

Written evidence submitted by the Office for AI (INS0060)

Summary:

The Office for AI has been commissioned, by the BEIS Committee, submission of written evidence from *The Office for AI as part of their Industrial Strategy inquiry*.

The Committee is interested in understanding the functions of the Office and how, to date, it has contributed to the objectives of the Industrial Strategy. They would like the submission to address a number of issues including:

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Whilst these are the key aspects that they would like the submissions to address it is not an exhaustive list; they are looking for submissions that set out in a comprehensive manner the role that the Office plays in achieving the goals of the Industrial Strategy.

1. Structure, resource and team size

Structure

The Office for Artificial Intelligence is a joint DCMS and BEIS unit. By establishing a unit with resources of two Departments the government shows its understanding that AI technologies are enablers across the whole of society and therefore require policy levers across more than one department. As a joint-unit, the Office for AI greatly strengthened its effectiveness to deliver the AI Grand Challenge and be a trusted partner to industry.

DCMS provides:

- Overall leadership of Digital and responsibility for the digital sector
- Ownership of other key AI and Data strands across government, including DCMS organisations and teams that the Office for AI works with, eg. DCMS Data Directorate, DCMS International Directorate, DCMS Cybersecurity Directorate, Broadband Delivery UK Directorate,
- Oliver Dowden's leadership within the Digital sector, and ability to join-up across all his digital responsibilities such as cyber, internet governance, and telecoms.

BEIS provides:

- Links into relevant Directorates and teams within BEIS such as Business Growth Directorate; Science, Research and Innovation Directorate; UKRI Sponsorships team.
- Direct links to the Industrial Strategy Directorate.
- Ability to tap into strong analytical capability and resources within BEIS, in particular on productivity thinking within the Industrial Strategy.

How the Office for AI works in practice

Leadership

- Sana Khareghani is the Head of Office for AI (Deputy Director at DCMS, reporting to director-level Senior Responsible Officers in both DCMS and BEIS).

External advice

- Demis Hassabis, Co-founder and CEO of DeepMind is official advisor to the Office for AI; and the AI Council, an independent expert committee, have an advisory role to OAI and to the whole of Government on strategy to grow AI development and deployment in the UK.

Team size

A Team Organogram is [Annex A](#).

The Office for AI is 18 Civil Servants – 9 DCMS and 9 BEIS posts

The Office for AI is split into three teams, headed by 3 G6s.

Strategy, Adoption, Ethics, Regulation and Standards

- **Overall policy and strategy thinking**, driving forward strong growth in AI.
- Development and delivery of the National AI Strategy
- Enablers for growth, including data

Skills, Talent, R&D and Defence and Security

- Ensure sufficient supply of skills to AI from school through FE to postgraduate, including diversity of skills.
- Establish programmes to encourage and retain AI talent of a high calibre and international standing
- Act as a conduit to R&D ecosystem, working closely with UKRI and broader R&D stakeholders to ensure AI R&D and talent policy keeps us at the forefront of the technology
- Ensuring coherence with Defence and Security AI Policy across Government, including the National Security and Investment Bill.

Engagement, International and Communications

- Drive adoption and promotion of AI by building use-cases and setting challenges, working with UKRI, sector teams and industry.
- Establish OAI as the outward face of AI in government – a strong, visible, and accountable focal point through comms activities and presence at events
- Oversee ministerial and SCS briefings, contribution to Government responses and official correspondence
- Ensuring the Government has best available advice from the entire AI ecosystem, by providing the secretariat to the AI Council
- Building evidence on how best to discuss AI to ensure the confidence of the public in using these technologies, and providing a focus for discussion in Whitehall to deliver consistent AI narrative across government
- Projecting UK interests internationally on AI ethics and regulation, both through OECD, Global Partnership on AI, and the Council of Europe
- Ensuring international standards the UK has helped develop, such as the OECD AI Principles, are reflected in the development of UK guidance on AI
- Formulating international collaborations on AI, such as the US-UK Statement of Intent on AI R&D collaboration

2. Routes of accountability to Ministers

The Office for AI reports jointly to director-level Senior Responsible Officers in both BEIS (Business Growth directorate) and DCMS (Digital and Tech Policy directorate) and is accountable to both Secretaries of State. All submissions go by default to Ministers in both Departments, with only rare exceptions.

Objectives for the Office for AI are agreed jointly by both Departments.

3. Role in meeting the objectives of Grand Challenges

Expected outcomes of successfully addressing the Grand Challenge

AI and Data was framed as a Grand Challenge in the Industrial Strategy for a number of reasons – perhaps the two most prominent being the economic success that could be achieved by driving AI adoption, and the relative challenge – in terms of putting in place the right enablers – of doing so. Of the former, the prize at stake remains high:

- growth potential of AI and data-driven technologies: investment in UK AI companies increased 25% year-on-year in 2019, more than twice that of France and Germany combined and the data economy's growth will make up approximately 4% of UK GDP in 2020¹²;
- comparative advantage of the UK: a global top 3 player on AI measured by research impact, talent, and access to finance³ - but faces fierce competition for that position this decade;
- ability to support wider policy objectives: on Net Zero for example, AI technologies have been estimated to be able to contribute a 4% reduction in global emissions⁴, and for the economy as a whole, a 25% increase in productivity⁵.

Coordination of the Grand Challenge across Government

The joint BEIS/DCMS Office for AI has had a coordinating role in addressing the AI & Data Grand Challenge. The Challenge itself was framed as saying 'We will put the UK at the forefront of the AI and Data Revolution'. As such, this includes not only the Office for AI's work on AI industry 'enablers' that Government committed to deliver in the AI Sector Deal (see response to point 4), but also the work done across and around Government to drive the development and use of AI and Data Science – including that done since the Sector Deal was published. While institutions such as the Centre for Data Ethics and Innovation, or policies such as the National Data Strategy, are therefore autonomous and outside of the Office for AI's remit, the Office has nevertheless had a strong hand in establishing, feeding into and shaping such developments. In turn, these institutions and others have had their own hand in shaping how the Government has addressed the Grand Challenge.

Early Diagnosis Mission

A key element of the Grand Challenge was the announcement in May 2018 of the AI and Data Grand Challenge Mission to: 'Use data, Artificial Intelligence and innovation to transform the prevention, **early diagnosis** and **treatment** of chronic diseases by 2030.' The Office for AI supported the Department for Health/Department for Health

¹ Tech Nation Report 2019

² The European Data Market Monitoring Tool, IDC (2020), DCMS Sectors Economic Estimates 2018 (provisional): Gross Value Added, DCMS (2018)

³ <https://www.tortoisemedia.com/intelligence/ai/>

⁴ <https://www.pwc.co.uk/services/sustainability-climate-change/insights/how-ai-future-can-enable-sustainable-future.html>

⁵ <https://www.pwc.com/gx/en/issues/analytics/assets/pwc-ai-analysis-sizing-the-prize-report.pdf>

and Social Care, who owned the Mission and led on the announcement, intended to focus efforts in AI development towards health – a sector where the UK was well-positioned to gain an early lead in terms of the bringing the direct benefits of AI in terms of better diagnosis, in addition to improving the public narrative around AI. Subsequently NHSX – the digital wing of the NHS which was spun up to spearhead transformation, and is now due to be brought back into NHS England – has led on delivering on the ambitions outlined in the Mission. They created, for example, the NHSX AI Lab. In light of the Covid pandemic, the team at the AI Lab pivoted to focus on the Covid response, but with benefits for public health brought by AI in that context will have lasting benefit for public health. Key developments include:

- The NHS COVID-19 Data Store has been providing decision makers with a clear picture of what is happening on the ground and where resources are needed. The Data Store, as with all NHS technology, is built around the key principles of Confidentiality, Privacy, Autonomy and Transparency. It produces dashboards, models and simulations to provide key central government decision-makers with a deeper level of information about the current and future coronavirus situation to help inform the response.
- The NHSX National COVID-19 AI Chest Imaging Database. A centralised UK database to support a better understanding of the virus and develop AI technology which will enable the best care for patients hospitalised with a severe infection. 84 hospitals have contributed over 29,000 images so far, making it one of the largest data collection exercises for medical imaging in the UK.

The Office for AI continues to work closely with NHSX with continued engagement. A small number of NHSX staff participate in Office for AI weekly meetings, both to share updates on their own work and to understand how it fits in with wider Government effort towards driving uptake of AI.

Supporting other Grand Challenges

The Office for AI has also engaged with a number of other parts of Government to advise on how to drive adoption by Departments, their arm's-length bodies, and the economic sectors they work with, in-line with the ambitions of the Grand Challenge. All Departments have been encouraged to seize the opportunities of AI. In some cases, this has included engaging with other teams across Government responsible for the other three Grand Challenges. The AI and Data Grand Challenge is unique among the four in that AI and data are enablers that allow those Challenges to be addressed more readily.

Supporting adoption of AI in Government and the Wider Public Sector

There are two concrete examples of how the Office for AI has intervened to drive AI adoption across the Government and the public sector.

One has been through the creation of the [AI Guide](#), produced following a thorough survey of AI use across Government by the Office for AI in conjunction with GDS and the AI consultancy, Faculty. This was intended to surface examples to demonstrate best practice and foster greater knowledge sharing across Government. The AI

Guide features a section on AI ethics and safety, which meets the government's ambitions to develop and use AI responsibly and safely—informed by detailed guidance which was produced by Alan Turing Institute.

Another example, intended to both increase the ease through which AI can be responsibly brought into the public sector, and drive industry towards a set of norms around AI, is the Office for AI's [Guidelines for AI Procurement](#), developed in collaboration with the World Economic Forum. In addition to setting the direction of travel for the emergence of international norms, through the internationalisation of the work by WEF – which includes 'AI procurement in-a-box', a framework for Governments around the world to consider procurement frameworks – in the UK the Guidelines have also been operationalised through Crown Commercial Service's [AI Marketplace](#). This 'Dynamic Purchase System' allows more specialist AI suppliers to offer their services to Government (and wider public sector) procurement experts. We have continued to engage with Crown Commercial Services to ensure that the public sector is an accessible marketplace for smaller and more specialist AI suppliers, which both promotes adoption of AI by the public sector and supports the UK AI industry.

Supporting the wider ecosystem

The Office for AI has forged a conduit to the wider AI ecosystem by establishing, and providing the Secretariat function for, the UK AI Council. This is an independent expert advisory group of 22 individuals from across AI industry, academia, and civil society who provide advice to the Office for AI and the whole of Government on how to ensure the UK remains at the forefront of responsible AI development and deployment. As such, they are our direct connection to the wider AI ecosystem fostering and growing the connection and communication. The Grand Challenges themselves were framed as requiring a concerted effort from the whole of the economy – not just Government. The AI Sector Deal outlines the commitments the Government has made to the enablers needed to stimulate growth of the industry, in particular improving the skills and talent pipeline, and increasing access to data for startups and SMEs. Though some of this work took the form of Data Trusts pilots conducted in collaboration with the Open Data Institute, the Office for AI has also subsequently continued to engage with the ODI and their funding from Government in order to ensure their work is central to delivering data innovation across sectors – for example, their Data Institutions work. We have also engaged with the broader R&D ecosystem, including the Alan Turing Institute, Digital Catapult, National Academies, Ada Lovelace Institute and others to take forward aspects of work to address the Grand Challenge. Very recently (as of March), this has taken the form of a new sub-group of the Regulators and AI working group stood up to identify gaps in training around AI issues for regulators, involving the Office for AI, Centre for Data Ethics and Innovation, Information Commissioner's Office and Alan Turing Institute.

How the Grand Challenge has developed, and what comes next

The AI & Data Grand Challenge and AI Sector Deal were both point-in-time announcements that the new Office for AI used to accelerate its work, coordinate and deliver commitments and draw focus to the UK government's ambitions both internationally and within the UK ecosystem.

A new National AI Strategy is needed to help us build on our world-class research and innovation base and solidify our global leadership in this transformative technology. The Strategy will cover the overarching aims and policies from an overall government perspective with departments expanding their own specific verticals. It will have a vision that sits across government, that guides and focuses investments across government to achieve the same overarching goals. Only then can the UK demonstrate the full extent of investment into these technologies.

The UK has had an early global lead in AI by investing in the foundations to support our AI ecosystem. A coordinated, cross-Government approach building on the achievements under the AI Sector Deal and delivering investment spanning from infrastructure, to data availability and access, through to adoption across sectors including investment in skills & talent require cross government commitment and agreement to execute and the AI Strategy should enable that.

There continues to be a strong role for the AI in the Plan for Growth, as one of the 'big bets' the government is supporting. The 2019 Conservative Manifesto and the Queen's Speech in December, identified AI as one of the industries of the future in which the UK could lead and into which the Government would prioritise investment. COVID-19 has since highlighted the potential of AI even further, from drug discovery⁶ to tackling loneliness⁷, and building future economic resilience.

Lessons learnt

Effective delivery of the Grand Challenge programme depends on getting the fundamentals correct:

1. Discipline to identify a limited set of Grand Challenges that span sectors, society, the economy and technology and are easily relatable from an international perspective - not spreading too thinly;
2. Clear signal that Grand Challenges demonstrate the UK Government's priorities and ambition to lead, and the direction that gives to the FCO/DIT internationally to attract inward investment;
3. Setting goals and clear benchmarks for the UK Government to meet and be held accountable for, guiding x-WH investment priorities and facilitating x-WH coordination.

⁶ <https://www.ft.com/content/877b8752-6847-11ea-a6ac-9122541af204>

⁷ <https://www.weforum.org/reports/the-future-of-jobs-report-2018>

4. Contribution to supporting the Industrial Strategy's AI Sector Deal

Artificial Intelligence & Data is one of four Grand Challenges in the Industrial Strategy, published in 2018. This Grand Challenge and subsequent [AI Sector Deal](#) in 2018 sent a clear signal across Government and to the world on the UK's ambition and potential to lead on AI & Data. The tables in section 5 outlines both the monetary and non-monetary investments that have been delivered since the Grand Challenge was set.

The Office for AI has been working with partners and collaborating across the government landscape to deliver the AI Sector deal commitments as well as helping to focus efforts and investment into AI. For example, over the past two years the Office has worked closely with UKRI to deliver the prestigious Turing AI Fellowships to attract and retain top talent to the UK; ensure ISCF funding is targeted towards the policy areas the Office for AI has deemed the most pressing; and closely supported the development of the UKRI AI Review to ensure future UKRI AI Strategy locks with broader HMG. Where there is a policy gap, the Office for AI creates the policy and delivers the programme while looking for a partner to continue delivery when the programme is up and running. For example, the Office for AI initially explored Data Trusts as a means for data sharing, which has now moved to the Data Policy teams in DCMS to continue.

Achievements under the AI Sector Deal and AI and Data Grand Challenge

Business Environment

To create a business environment that secures the UK's position as the best place to start and grow an AI business, we have strengthened the UK's leadership role to keep us at the forefront of the AI and data revolution.

The [AI Council](#) has been formed to bring together respected leaders to strengthen the conversation between academia, industry, and the Public Sector with Tabitha Goldstaub as the AI Council Chair and Business Champion, and Dame Wendy Hall as the Skills Champion.

To date, the AI Council has held seven board meetings. The last meeting was held 11 March 2021. All meetings are transparent and [meeting minutes are published on GOV.UK](#).

The AI Council published its [AI Roadmap](#) in January 2021. The independent report provides recommendations to help the government's strategic direction on AI.

In March 2021 the AI Council and the Ada Lovelace Institute co-published the [Exploring legal mechanisms report](#), to help facilitate responsible data stewardship and realise the potential of data for the social good.

People

To develop the right skills for the jobs of the future and to create the environment for AI development and deployment, we announced:

- **16 new AI Centres for Doctoral Training** at universities across the country, delivering 1,000 new PhDs over the next five years.
- **New prestigious AI fellowships** to attract and retain the top AI talent.
- **Industry-funding** for new AI Masters places.
- Up to **2,500 places for AI and data science conversion courses** starting this year. This includes up to 1,000 government-funded scholarships.

These are early steps towards building a successful, high-calibre AI workforce that is equipped to harness the opportunities of the AI and data-driven economy, now and in the future.

Infrastructure

To facilitate legal, fair, ethical and safe data sharing that is scalable and portable to stimulate AI technology innovation we:

- Partnered with the Open Data Institute and Innovate UK on three 'data trust' pilots, tackling illegal wildlife trade, reducing food waste, and improving public services in the Royal Borough of Greenwich, London.
- The work found a huge demand from private, public and third sector organisations to explore data trusts and other data stewardship models to unblock data sharing. The research focussed on the first stages of the data trust life-cycle; scoping and co-design. It found a number of different potential benefits that the data trust approach to data sharing could help to bring.

These included:

- helping to balance conflicting views and incentives about how data should be shared and who can access it
- reducing costs and skills needed to steward and share data
- making control more representative over how data is used and shared and ensuring data's benefits are distributed more widely, ethically and equitably

Fostering a thriving AI industry is predicated on having the supportive physical infrastructure in place too – in this case, fibre broadband. This is led by the Broadband Delivery UK team in DCMS.

Place

To work closely with key clusters to provide the support needed for AI businesses to thrive, we:

- Commissioned GDS to deliver the Review of AI adoption in the Public sector, and published an **AI Guide for Government**.
- Published **Guidelines on AI Procurement** in collaboration with the World Economic Forum Centre for the Fourth Industrial Revolution. These will inform and empower buyers in the public sector, helping them to evaluate suppliers, then confidently and responsibly procure AI technologies for the benefit of citizens.
- Commission **Explaining decisions made with AI**. Co-badged guidance by the ICO and The Alan Turing Institute to give organisations practical advice to

help explain the processes, services and decisions delivered or assisted by AI, to the individuals affected by them.

- Launched Tech Nation's Applied AI growth programme with 29 participating AI firms, from across the regions including Scotland and Wales.
 - After a successful first year we announced 32 firms who joined Applied AI 2.0 44% were founded by women and 2/3 are based outside of London.
- Funded up to £50 million for five new centres of excellence for digital pathology and imaging, including radiology, using AI medical advances.
- Funded £30 million for the new Bayes Centre in Edinburgh, a world-leading centre of data science and AI.
- Launched the new **AI Dynamic Purchasing System (DPS)**, a new procurement framework that offers public sector customers a direct route to AI services in an emerging market.

Ideas

We have:

- **Supported the development and delivery of the Early Diagnosis Mission** - which is to use data, AI and innovation to transform prevention, early diagnosis and treatment of chronic diseases.
- In addition we are committing to work with the private sector to boost research and development. We have:
 - **Funded £3 million for three new research projects** to investigate how businesses can make best use of AI in insurance and law as well as analysing consumer attitudes to AI.
 - **Announced up to £79 million for three new AI programmes** to transform engineering, urban planning and healthcare.
 - **Announced £600,000 funding for UK-Korea Health Sciences collaboration** to focus on better diagnosis of dementia through the use of AI (January 2019).
 - **Funded 40 artificial intelligence and data analytics projects**, backed by £13 million in government investments, announced to boost productivity and improve customer service.
 - **£50 million boost to the Centres of Excellence for digital pathology and imaging with AI**. This will allow them to partner with more NHS Trusts and further develop cutting edge products using digital systems and AI.

International

- The UK became a **founding member of the Global Partnership on AI (GPAI)**, an international and multistakeholder initiative to guide the responsible development and use of AI, grounded in human rights, inclusion, diversity, innovation, and economic growth. (June 2020)
 - GPAI's four working groups each focus on: data governance; responsible AI; commercialisation of AI; and the future of work.
 - Senior UK experts from industry and academia have joined the four working groups.

- The **UK and the US signed a Statement of Intent on Cooperation in AI Research and Development** (September 2020)
 - The Statement of Intent outlines a joint commitment to the development of responsible AI technologies with the overall ambition to harness the energy of public and private partnerships, to enrich the AI R&D enterprise, enhance technology commercialisation and create value for our citizens.
 - The Statement will also establish a joint R&D working group to promote strengthened collaboration.
 - The UK and US are starting from strong foundations. The Engineering and Physical Sciences Research Council (EPSRC) alone is funding over 100 UK-US AI collaborations.

5. National AI Strategy

The Government announced on 11 March 2021 its intention to publish a National Artificial Intelligence (AI) Strategy later this year, to ensure that the UK continues our global leadership in the research, development, commercialisation and adoption of responsible AI.

The Office for AI is developing the strategy. It will consider recommendations from the AI Council AI Roadmap, alongside input from industry, academia and civil society.

The new AI strategy will focus on:

- Growth of the economy through widespread use of AI technologies
- Ethical, safe and trustworthy development of responsible AI
- Resilience in the face of change through an emphasis on skills, talent and R&D

The National AI Strategy will align with the government's plans to support jobs and economic growth through significant investment in infrastructure, skills and innovation. This comes as the UK sees a boost in R&D investment through the government's Research and Development Roadmap to reach 2.4 per cent of GDP by 2027.

Engagement on the AI Strategy

The AI Council and the Office for AI have started engaging with the AI ecosystem to shape the AI Strategy. This started before the official announcement on 11 March. Engagement-to-date consists of ten sector-led workshops. Each is chaired by a member from the AI Council.

Workshops held

- Mission-led AI workshop on 2 March
- Trade & Investment workshop on 4 March
- Early stage investors workshop on 9 March

Workshops arranged (dates may change)

- Skills & Talent workshop on 17 March
- Industry Adoption & Diffusion workshop on 18 March
- Ethics & Regulation workshop on 19 March
- Research, Development & Innovation workshop on 23 March
- Climate Change workshop on 24 March
- Defence & Security workshop on 25 March
- Public Trust workshop on 6 April

Following the workshops the Office for AI will continue with 1-1 deep dives and town hall sessions to include a broader subsection of society as well as other events to ensure a wider perspective.

6. Achievements and outputs to date against the Grand Challenges

This includes both achievements and outputs in the Sector Deal and those since its publication

Industrial Strategy Grand Challenge: AI and Data							
AI Specific capital spend items							
Title	What is it?	Government investment (£m)	Notes on £ (ISCF funding highlighted GREEN)	Who leads	Industry/other investment	Timelines	Other comments
AI and Data Science Conversion Courses	New Masters conversion courses in AI and Data Science. 2,500 places at 28 universities. Accompanied by 1,000 scholarships for people from under represented backgrounds.	13.5		OAI and Office for Students (funded from DCMS via DfE)		FY 20/21 - FY 22/23	Since the launch of the applications in June, universities have received exceptional demand for the courses and more specifically the scholarships. One university had 58 applications for just 8 scholarships. A further update on the demand will be provided come the end of the month.
Industry funded Masters	A new industry funded AI Masters programme to broaden access to AI relevant education and training at Level 7 which will help to galvanise these future sources of talent.	0.26		Institute of Coding brokering, funded from OAI	Estimated, conservatively, to be between £0.75 to £1.2m of industry pledged support to >100 students on the specific IoC/OAI programme so far; Estimate at least further £1.5 - £2m industry support in wider courses	Ongoing (£130k pa so far)	The Institute of Coding programme has contributed to growth of 4000 extra places on traditional AI Masters (from a low base 2016 of about 500 across a smaller range of Masters courses in the UK). Demand continues to outstrip supply. Supply needs to output 10s of 000's of Masters/Level 7/Postgrad industry ready students per year to meet current demand. (See also AI Apprenticeship, below)

UKRI Centres for Doctoral Training in AI	16 multidisciplinary Centres for Doctoral Training (CDTs), based at 14 universities, creating 1,000 new AI PhDs by 2025	100		OAI and UKRI (EPSRC)	£100m	FY 19/20 - FY 24/25	There are many other CDTs in the UKRI portfolio relevant to AI (part of the investment estimated in line 17), but those noted here were a specific Sector Deal commitment to boost AI PhD numbers and are the only AI CDTs funded x-UKRI rather than specific Research Councils. The first new students started in Autumn 2019. UKRI holds further information on delivery progress and demand.
Turing AI Fellowships	A new scheme to attract, retain and develop world-leading research talent in AI.	46		OAI and The Alan Turing Institute, UKRI (EPSRC)	~£2m so far from the first wave (£8.5m).	19/20 to 24/25 (no cost extension to 25/26 possible)	The first wave (£8.5m) of the scheme appointed its first Fellows in Autumn 2019, the second wave (£37.5m) will appoint Fellows in Autumn 2020 and Spring 2021. The overall investment is still subject to BEIS Project and Investment Committee approval before wave two appointments. Demand has been high and the scheme has been well received. 104 valid applications across 50 host institutions were received for Wave One, and 103 valid applications across 40 host institutions have been received for the first part of Wave Two. The second part of Wave Two has been extended for applications due to COVID. Further information on delivery progress and interest in the scheme is available on request. UKRI has identified the need and appetite for a range of further AI Skills and Talent investment via their AI Review, and will be seeking funding via SR. Talent retention remains an easier challenge than international talent attraction to date.

Data Trusts exploration	Partner with the Open Data Institute (ODI) to explore Data Trusts as a mechanism for safe, legal, ethical and fair sharing of data between organisations.	0.51		OAI and Innovate UK	* OAI Funding: FY 18/19 * Innovate UK Funding: FY 18/19 - 20/21	The initial data trusts project in FY 18/19 (joint funded by OAI and Innovate UK) was very early R&D work to develop a data trust as a new framework to unblock data sharing, at a time when there was no agreed definition or understanding of what one was despite the widespread interest in the concept. Working with three pilot projects, the research focussed on the design of a data trust. It found a number of different potential benefits that the data trust approach to data sharing could help to bring. While the 3 pilots themselves had mixed success, the work generated a lot of interest including internationally and from organisations such as the EU Commission and the OECD. A Technopolis evaluation report found "particularly high engagement levels in the ODI's events and communications". This work acted as a springboard for the ODI to continue the work on data trusts and expanded it to look at other "Data Institutions" for data stewardship and sharing with R&D funding from Innovate UK in FYs 19/20 and 20/21. Interest in data trusts and other Data Institutions remains high as the need for better access to data becomes even clearer. However, it remains an area with no easy solution. As an illustration of the continued interest, Dame Wendy Hall has been able to convene an informal "Legal Mechanisms for Data Stewardship" working group with The Royal Society and a number of lawyers from leading law firms to take this work forward. An ODI event to be held in September on "Exploring Data Institutions" with 350 tickets sold out within 2 days.
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Public Sector AI Review	Public Sector AI review managed by OAI and GDS, delivered by Faculty. Final report identified strengths and areas for improvement with respect to the adoption of AI across Whitehall. It also identified seven high potential AI use cases for investment. Review produced the Public Sector AI Guide focused on building and using AI in the public sector. The Guide was published alongside ethics and safety guidance, delivered by Alan Turing Institute.	0.23	* £514,061 (Office for AI) * Innovate UK also funds R&D on Data Trusts and other Data Institutions for data stewardship and sharing as part of its £2m/year funding to the ODI	OAI and GDS	nil	FY 18/19.	The Public Sector Guide and ethics and safety guidance were both received well early on. GDS committed to user test the former but a team restructure meant it was delayed. We committed to expanding the Guide to technical users (first iteration focused on non-technical managers). The ethics and safety guidance will be updated in FY 20/21. Alan Turing Institute to deliver as part of a grant (£130k) that will be used to fund a scoping exercise on AI regulation and the updated ethics and safety guidance. With respect to the high potential opportunities, departmental owners were motivated to participate in the programme of work by OAI/GDS offers to brief HMT on their HPOs, relaying that they were evaluated proposals with high potential returns. No fiscal events took place and we have found the majority of HPO owners have moved on from their proposals.
WEF Procurement project/CCS AI Dynamic Purchase System	The Office for AI seconded an official to the Centre and collaborated on co-designing Guidelines for AI procurement to drive AI adoption in the public sector. The Guidelines are designed to enable government departments to accelerate the adoption of ML tools and ensure that the public is comfortable with the way AI-based systems make decisions. We published the AI Procurement Guidelines in June 2020. In September 2020, Crown Commercial Services launches their AI Marketplace Dynamic Purchasing system, operationalising the framework to drive procurement of AI across the public sector.		Admin spend Salary of 1FTE Grade 7 for 1.5y	OAI, Cabinets Office and Crown Commercial Service	nil		The outputs of the project aim to support innovation in ethical AI development through government procurement.

AI & Data Early Diagnosis Mission	Creation of NHSX and OLS workstreams to use AI, data and innovation to transform the prevention, early diagnosis and treatment of chronic diseases by 2030.	195	NHSX Lab: £172m (excluding £55m for Accelerating the Detection of Disease ISCF challenge (captured below) along with £23m for DHSC research on Multi-morbidity - using AI to map clusters of multiple long term conditions)	NHSX		The NHS AI Lab will accelerate the development of practical applications of AI in the NHS and care setting to improve the health and quality of life for citizens. NHSX received HMT approval for the AI Lab's funding in July and has been setting up the different NHS AI Lab programmes. AI in Health and Care Award: 503 applications were received across the 4 phases of the Award. Robust evaluations of late-stage Award technologies are being set up to help identify AI solutions ready for adoption at scale. The first set of awardees are set to be announced in September. A second round of the Award is planned for an autumn launch. AI imaging: To support a better understanding of COVID-19 and develop technology which will enable the best care for patients hospitalised with a severe infection, The NHS AI Lab rapidly set up the National Covid-19 Chest Imaging Database (NCCID), which currently holds 23,632 images from 6,281 patients, one of the largest collections in the UK. Building on the NCCID work the NHS AI Lab has identified AI Imaging as a focus for the Lab. Buyer's Guide for AI in Health and Care: To help NHS and care organisations looking to procure AI technology right now, the NHS AI Lab developed a Buyer's Guide for AI in Health and Care which sets 10 questions for making well-informed procurement decisions about products that use AI. AI Regulatory Ecosystem: The NHS AI Lab has agreed a programme to fund regulators to deliver seven projects to streamline the regulatory environment for AI innovators. AI Skunkworks: The NHS AI Lab will be launching a procurement of a skunkworks model to explore AI solutions to address specific challenges and has already developed a pilot project automating Covid reporting that will launch next month. As the NHS AI Lab programmes kick off properly this year we will have a clearer idea of how each component is delivering at the first programme review in March 2021
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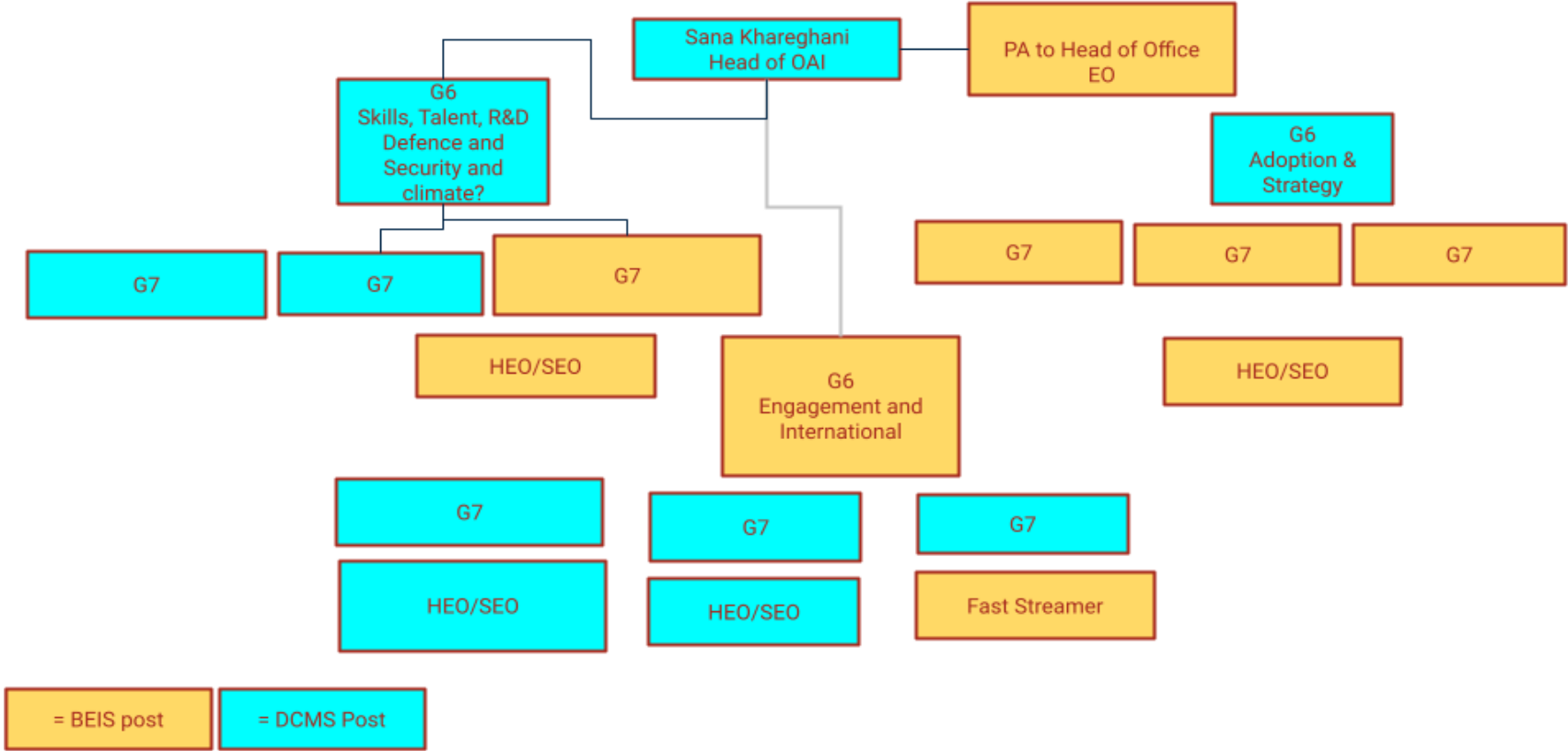
			<i>Digital Radiology and Pathology Centres of Excellence: ISCF £50m (double counted in the From Data to Early Diagnosis and Precision Medicine Challenge below), DHSC £50m</i>	OLS, UKRI	See the From Data to Early Diagnosis and Precision Medicine Challenge below.	up to 2023	The Life Sciences Industrial Strategy identified the application of AI to pathology and radiology as a strategic opportunity for the UK. This resulted in investment to create five Centres of Excellence to develop new innovative ways of using AI to speed up diagnosis of diseases; improve outcomes for patients; and free up more NHS staff time for direct patient care. The business case for the delivery of £50m DHSC capital funding has been approved by the DHSC Investment Committee and is with HMT for final approval. A response from HMT is expected by the end of July 2020. UKRI holds further information on delivery progress and evaluation.
		134	<i>ISCF Challenge: Accelerating the Detection of Disease: ISCF £79m, DHSC £55m</i>	OLS, UKRI, NHSX	Expressions of interest were previously collected by Early Disease Detection Research Project UK (EDDRP UK) for £160m. Although there are not yet contractual commitments in place, EDDRP remains confident that contractual agreements will be agreed for matched funding commitments of £35m for this financial year as set out in the business case	to 2024	The Accelerating Detection of Disease challenge represents a pioneering programme to recruit 5 million volunteers into a research study that aims to invent new ways to detect and prevent the development of diseases. ADD entity is fully operational and recruitment is on track. Interim Grant Funding Agreement with IUK in place and processing final grant agreement. UKRI holds further information on delivery progress and evaluation.

ISCF challenge: From Data to Early Diagnosis and Precision Medicine	Consists of 3 interconnected strands: 1. Genomics (£100m) - for the exploitation of large scale whole genome sequencing for diagnostics & precision medicine. 2. Digital pathology/Radiology (£66m) - 5 centres of excellence and 7 integrated diagnostics projects; to advance integrated diagnostic solutions for early diagnosis. 3. Digital Innovation Hub programme (£37.5m) - linking routine NHS and R&D data, providing analytic tools and informatics support for businesses alongside local access to integrated UK-wide data. This will help defragmentation of the UK national data infrastructure landscape to enable federation and interoperability of data needed to drive AI R&I.	203	£203m total from the ISCF (£50m double-counted under the Mission above)	UKRI, OLS, HDRUK and partners	£254m so far (Strand 1: £150m, Strand 2: £64m, Strand 3: £40m)	Final challenge finish date (all streams and incorporating COVID-19 extensions) Sept 2023	The Office for Life Science, HDR UK, NHSx and a number of other partners play a key role in both governance and delivery of these initiatives. A COVID related costed extension is under consideration for the Centres of Excellence. UKRI holds further information on delivery progress and evaluation.
ISCF challenge: Next Generation Services	Through this challenge, the government is supporting industry and researchers to develop next generation services that can transform the UK's services industry.	20	ISCF Funding	UKRI (ESRC and IUK)	Business Case Target: £12m Realised to Date: £5.1m Committed to date by organisations in the programme: £13.3m	2018-2021	Given the cross-cutting nature of AI other investments made as part of the ISCF include AI, but were not badged under the Grand Challenge. Other relevant ISCF investments relating to AI are included in the figure estimated in line 17 for broader relevant UKRI investment. UKRI holds further information on delivery progress and evaluation. UKRI holds further information on delivery progress and evaluation.
Related UKRI AI R&D funding NOT part of the Grand Challenge	Relevant UKRI investment as estimated for the UKRI AI Review, minus those investments made specifically under the Grand Challenge and noted above. Not exhaustive and only indicative due to the cross-cutting nature of AI and difficulty in identifying all relevant investment. Includes strategic investments such as those made to date in the Hartree Centre, Health Data Research UK, and	450	At least £450m, includes some further ISCF funding.	UKRI (All Councils)	At least £152m (EPSRC and Innovate UK estimate only, does not include other Councils)	Snapshot of live investment as of Spring 2019. Investment timelines vary.	Investments not made under the AI and Data Grand Challenge, but relevant investments made by UKRI as estimated in Spring 2019. This is a non-exhaustive estimate from the UKRI AI Review. The total live UKRI AI relevant investments, including those made under the Grand Challenge, as of Spring 2019 was ~£1bn. UKRI holds further information on the specific investments.

	the Alan Turing Institute.						
Non-Spend activities							
Title	What is it?	Who leads	Timelines	Other comments			
AI Council Secretariat	Non-statutory expert committee of independent members to provide advice to Government and high-level leadership of the AI ecosystem.	OAI (as secretariat)	Final list of inaugural members announced May 2019; first meeting Sept 2019; AI Roadmap published Jan 21	Council members decided three priority areas to focus on for the first year: skills & diversity; narratives & perception; and access to data. Wendy Hall and other Council members have also established a separate project looking to identify/promote legal mechanisms for data stewardship (e.g. data trusts)			
Establish Alan Turing Institute as National Institute for AI	The Turing was established prior to the Grand Challenge as the National Institute for Data Science, however, the AI Sector Deal committed to it also becoming the National Institute for AI.	UKRI (EPSRC)	Established, future funding plans subject to SR.	Established via a consortium including EPSRC, universities, industry and other public partners, who all contributed funding. Public funding was due to cease in April 2020, but two further years funding has been agreed alongside partner contributions. Discussions are ongoing on the suitability of the Turing's current structure and future funding model between BEIS, UKRI and the Turing. Further information is available on request.			
Turing/ICO work on explainability of AI	Project ExplAI is a collaboration between the Information Commissioner's Office (ICO) and The Alan Turing Institute to create practical guidance to assist organisations with explaining artificial	ICO / The Alan Turing Institute - Commissioned by OAI	Final report published on ICO website				

Global Partnership on AI (GPAI)	A newly established, expert-led multilateral institution set up to drive collaboration on AI's development and governance between like-minded governments - the UK has led alongside Canada and France in launching this, and it has been developed by successive G7 Presidencies since 2018. GPAI is developing recommendations on Responsible AI, Data Governance, the Future of Work and Commercialisation and Innovation.	Annual contribution of 50k euros for administrative costs. GPAI is expected to begin recommending collaborative projects by December 2020.	OAI	GPAI launched in June 2020 - private sector support can be anticipated as recommended areas of collaboration are brought forward.	Ongoing.	There will be opportunities for the UK to demonstrate international leadership through GPAI next year over the course of G7 2021 and the Climate Summit (COP), subject to additional funding. In its first month since launch, GPAI has continued to move at significant pace (with more than 100 experts signed on; Working Groups convening and finalising mandates; and first projects being put out to tender next month) and experts are reporting back that they are feeling excited and energised by this initiative.
MOU Japan	A Prime Minister level agreement between Japan and the UK on AI and Robotics (signed January 2019), primarily focused on R&D collaboration and driven by the Alan Turing Institute and its counterparts in Japan. Activities include researcher exchanges, joint proposals for research, and network building (workshops/conferences)	Has been met within the Alan Turing Institute's budget.	Alan Turing Institute	N/A	Ongoing.	In September 2019, the Institute hosted the 'UK- Japan robotics and AI research collaborations workshop' with the research agencies AIST, NII and RIKEN, which brought together both nations leading researchers to discuss collaboration topics and propose project ideas. The areas identified included sustaining the health of aging populations, infrastructure inspection repair and maintenance in extreme environments, mitigating climate change, and managing transport systems within smart cities. The workshop concluded with an event in London which focused on engaging industry partners in supporting the joint projects. The AI and robotics programme has been seeking funding for these projects.
Sol US R&D	The UK and the US signed a Statement of Intent on Cooperation in AI Research and Development (September 2020) The Statement of Intent outlines a joint commitment to the development of responsible AI technologies with the overall ambition to harness the energy of public and private partnerships, to enrich the AI R&D enterprise, enhance technology commercialisation and create value for our citizens.					The Statement established a joint R&D working group to promote strengthened collaboration. The UK and US are starting from strong foundations. The Engineering and Physical Sciences Research Council (EPSRC) alone is funding over 100 UK-US AI collaborations.

Annex A – Team Organogram of the Office for AI



April 2021