### Use of AI in government – IET response

# About the Institution of Engineering and Technology (IET)

The IET is a trusted adviser of independent, impartial, evidence-based engineering and technology expertise. We are a registered charity and one of the world's leading professional societies for the engineering and technology community with over 155,000 members worldwide in 148 countries. Our strength is in working collaboratively with government, industry and academia to engineer solutions for our greatest societal challenges. We believe that professional guidance, especially in highly technological areas, is critical to good policy making. For further details on the evidence submitted, please contact policy@theiet.org.

# **Executive Summary**

Government has begun to experience an AI revolution, where AI capabilities increase the potential for efficiency gains. However, AI in all its encompassing forms, is not infallible and must be applied diligently, and appropriately. Much like the data / digital transformation that the government experienced in the 2010s, they must now use that learning to ensure a smooth and just transition to AI and its services. To do this, AI solutions must be aligned, encompassed, and influenced by software engineering, software architecture, management, governance, technology operations, and service delivery / service management. If the government shows a successful use of AI, it will encourage other sectors to adopt AI.

The concern surrounding the implementation of AI is the lack of information and confidence in it. An IET survey taken on the use of AI highlighted that 29% of those surveyed had concerns on the lack of information around AI and lack of skills and confidence to use the technology, with over a quarter of people saying they wished there was more information about how it works and how to use it. (Source: <u>Artificial Intelligence behind 3 times more daily tasks than we think</u>, IET, 2023) When considering AI for government use, it is imperative that there are strong data foundations, competency and full transparency, as this will enhance the national public trust and uptake of AI.

# **Recommendations**

- Strong data foundations will allow government departments and data professionals to utilise AI effectively and execute their job well. Government should consider how to maximise the role of the National Data Library, in particular, how data management has evolved and its best practice.
- Competency is pivotal to the successful uptake of AI. To encourage private sector collaboration, the public sector needs to show competency and operability through regulation and skills. Cross-sector collaboration, and capable workforces are key to wide-spread usage of AI. If government shows to be successfully using AI, then other sectors will be encouraged to suitably adopt AI.
- Al ethics must be central to driving the use of Al in government. Ethics frameworks should be updated to include the impact of a variety of Al products and to consider users of Al.
- Strategic application of AI is key if government is going to successfully adopt AI.
  Although there are many facets of AI to invest in, government needs to invest effectively and strategically if there is to be successful implementation of AI.
- Industry standards should not only aim to be met but exceeded. The EU AI act, along with the professional standards published by the ISO, provide a good basis for the deployment of AI, these should be consulted and applied where appropriate.

Suitable legal and regulatory structures should be in place, and under constant review, to allow Al's development without stifling innovation.

- Sustainability is a major concern in relation to AI. AI regulations should also look beyond the immediate risks of its development to the broader impact it has on the environment.
- Searchability: Data and information must be able to be searched and found with options in the metadata to enhance usability and transparency. This can be enhanced by adopting the 'AI FAIR Data Specification and Alignment' (Source: FAIR principles, GOFAIR).
- **Cybersecurity** must include the protection of the data, access to data and Al services, where the algorithm is going to be hosted, and ISO cyber standards.

#### **Strong Data foundations**

First and foremost, the government must ensure strong data foundations. They should consider the potential of the National Data Library, the ISO standards for data, and how data management across departments has evolved. The foundations need to recognise the different operational contexts for each government department and create responsive tools that allows data professionals to execute their job well; this will also include reconsidering how metadata across government is measured, managed and used.

It is essential to clearly define AI in 'functional' (system shall do) and 'non-functional' (system shall be) requirements. These definitions will drive solution design, data architecture, engineering, implementation, management, engagement, and education and training. Therefore, increasing competency and trust in AI and AI systems.

There are two methods that need to be considered when discussing strong foundations and the introduction of AI usage into government, these are the: AI architectural method, and the AI engineering method.

- The AI architectural method needs a clear definition, application, and deployment. The method should include concepts such as models, design methods, roles and role definitions, testing elements, testing design, implementation, and reporting. Clarity on architectural decisions and how they are made and recorded is critical to successful engineering, implementation, and AI ecosystem management.
- The AI engineering method will only work if there is a clear definition, application, and deployment of the method. This can be aided by a framework that expresses the responsibilities of the AI architecture method, the relationship between AI architecture and AI engineering, management of AI, planning, and reporting.

In order to maintain control over the use of citizen data, and data related to critical national infrastructure, data and AI sovereignty must be key principles applied not just during the lifecycle of an AI tool, but well before it reaches procurement stages. Data Quality principles should encompass completeness, accuracy, consistency, integrity, timelessness, and validity. Government should ask itself what these terms mean, how they can be measured, how they can be enforced, and what that data is then able to be used for.

#### **Competency**

Al spans so many different sectors and industries, it is imperative that regulation is harmonised; these principles rely on having a workforce that adequately trained to understand and use Al appropriately. It is vital that users are able to identify and recognise

their responsibility towards government's use of AI. By successfully utilising AI, government will incentivise other sectors to do the same, therefore enhancing the nationwide incorporation of AI. Government also needs to build capability within their tech departments to collaborate with the private sector, but not rely on consultants to deploy AI capabilities.

To enhance competency, there needs to be further investment into bridging the skills gap. The current lack of skills in AI is not only a safety concern but is hindering productivity and the ability to deliver contracts. As among employers that expect AI to be important for them, 50% say they don't have the necessary skills, 32% of employers reported an AI skills gap at technician level and 46% say that senior management do not understand AI (Source: <u>2022</u> <u>Skills for a digital future survey – summary report</u>, IET). Therefore, proper training and skills means safer AI. This will be aided by having tools and techniques available to AI developers that can help them prove they are safe and fit for purpose to regulators.

To maximise the potential of AI, we need to see a suite of agile training programmes, such as compulsory short courses that staff can complete, with the same stringency as GDPR training. This should be planned as a project, and the government should own the training and the outcomes of it, rather than outsourcing it to a private supplier. This will avoid digital dependency on a third-party supplier, and help government prove competency in all aspects of the AI adoption pipeline. Training will also benefit AI users as it is the users responsibility to ensure the continuous learning of the AI model and that the model is safe to use, the responsible handover of AI provide a good foundation for this to be developed (Source: <u>Responsible handover of AI</u>, Sense about Science, 2023).

Ensuring there is a regulatory oversight body, which has a balance of experts from industry, academia and further afield such as social science, to co-ordinate guidance on good practice and deliver sanctions where misuse has occurred. The oversight body is necessary to ensure AI is used safely and to help prevent incidents from occurring, and it is fundamental to maintaining public trust, which underpins the economic and social benefits AI can bring. The oversight body can ensure that transparent and appropriate specifications are in place regarding how the data will be used, the initiatives and programmatic design, governance, architecture, engineering, ecosystem, and funding for the near and medium-term future.

#### Al ethics

Given the broad reach, and strong moral obligation that government has towards its citizens, AI ethics must be central to the principles that drive use of AI in government. Several AI ethics frameworks exist, however these frameworks must be updated, to include the impact of Generative AI, copyright, licensing, and to ensure the facets (governance, information, architecture and engineering) of AI align.

Government should also consider the suppliers of AI capabilities and assess the environmental impact of AI tools, as well as how that technology is supplied. This could be through procurement to manage the carbon footprint of the AI product.

Ethics should be the number one criterion when examining AI use cases, particularly in highrisk AI application areas such as health, education and policing.

#### Strategic application of Al

The government needs to assess where the UK is best suited to apply and invest in AI technologies in order to maximise returns. Strategic investment will enhance the success of the use of AI in government and encourage organisations from other sectors to adopt AI.

Large Language Models (LLMs) and frontier models may no longer provide a good return on investment, the IET supports the government looking into increased standards throughout

the AI cycle, such as: safety and risk management, our current AI technologies, and the next generation of AI technologies.

#### **Operate above industry standards**

The EU AI Act provides a strong basis for the deployment of AI in high-risk use cases. In the absence of a UK version, government should consider compliance. The professional standards, published by the ISO, considers all aspects of AI use, and should be applied where appropriate. The government should consider AI as a digital asset and follow asset management standards.

Government departments should look to achieve accreditation in the various standards, some of interest may include:

- ISO/IEC 23894 Information technology Artificial intelligence Guidance on risk management
- ISO/IEC 42001:2023 Information technology Artificial intelligence Management system

A framework outlining AI Information and Data Governance will draw attention to the governance of all end-to-end information and data, and provide a definition of policies, standards, guidelines, procedures, and processes. These are all definitively different types of artefacts and do different things, for example, a policy may have guidance that helps people understand, whereas a procedure is a written definition of operations, and a process is a specification of the steps to take that may roll up to a procedure.

This framework will also provide a definition of the forums and boards that manage it, for example the Data Strategy Board and the Information Governance Board. It can also extend to the scope of governance within a department, and ask prominent questions such as: what is the boundary of the governance of information, or data?

As well as this, it is critical that the appropriate legal and regulatory structures are in place to allow Al's safe development and use but also do not stifle innovation. It needs greater transparency around the training and operation of Al systems. This is especially relevant for publicly accessible LLMs, like ChatGPT, which trains its models in part on user data. The government should establish firm rules on which data can and cannot be used to train Al systems – and ensure this is unbiased as part of the new data centres outlined in the manifesto pledges.

#### **Sustainability**

There is a unique juxtaposition between AI and sustainability, as AI is a high consumer of energy, but also possesses huge potential to tackle climate change. AI can transform the energy efficiency of other carbon-intensive industries, such as modelling buildings to predict energy use (Source: European Cluster Collaboration Platform, Artificial Intelligence improves the energy efficiency of buildings). Reports predict that the use of AI could help to mitigate 5-10% of global greenhouse gases by 2030 (Source: Boston Consulting Group, How AI Can Speed Climate Action).

The IET recommends that AI regulations should now look beyond the immediate risks of AI development to the much broader impact it has on the environment. There should be a bronze, silver, gold standard for the approval of new data centres in the UK, based on a sustainability rating. This would emphasise the moral responsibility surrounding data centre energy consumption (Source: The cloud is not in the sky: <u>Why the energy consumption cost of AI models is not equal and what this means for Sustainability</u>, IET, 2024).

Government should subsequently encourage the removal of "bronze" data centres (those not using green energy) in the UK. Government needs to recognise that current storage models (data centres) are unsustainable without greener infrastructure, therefore, government should also support green technologies by building sustainability into appropriate regulation of new and expanding technologies (Source: The cloud is not in the sky: <u>Why the energy consumption cost of AI models is not equal and what this means for Sustainability</u>, IET, 2024).

### **Searchability**

Data and Information must be able to be searched and found with options in the metadata, such as creation date, updated date, owner, and department. This will enhance the usability and transparency of the AI model and help show the success of adopting AI. Search tools can include internal Microsoft Office tools, external data marketplaces or any other data lake. Audits should be performed to confirm this searchability and that the users are able to find what they are after.

This can be enhanced by adopting the 'AI FAIR Data Specification and Alignment' (Source: FAIR principles, GOFAIR). FAIR is a standard that relates to the way data are Findable, Accessible, Interoperable, Re-usable, and must apply throughout the AI ecosystem.

#### **Cybersecurity**

Cybersecurity must include the protection of data, access to data and AI services, where the algorithm is going to be hosted, and all of the ISO cyber standards. Cybersecurity needs to be (a) built into the curriculum for relevant disciplines and (b) needs to be reviewed as part of every board decision. Data learned by AI must be kept under government data centres rather than suppliers.

#### **Conclusion**

We welcome the government taking steps to integrate AI into its everyday use, however AI must be applied diligently, and appropriately.

We recommend that strong data foundations, competency and standards / regulations be at the forefront of the governments use of AI, without these factors, the use of AI will stagnate or fail to uptake effectively. Following these recommendations will aid the government to increase the use of AI, and then extend into the private sector, ultimately facilitating nationwide implementation use of AI.

There's a wide range of organisations with expertise in this field who would be willing to assist the governments use of AI wherever necessary.

Please let us know if you would like any further clarification on these points, we would be happy to have a meeting with you to discuss anything further.