National Audit Office

REPORT

Use of artificial intelligence in government

Cabinet Office

Department for Science, Innovation & Technology

SESSION 2023-24
15 MARCH 2024
HC 612

Key facts

2018

launch of the government's AI Sector Deal to promote the use of AI (artificial intelligence) in the UK, including within the public sector

74

number of AI use cases already deployed as reported by government bodies responding to our survey

£101mn

the Incubator for Artificial Intelligence's estimate of its five-year funding requirement to 2028-29 (before inflation)

37%	proportion of government bodies responding to our survey that had deployed AI
37%	proportion of government bodies responding to our survey that had not deployed AI but were actively piloting or planning AI
June 2024	target by which central government departments are expected to have costed and reviewed AI adoption plans in place
21%	proportion of government bodies responding to our survey that had a strategy for AI in their organisation, while a further 61% had plans to develop one
70%	proportion of government bodies responding to our survey who reported that skills were a barrier to AI adoption in their organisation

Summary

Introduction

1 The use of artificial intelligence (AI) has been expanding rapidly across society, particularly with the development of generative AI. AI has the potential to transform public services, but also presents risks and concerns. It can be used in the public sector for a range of purposes, including to improve internal processes; support operational decision-making; support research and monitoring; and to directly engage with or provide services to the public. The government announced in the Autumn Statement 2023 that AI use offered potential productivity benefits worth billions in the public sector. In the Spring Budget 2024, the government announced funding for a number of initiatives involving AI as part of its Public Sector Productivity Programme.

2 The government has encouraged use of AI for several years. In 2018, it launched the AI Sector Deal to stimulate the use of AI and, in 2019, it concluded a cross-government AI adoption review. In 2021, the government launched its *National AI Strategy,* which recognised that AI offers the potential for transformation across the economy, including in the public sector. The strategy included an aim that the public sector should set an example in the safe and ethical deployment of AI.

3 In 2023 the Cabinet Office's Central Digital and Data Office (CDDO) began work with the Department for Science, Innovation & Technology (DSIT) and HM Treasury to develop a strategy for AI adoption in the public sector. The draft strategy sets out four aims.

- The UK public sector will be world-leading in safe, responsible and transparent use of AI to improve public services and outcomes.
- The public will benefit from services that have been transformed by AI and will have confidence that the government's use of AI is responsible.
- Public and civil servants will have the tools, information and skills they need to use AI to deliver better outcomes.
- All public organisations will be more efficient and productive through AI adoption and have the foundations in place to innovate with the next wave of technologies.

Scope of the report

4 This report considers how effectively the government has set itself up to maximise the opportunities and mitigate the risks of AI in providing public services. Our primary focus for this report is the role of the Cabinet Office and DSIT in supporting the adoption of AI in the public sector. Specifically, the report looks at:

- the government's strategy and governance for AI use in public services (Part One);
- how government bodies are using AI and how government understands the opportunities (Part Two); and
- central government plans for supporting the testing, piloting and scaling of AI; and progress in addressing barriers to AI adoption (Part Three).

5 We focus on AI that uses machine learning for tasks including language processing, predictive analytics and image or voice recognition. In our survey we asked government bodies (departments and arm's-length bodies) about their deployed, piloted or planned use cases. We excluded simple rules-based automation and use of AI embedded in pre-existing tools provided by default (for example, automatic email spam filters or email smart replies), as well as individuals' ad-hoc use of publicly available AI. We do not cover regulation of AI in the wider economy or how deployment of AI may change the demands on public services.

6 We recognise that development and deployment of AI in government bodies is at an early stage and there is activity underway to develop strategies, plans and governance. To maximise the opportunities of AI, the government will need to implement and adopt AI at scale across the public sector. Our previous work has identified the challenges involved in digital transformation and cross-departmental initiatives of this kind. This report is therefore an opportunity to report on early progress and identify areas for improvement as the government develops its plans further.

7 Appendix One describes our audit approach and evidence base.

Key findings

Strategy and governance

8 The government lacked a coherent plan to support adoption of AI in the public sector as part of its 2021 *National AI Strategy*. One aim of the *National AI Strategy* is for the public sector to become an exemplar of safe and ethical deployment of AI. The activities to deliver this aim sit across many bodies and have not been underpinned by supporting governance arrangements, clear accountabilities, an implementation plan or performance metrics to track progress. The *National AI Strategy – AI Action Plan* published in July 2022 summarised activity, but did not set out outcome measures or detailed implementation plans to support the aim for the public sector to become an exemplar. Initially a cross-government AI Strategy Delivery Group was established by the Office for Artificial Intelligence to oversee delivery, but this was disbanded in March 2022. In 2023, DSIT restructured the governance of the *National AI Strategy*. It set up a new AI Directors' Policy Board in October 2023 to oversee delivery of the strategy, with representation from CDDO in the Cabinet Office (paragraph 1.6 and Figure 1).

9 DSIT and the Cabinet Office have responsibility for AI. The draft strategy for AI adoption in the public sector does not set out which of these departments has overall ownership and accountability for its delivery. CDDO and the Incubator for Artificial Intelligence (i.AI) (within the Cabinet Office), and DSIT all have roles in AI adoption in the public sector, and there is therefore potential for overlap. For example, CDDO is responsible for setting the strategic direction for government on digital, data and technology, while the i.AI has a role in delivering shared data and AI infrastructure. DSIT is responsible for developing governance frameworks, guidance, and standards for AI and data in the wider economy, and is leading on public sector innovation. The government's draft strategy aims for the UK to lead the world in responsible and safe use of AI that improves public services and has the confidence of the public. The draft strategy includes high-level activities and timelines including an ambition for all central government departments to have costed and reviewed AI adoption plans by June 2024. However, it is at an early stage and does not set out an implementation plan with performance metrics, funding, or overall ownership and accountability for delivery (paragraphs 1.4, 1.7, 3.7 and 3.8, and Figure 2).

10 There is limited integration of governance arrangements for AI adoption in the public sector and those for wider AI policy for the UK. CDDO plans to manage the programme of work to support AI adoption in the public sector via existing cross-government digital and data governance arrangements. Working through existing structures will help ensure there is join-up with other programmes such as the 2022–2025 roadmap for digital and data. While the strategy is intended to be public-sector wide, these governance structures do not include public sector representation beyond central government, such as schools, police and the wider health sector. The proposed governance of the strategy is also largely separate from the cross-government governance structure established to oversee wider AI policy delivery led by DSIT, potentially losing the benefits of a coordinated approach and increasing risks to delivery. CDDO recognises that there is value in greater integration and is exploring how to achieve this. As at March 2024, the government is reviewing AI governance arrangements and has established lead AI ministers across all departments to support coordination (paragraph 1.8 and Figure 3).

11 Departments are at an early stage in developing their own AI strategies and supporting governance arrangements. Only 21% of 87 government bodies responding to our survey said they had an AI strategy. However, a further 61% have plans to develop one. Oversight and governance arrangements are also at an early stage of development. While 24 of the 32 bodies with deployed AI that responded to the survey always or usually had a named accountable responsible owner for their AI use cases, fewer than half of bodies with deployed AI (15 out of 32) said that AI use cases were always or usually identified at an organisational level before deployment. We found examples of government bodies establishing governance arrangements such as an AI steering board, a design authority, a consultation panel and using a data ethicist to provide scrutiny and oversight of AI use cases (paragraphs 1.9 to 1.11, and Figure 4).

AI use in government

12 As at autumn 2023, AI was not widely used across government, but government bodies are exploring opportunities. Just over a third (37%) of the 87 government bodies that responded to our survey have deployed AI, with typically one or two use cases in each. Over two-thirds (70%) are piloting or planning AI, with a median of four use cases being explored per body. The most common purposes of deployed AI are to support operational decision-making or improve internal processes. Across government bodies we found common themes in the types of AI that are currently being piloted or planned. This suggests that there is scope for sharing knowledge and working together on common forms of functionality, for example, AI use cases that support common business processes. Examples from the survey include use of AI to analyse digital images to extract information from documents or to identify and classify objects, use of natural language processing to summarise or draft text, and use of AI to assess trends and patterns and monitor live data (paragraphs 2.2 to 2.6, and Figures 5, 6 and 7).

13 The centre of government has identified the potential for large-scale productivity gains from AI use in the public sector but has not yet assessed the feasibility or cost of delivering these improvements. In 2023, CDDO carried out indicative analysis to identify potential productivity gains across the civil service and wider public sector. It identified that almost a third of tasks in the civil service (those that it defined as routine) could be automated. It did not examine the feasibility of delivering these productivity gains, or make an assessment of cost. To take this forward, CDDO recognises that further scrutiny and evidence collection is required alongside substantial investment (paragraphs 2.7 and 2.8).

Support for AI adoption

14 CDDO needs to do more to systematically bring together and build on the insight and learning from existing AI activity across government. In addition to the piloting activity underway across a range of government bodies, there are programmes led or funded by government that support AI development and adoption. These include, for example, programmes funded by UK Research and Innovation (UKRI) and the NHS AI Lab. Almost three-quarters (74%) of bodies responding to our survey told us that support for knowledge sharing was very important, the highest response for any area of support. CDDO is responsible for systematically bringing together and building on this insight and learning. It recognises that it needs to do more, particularly in response to the growth in generative AI. In late 2023 it began setting up an AI team within CDDO to take this forward. Separately, the i.AI, as a centre of excellence, aims to offer technical expertise, including sharing of AI infrastructure and resources across government (paragraphs 3.2 to 3.6 and Figure 10).

15 Implementing the government's public sector AI adoption strategy successfully will depend on learning lessons from complex cross-government transformation programmes. Our previous work (both on digital transformation in government and good practice in cross-government working) has identified essential lessons for the government to get right at the outset if large-scale transformation programmes are to be successful. These lessons include the importance of understanding the business need, ensuring strong leadership and clear accountabilities, clarity on outcomes and performance measures, assessing workforce impacts, addressing legacy systems and data access and quality, and having the right skills in place (paragraphs 3.7 and 3.8).

16 Updating legacy systems and improving data quality and access is fundamental to exploiting AI opportunities but will take time to implement. Appropriate digital and data foundations need to be in place to support the transformational benefits of AI. Large quantities of good-quality data are important to train, test and deploy AI models. Our survey found that limited access to good-quality data was a barrier to implementing AI and central government support was important to address this. The government recognises more action is needed to address legacy issues and to improve data access and quality to avoid limiting the adoption of AI in the public sector. The government's 2022-2025 roadmap for digital and data sets out its plans to address these issues, over the next few years. For example, CDDO expects to have agreed remediation plans in place to tackle the legacy IT systems with the highest levels of risk by 2025, but fully addressing these legacy system issues will take longer. Identification of strategically important data in departments is not expected until spring 2024 and full department-wide data maturity assessments designed to build a picture of strengths and weaknesses of data across government are not expected to start until autumn 2024 (paragraphs 3.9 to 3.15 and Figures 9 and 10).

17 Government standards and guidance to support responsible and safe adoption of AI are still under development. The Algorithmic Transparency Recording Standard (ATRS), developed to improve transparency and provide information about the algorithmic tools used in government, is not widely used. In February 2024 DSIT announced it would make ATRS a mandatory requirement for all government departments. DSIT, which also leads the government's strategy and engagement in global digital technical standards (including on AI) told us that there are opportunities for it to work more collaboratively across government to ensure that government standards for AI take global standards into consideration as these develop. Some government bodies we interviewed described finding it difficult to navigate the range of guidance available and being unclear on where to go for a definitive view of what they need to consider. Around two-thirds of survey respondents felt support from the centre was very important to address legal risks (70%) and risks to privacy or data protection, or cyber security breaches (63%). CDDO published guidance on using generative AI in government in January 2024, and has plans to publish broader guidance on the use of AI in government by summer 2024. The Government Analysis Function is also reviewing its guidance to take account of AI, including updating the Aqua Book, its guidance on producing quality analysis (paragraphs 3.16 to 3.23 and Figures 10 and 11).

18 CDDO is developing its digital and technology spend controls to improve assurance of high-risk AI use cases. CDDO is responsible for oversight and assurance of digital and technology spend across government. As part of these controls, departments must comply with the Technology Code of Practice, which includes privacy, security and data protection requirements, as well as requirements to comply with ethics guidance in cases of automated decision-making. In 2024, CDDO expects to roll out a new process across government to improve how it identifies digital and technology spend that has a substantive or high-risk AI component, to ensure these cases are given appropriate scrutiny (paragraphs 3.24 and 3.25).

19 Assurance of AI within government bodies is variable and still developing. Reflecting the early stage that government bodies are at in adopting AI, only 30% of all survey respondents reported that they had risk and quality assurance processes that explicitly incorporated AI risks, although a further 46% had plans to put these in place. DSIT is developing tools to embed AI assurance into public procurement frameworks. CDDO is also considering how best to support public sector bodies to technically assure AI products they have procured (paragraphs 3.26 to 3.28 and Figure 12).

20 Departments identified a lack of AI skills as a key barrier to adoption of AI in government. Our survey found that difficulties recruiting or retaining staff with AI skills was one of the most common barriers to AI adoption, identified by 70% of respondents. Our previous work in 2023 found that pay levels in the public sector do not attract the talent required for the scale of digital transformation needed in the UK, and there were over 4,000 digital, data and technology vacancies in government by October 2022. CDDO recognises that lack of skills is a major challenge to the successful adoption of AI, noting that there is currently limited capacity within the system to fully exploit and scale the opportunities presented by AI. Government bodies can address skills shortages through the use of contractors, agency workers, and temporary staff, with an estimated one-third of digital and data professionals in the civil service made up of these groups. The government has committed to reducing the civil service's reliance on contingent labour of this kind to reduce costs and grow long-term capability. CDDO has set out plans to build AI skills and widen awareness in the public sector. The i.AI has been established to boost technical skills and expertise in AI and also has a role to play in upskilling the wider civil service (paragraphs 3.29 to 3.32 and Figure 9).

Conclusion

21 AI presents the government with opportunities to transform public services. The centre of government has identified the potential for large-scale productivity gains from the adoption of AI across the public sector. Responsibility for AI rests with DSIT and the Cabinet Office and, while the government is working on a draft strategy for AI adoption in the public sector, it has not yet finalised it or published an implementation plan. Our survey of government bodies found that AI was not yet widely used across government, but 70% of respondents were piloting and planning AI use cases. Government departments are required to create AI adoption plans by June 2024.

22 There are risks to value for money if the government does not establish which department has overall ownership and accountability for delivery of the strategy for AI adoption in the public sector and set out appropriate roles and responsibilities for those who need to contribute. Achieving large-scale benefits is likely to require not just adoption of new technology but significant changes in business processes and corresponding workforce changes. To deliver the transformational benefits of AI, the government needs to ensure its overall programme for AI adoption is ambitious and supported by a realistic plan for the skills, funding and wider enablers needed. The government must also maintain focus on addressing other fundamental barriers to AI adoption, such as legacy systems, and data access and sharing, which will otherwise limit the extent to which it can exploit the future potential of AI.

Recommendations

a To deliver on its strategy for public sector AI adoption, the Cabinet Office should:

- Develop an integrated and feasible implementation plan building on individual departmental AI adoption plans and identifying common and scalable applications. It should assess the ability of the integrated plan to deliver the large-scale productivity gains it has identified.
- Identify and publish performance metrics and supporting monitoring arrangements that reflect the strategy's desired outcomes to promote transparency and accountability for delivery.
- In collaboration with DSIT, assess the new strategy and governance arrangements to make sure they are fit for purpose and ensure effective coordination with DSIT-led AI policy for the wider economy, and review them within a year of implementation, making any changes needed.

b The Cabinet Office should establish how government can bring together and share accessible insights from cross-government activity to identify, prioritise and test scalable AI opportunities in the public sector, including working with DSIT to leverage the wider research landscape such as UKRI's programmes.

c CDDO should continue to prioritise the 2022-2025 roadmap for digital and data, to address the legacy IT infrastructure and data quality and access barriers to adoption of AI, and ensure future plans maintain continued focus on addressing the risks that these issues pose for sustainable AI deployment.

d CDDO should work with the government functions to review existing guidance, government standards and assurance processes to ensure they adequately address the opportunities and risks of AI use and provide sufficient levers to promote safe and responsible use of AI across government, including reviewing:

- the assurance controls for digital and technology spend;
- arrangements for providing independent technical assurance for procured AI;
- in collaboration with the Government Analysis Function, how proposed updates to guidance on quality assurance and use of AI in analysis can be aligned with CDDO's wider guidance on the use of AI;
- in collaboration with DSIT, alignment of government standards with global AI standards where appropriate; and
- in collaboration with DSIT, compliance with the Algorithmic Transparency Recording Standard. This should include assessing its impact, and considering whether further levers are needed to support its implementation.