in the infrastructure section below):

- Strengthening the [Data Protection Act](#) to define the regulation for the collection, storage and usage of personal data and objections in case of misuse of data;

5 Infrastructure

Policy initiatives for the development of a trustworthy and qualitative **data infrastructure** include among others:

- Three pilot projects are currently ongoing to explore and define a framework for safe, secure and equitable data transfer. These frameworks – called [data trusts](#) – have been set up in collaboration with the Open Data Institute and Innovate UK. They target three pilot projects on tackling illegal wildlife trade, reducing food waste, and improving public services in south-east London.
- Developing a data infrastructure to make available high-quality public data in an open, reusable and accessible format for machine learning. This calls for initial steps towards an open data culture, such as the [Open Data Institute](#), the [Open Data Research Forum](#) and the [Open Access](#) policy of UK Research and Innovation;
- The establishment of the [Geospatial Commission](#) to improve access to geospatial data to a wider public, including businesses innovating in AI technologies.

Support to the development of **digital and telecommunication infrastructure** include the following initiatives:

- The [National Productivity Investment Fund](#) has been increased to £31 billion in 2017 in order to support among others the development of a digital infrastructure;
- In 2018 the UK government has set up a [Charging Infrastructure Investment Fund](#) to support electric vehicles, complemented with a [plug-in grant](#) for low-emission cars;
- UK's strategy mentions a public investment of £1 billion of public investment to boost the digital infrastructure, which includes £176 million for 5G and £200 million for full-fibre networks;
- A new [Transforming Cities fund](#) to improve intra-city transport and connections across city-regions (£1.7 billion).

6 Update

A dedicated [Office for Artificial Intelligence](#) will be in charge of coordinating the implementation efforts set out in UK's national AI strategy and will report annually on the [AI Sector Deal website](#) about the progress made.

Reference

United Kingdom (2018). Industrial Strategy: Artificial Intelligence Sector Deal. HM Government. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/702810/180425_BEIS_AI_Sector_Deal_4.pdf

Background information

This country report has been prepared in the context of [AI Watch](#) and the [OECD AI Policy Observatory](#).

AI Watch is the European Commission knowledge service to monitor the development, uptake and impact of Artificial Intelligence (AI) for Europe, launched in December 2018.

The OECD AI Policy Observatory (OECD.AI) is an inclusive hub for public policy on AI. It aims to help countries encourage, nurture and monitor the responsible development of trustworthy AI systems for the benefit of society.

This country report has been created on the 25th of February 2020. Please visit <https://ec.europa.eu/knowledge4policy/ai-watch/united-kingdom-ai-strategy-report> for regular updates.

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