The Use of Artificial Intelligence in Government

Contributions From:

GovNet Technology

Newham London

Department for Science, Innovation & Technology

DigiGov Expo'24

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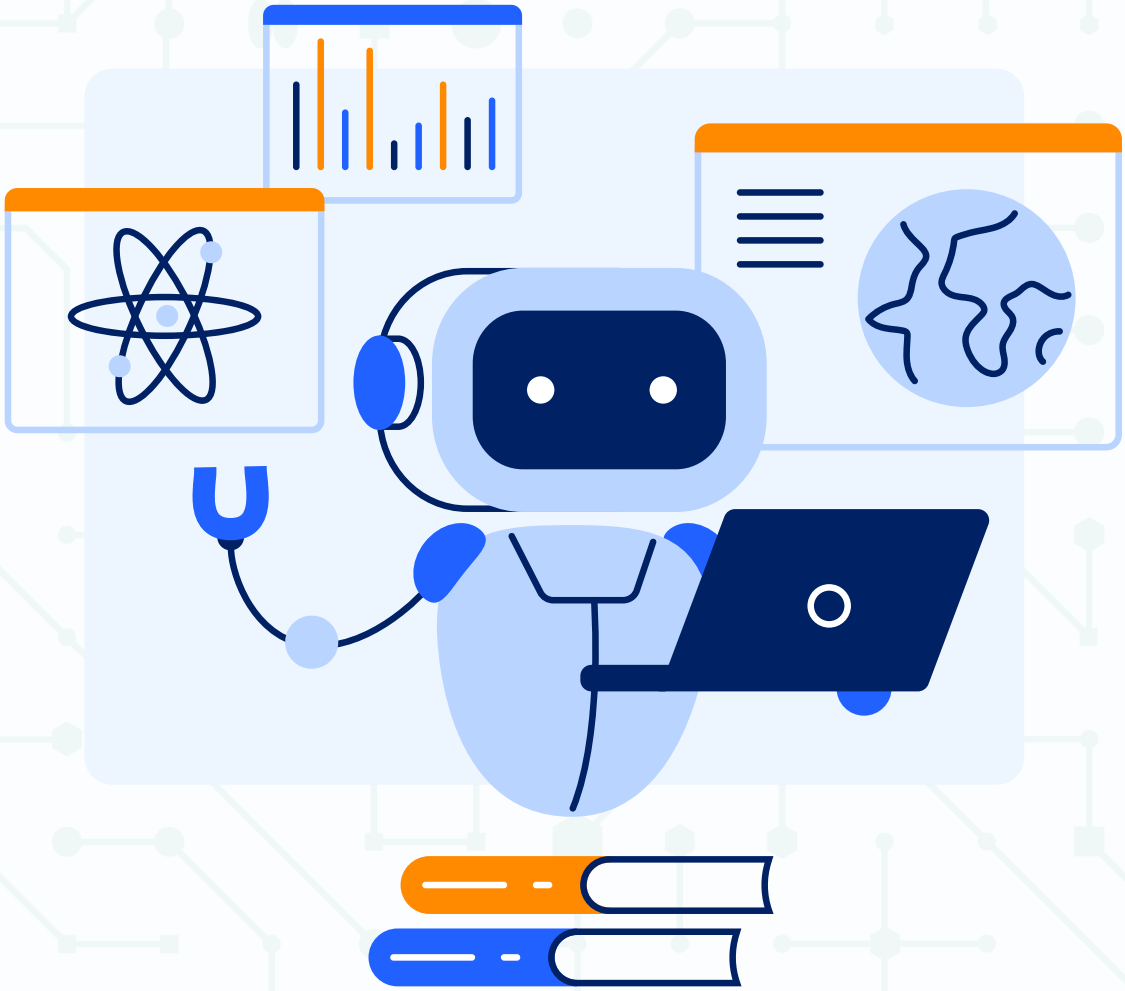


INTRODUCTION

Artificial Intelligence (AI) has rapidly emerged as a transformative technology with the potential to revolutionise various sectors, including government operations. As the UK government seeks to enhance efficiency, improve public services, and drive innovation, the integration of AI has become increasingly prominent. This report explores the multifaceted use of AI within the UK government and beyond, assessing its current applications, benefits, challenges, case studies and future directions.

AI technologies are being deployed across a broad spectrum of governmental functions, from healthcare and law enforcement to public services and transportation. These technologies are not only enhancing operational efficiency but also offering new capabilities that were previously unattainable. However, the adoption of AI also brings forth significant challenges and risks, including ethical concerns, privacy issues, and the need for robust regulatory frameworks.

This report provides a comprehensive analysis of how AI is currently used within the UK government, examining specific case studies to highlight successes and lessons learned. By evaluating the benefits and addressing the associated challenges, this report aims to offer insights into the strategic steps necessary for optimising AI use in government functions.

The methodology for this report includes a review of existing literature, analysis of relevant case studies, and consultation with key stakeholders involved in AI initiatives within the government. As AI continues to evolve, its impact on government operations is expected to grow, presenting both opportunities and challenges. This report aims to equip policymakers, practitioners, and stakeholders with the knowledge and insights needed to navigate this complex landscape.

A BRIEF HISTORY AND BACKGROUND OF ARTIFICIAL INTELLIGENCE IN UK GOVERNMENT

Much has changed in the government use of Artificial Intelligence since the launch of the 2017 Industrial Strategy, which set out the government's vision to make the UK the global hub for AI Innovation. Since then, the UK government has established multiple strategies and governmental bodies to handle the growing need for investment and innovation into AI, such as 2018's AI Sector Deal, a collaboration between the government and the UK's AI ecosystem to solidify the UK's leadership position in developing AI technologies; the Office for Artificial Intelligence which acted as the government's central AI policy authority; or the AI Council secretariat which has been instrumental in shaping the National AI strategy, including the roadmap published in early 2021.

Perhaps unsurprisingly, as the technology itself continued rapidly evolving in the last few years, so has the government's approach to regulations. The most significant change came with the creation of the Department for Science, Innovation and Technology (DSIT) in February 2023, taking away technology from the then Department for Digital, Culture, Media and Sport and research from Department for Business, Energy and Industrial Strategy, which was previously responsible for research funding; signalling to the tech community the true importance of innovation and technology to the British ecosystem. For the first time ever, AI became present in a Department's framework, being listed as the first of five critical technologies. "Pro-innovation approach to AI" and the wider use of Large Language Models in the public sector are named as key steps to achieving this framework; and key to achieving an innovative public sector, with a culture of innovation in the civil service. The creation of DSIT and the commitment to investment in, and regulation of AI has been a key change in government's approach to AI – bringing it to the forefront of their priorities for the first time.

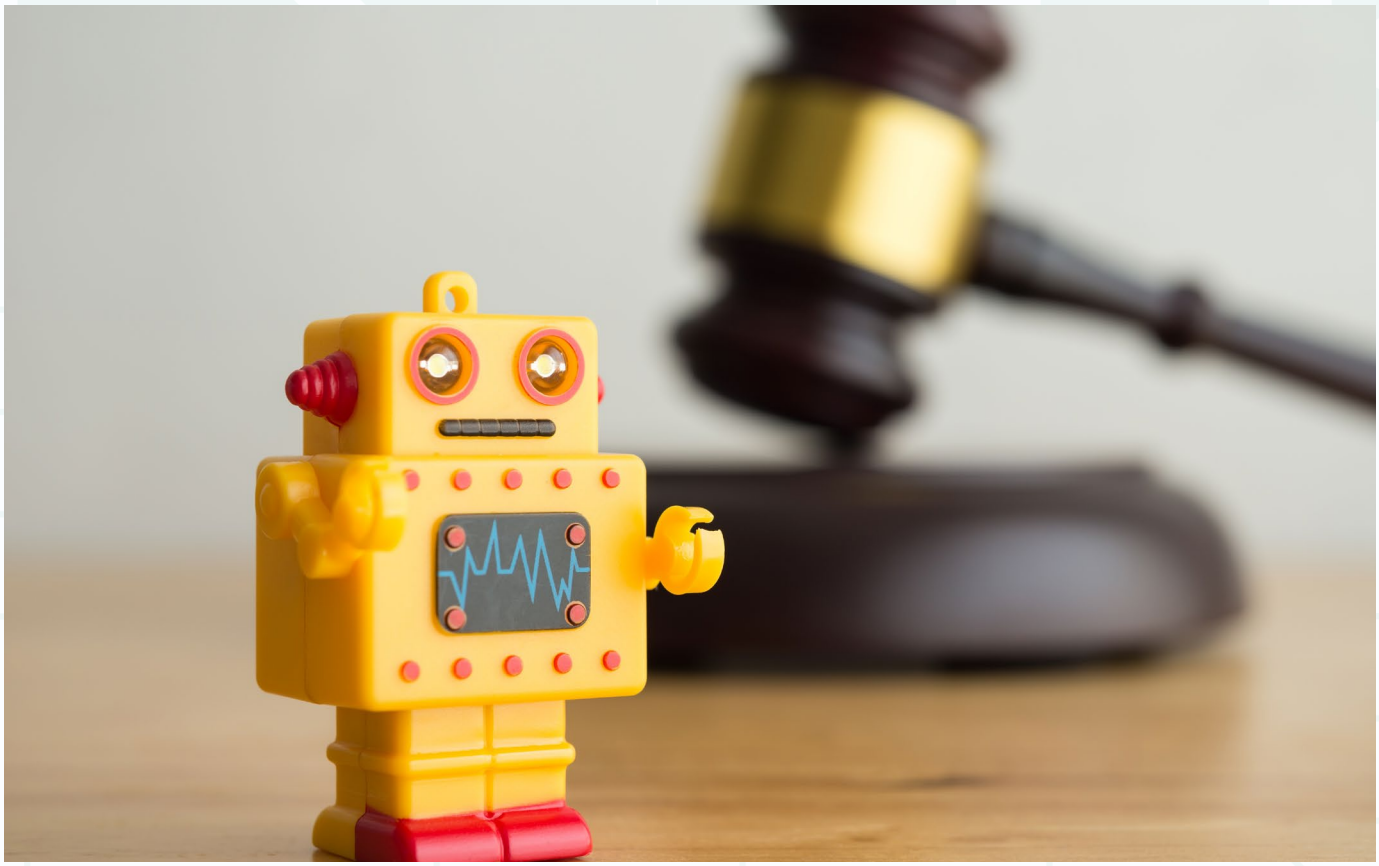
At the moment of writing of this report (July 2024), early into UK's new Labour government, little is known about implications of the new ruling power on AI, however, it is likely that the government will adopt a novel approach to regulation. The King's Speech stated that the new Starmer-led government "will seek to establish the appropriate legislation to place requirements on those working to develop the most powerful artificial

intelligence models;" and in the introduction the Prime Minister himself promised that "[the government] will harness the power of artificial intelligence as [it] looks to strengthen safety frameworks." While the specific implications of the UK's new Labour government on AI remain uncertain, initial statements suggest a commitment to proactive regulation.

Department for Science, Innovation, & Technology

While DSIT has been leading policy on AI investments and regulations, many other government departments and public sector bodies have their own strategies and approaches to the topic, oftentimes offering more practical examples of real-life use of the technology. In fact, in March 2024, the **National Audit Office (NAO) reported that 70% of surveyed government agencies are either testing or planning to implement AI.** These AI applications are intended to aid in operational decision-making and enhance internal processes.

The evolution of the UK government's approach to AI reflects a dynamic and growing commitment to positioning the country as a leader in AI innovation. The new Labour government's preliminary statements indicate a likely continuation and enhancement of this proactive stance, focusing on establishing robust safety frameworks for AI. As various government departments continue to develop their own strategies, the UK's multifaceted approach to AI demonstrates a comprehensive effort to integrate this transformative technology across public sectors, ensuring both innovation and safety remain at the forefront of their agenda.



BENEFITS OF ARTIFICIAL INTELLIGENCE IN GOVERNMENT

The integration of AI in government operations holds immense promise, offering a myriad of benefits that can **transform public services**. This transformation is driven by AI's potential to **enhance efficiency, productivity, accuracy, and service delivery**. By streamlining administrative processes and automating routine tasks, AI-driven solutions **reduce time and costs**, allowing government employees to focus on more complex and value-added activities. Additionally, AI **improves decision-making** through data-driven insights, reducing human error and enabling more precise and timely responses to various challenges. Most importantly, AI has the potential to make government services more **accessible and inclusive,** thereby improving the overall quality of life for citizens.

GenAI systems can have a positive impact on productivity, particularly for novice and low-skilled workers.

AI has the potential to **boost public sector productivity**, which over the last 20 years has grown by an average of 0.2% per year. This suggests that the UK public sector may have lagged in adopting technological advances or that these advances have not translated into increased productivity. An average civil servant spends up to 30% of their time performing administrative tasks. If applied correctly, the emergence of Generative AI truly has the potential to transform how the public sector works, **boosting service delivery** and allowing civil servants to focus on tasks that require human intelligence, potentially increasing **job satisfaction.** In autumn 2023, Central Data and Digital Office (CDDO) analysed the potential productivity gains from large-scale AI adoption across the civil service and public sector. The study estimated that automating routine tasks with AI could save billions, potentially automating nearly a third of civil service tasks. This has been trialled globally, for example, Boston City Council has been using Generative AI to draft job descriptions, freeing up their employee's time of that mundane task. The assumption that GenAI has the potential for positive impact on workers is supported by private-sector case studies: a 2023 study on the impact of GenAI on highly skilled workers found that when AI is used within the boundaries of its capabilities, it can improve a worker's performance by as much as 40% compared with workers who do not use it. Another study has found that GenAI systems can have a positive impact on productivity, particularly for novice and low-skilled workers. In fact, in the wider UK public sector, AI is already being used to increase productivity, as seen in the use of predictive analytic systems to support the allocation of resources in health and social care, or the use of spatial analysis to create heat maps of residents' proximity to services in planning and development; freeing the time of skilled workers further.

In public services, **AI enhances citizen experiences** through personalised and faster service delivery, such as AI-powered chatbots that handle inquiries efficiently. Aberdeen's AI-powered chatbot enhances citizen services by providing multilingual support, 24/7 availability, and assistance with various council services like waste collection and housing information. It streamlines access to information, reducing the need for phone calls or office visits, and continuously improves through learning from interactions, making it a convenient and efficient tool for residents.

AI has potential to increase accessibility and therefore strengthen democracy, as found in the iDEM project funded by the European Commission. The team behind the project has designed software that simplifies government announcements, reports, and press releases to adapt them for marginalised groups. Millions of people in the EU and beyond struggle with language barriers (for example dyslexia, low levels of literacy, intellectual disabilities) that restrict their full participation in democracy. The team behind the project has run the test in 4 languages (English, Italian, Spanish and Catalan) on 4 different types of governmental documents. Successful in each trail, the iDEM project has shown potential of using AI language models to strengthen democracies by reaching more citizens through document simplification. A similar trial is currently underway in Boston, where the City Council is testing the use of GenAI to summarise raw data which is not easily consumed by the public, such as issues the City Council has been voting on, increasing accessibility. Similar advances have been implemented in New Jersey, where the state is using GenAI tools to help simplify language on unemployment insurance claimant communications.

In conclusion, the integration of AI in government operations presents a transformative opportunity to enhance public services. From increasing productivity and efficiency to improving accessibility and strengthening democracy, AI offers a powerful tool to modernize government functions and better serve citizens. By embracing these technological advances, governments can create a more responsive, inclusive, and effective public sector, ultimately benefiting society as a whole.

CHALLENGES AND RISKS

The integration of AI into government operations presents numerous opportunities, yet it also introduces a spectrum of risks that must be meticulously managed. These risks encompass potential **biases in AI algorithms, threats to privacy and data security, challenges in accountability and transparency, and the possibility of exacerbating existing inequalities**. Addressing these concerns is crucial to harnessing the full potential of AI while maintaining the integrity and fairness of governmental processes.

Potential Biases and Ethical Concerns

AI systems, if not properly managed, can perpetuate and even amplify existing biases. This is evident in various international studies and examples. For instance, joint research by the Irish Departments of Finance and Enterprise revealed that women in Ireland are predicted to be more exposed to the impact of AI on jobs due to the over-representation of men in roles and industries considered less likely to be affected by AI adoption. Such biases can lead to unequal impacts and exacerbate existing social inequalities.

When asked about potential issues surrounding AI applications in government Shannon Vallor (Baillie Gifford Professor in the Ethics of Data and Artificial Intelligence; Director, Centre for Technomoral Futures; Co-Director, UKRI BRAID Programme) responded: "How AI transforms the way government interacts with citizens will depend on whether governments learn the lessons of prior harmful uses of algorithms and computing systems in the public sector: from the unfit use of algorithms to automate benefits fraud in the Dutch child benefit scandal (which resulted in the resignation of the Dutch government in 2021) to the Post Office scandal in the UK, to Robodebt in Australia, to the MiDAS case in Michigan in the United States.

None of these involved algorithms sophisticated enough to be called 'AI,' but AI invites the same risks of lack of human accountability, harmful and biased outcomes, and dangerous overconfidence in technological solutions. It's worth noting that the most harmful and trust-damaging cases of government use of tech have involved attempts to use software tools to **punish the most vulnerable citizens or increase efficiencies at their expense**, rather than to better serve and benefit them. If governments can examine these failures, critically reflect upon the causes and learn to avoid these tendencies, then there is a very good chance that AI tools can be implemented in ways that actually improve government services to citizens, and even enhance accountability and transparency.

But that's not the default path, it's not the status quo. It requires a profound shift in attitude and habits of thinking by those who procure and deploy these tools. There are encouraging developments in the US and UK where new standards and guidelines for responsible AI procurement by government are being recommended or implemented, and these are very helpful paths forward. But they won't work without a change in the attitudes and perceptions of people who use tech in government."

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Privacy and Data Security

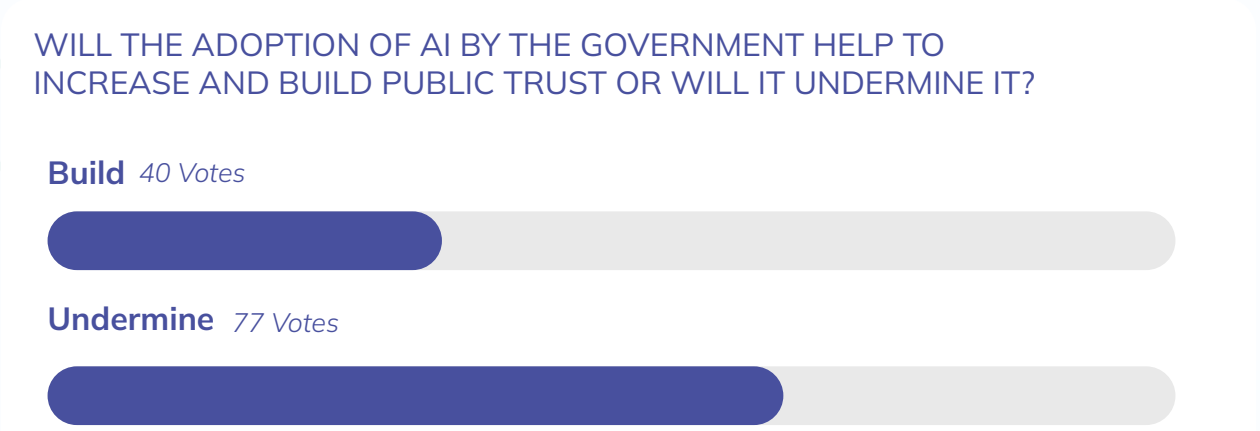
The use of AI in government introduces significant privacy and data security concerns that must be addressed to maintain public trust and protect sensitive information. AI systems often require vast amounts of data to function effectively, raising questions about how this data is collected, stored, and used. These concerns are amplified with the introduction of Generative AI tools, which pose unique risks compared to traditional AI systems. Generative AI tools, in particular, can inadvertently leak sensitive data. These systems are designed to generate new content based on the data they have been trained on, which can sometimes result in the unintentional disclosure of private information. This risk is heightened when AI is used in governmental contexts, where the data involved often includes personal, sensitive, and classified information. When commenting on Meta's plans to use user data in generative AI training, Stephen Almond, the ICO's Executive Director for Regulatory Risk said:

"In order to get the most out of generative AI and the opportunities it brings, it is crucial that the public can trust that their privacy rights will be respected from the outset."

Governmental Approaches and Public Trust

British Government as a whole, has so far been cautious in its approach to AI, trying to balance the want for innovation with a careful approach, keeping public trust at the forefront of its' guidance. The government is so cautious that AI technology is cited as a chronic risk in the National Risk Register 2023, arguing that "advances in AI systems and their capabilities have a number of implications spanning chronic and acute risks; for example, it could cause an increase in harmful misinformation and disinformation, or if handled improperly, reduce economic competitiveness."

Public trust in government use of AI is a critical issue. A survey at Digital Government revealed that 66% of the audience believed the adoption of AI by the government would undermine public trust rather than build it. This highlights the need for transparent, accountable, and ethical AI deployment to maintain and enhance public trust.



POLICY AND REGULATORY LANDSCAPE

On 6th February 2024, the UK Government released its much-anticipated response to the previous year's White Paper consultation on AI regulation. The Government's "pro-innovation" strategy, led by DSIT, largely adheres to the initial proposals. This strategy is a principles-based, non-statutory, and cross-sector framework designed to balance innovation and safety by leveraging the existing technology-neutral regulatory framework for AI. While the UK acknowledges that legislative measures will eventually be required, especially for General Purpose AI systems, it believes that immediate legislative action would be premature. **The government emphasizes the need to first gain a deeper understanding of the risks and challenges associated with AI**, as well as the regulatory gaps and the best methods to address them. This stance contrasts with other regions, such as the EU and, to a certain extent, the US, which are opting for more detailed legislative measures, highlighting the UK's distinct approach amid international regulatory developments.

An interesting and important piece for the UK AI landscape is the Information Commissioner's Office (ICO)'s Strategy on AI Governance, released in April 2024. Unlike the EU, the UK government has not deemed it necessary to appoint an independent regulator to oversee all AI. In their new strategy, the ICO argues that many of the principles established in the AI Regulation White Paper follow long-standing data protection principles, such as transparency, fairness, and accountability, making the ICO a de facto regulator of all AI. Data protection concerns have been at the forefront of risks related to AI, reinforcing the ICO's crucial role in the regulatory framework.

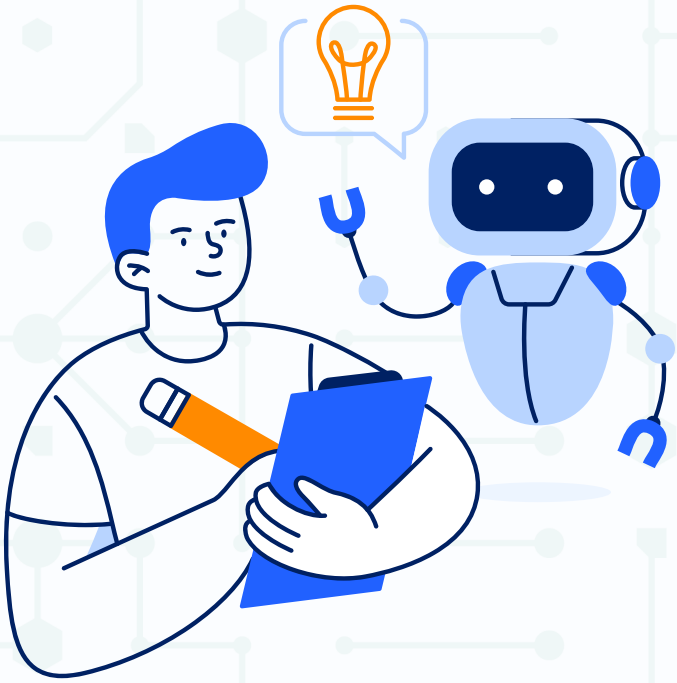
At the time of writing (July 2024) Labour's overall strategy for AI regulation is still ambiguous, however, it is likely that the new government will implement more tangible regulation of AI. King's speech suggests that Labour aims to focus on regulating the developers of the most advanced artificial intelligence models. This aligns with Labour's manifesto commitment to "ensure the safe development and use of AI models by introducing binding regulations on the few companies developing the most powerful AI models."

RECENT CASE STUDIES FROM THE UK PUBLIC SECTOR

Although AI and its use in government and beyond poses risks (as well as opportunities), public sector organisations have been testing and implementing cutting-edge solutions and innovative approaches to the use of AI in government.

Newham Council Case Study – AI in Government

Nathan Nagaiah, Data Economy & Founding Lead, UK Centre for Artificial Intelligence in the Public Sector, London Borough of Newham and Annie Radcliffe, Senior Policy and Inclusion Officer, London Borough of Newham. **If you have any questions regarding Newham's journey to AI, contact Nathan: nathan.nagaiah@newham.gov.uk and Annie: annie.radcliffe@newham.gov.uk**



In the London Borough of Newham, our goal is to foster a sustainable and ethical application of AI across Council services. Unlike many Councils that have rapidly adopted AI and are now scaling back, Newham Council has adopted a cautious approach, fully aware of the transformative potential AI can bring.

To facilitate the transformative potential of AI in a sustainable and effective manner, the Council has assembled a multidisciplinary team, encompassing Information Governance, Data, Policy, and Equalities. This team collaborates to mitigate risks and challenges associated with AI implementation. Our approach is multifaceted and includes:

- **Workforce Engagement:** We learn from our workforce about their use of AI through cross-council research.
- **Skills Development:** We are building a training programme that acknowledges the intrinsic link between data literacy and AI skills.
- **Policy Evolution**: We are creating a dynamic policy that can evolve with technological advancements over the coming years, with the Equality Act, Data Protection Act, and community engagement forming the cornerstone of our AI usage requirements.
- **Proof of Concepts:** We are testing AI tools such as Microsoft Copilot through Proof of Concepts.

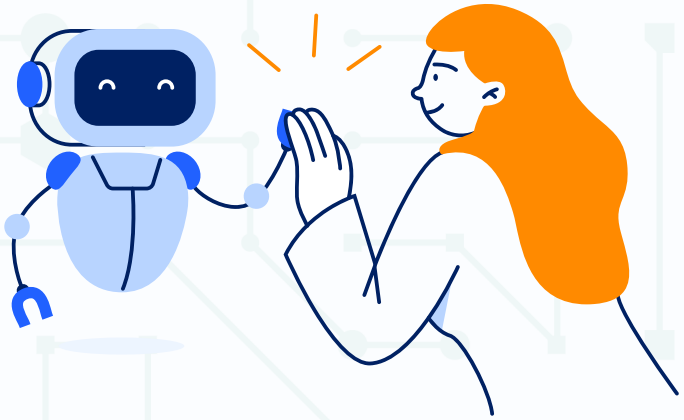
Microsoft Copilot Proof of Concept:

Newham's Microsoft 365 Copilot Proof of Concept involves using a limited number of licenses to test a range of use cases across different services. This will help us determine the value of investing in a larger volume of licenses for council-wide deployment. We are compiling a catalogue of use cases and a cost-benefit analysis to justify large-scale investment. The areas where we are trialling Copilot, and the anticipated benefits, include:

- **Homelessness / HPAS:** Improved accuracy in offers for residents, quicker response times, more robust decisions, and increased decision-making capacity.
- **Business Support Children's:** Quicker turnaround of rapid reviews and reduced time taken to produce Child Protection conference minutes, plans, actions.
- **Children's Quality Assurance:** Improved strategic insight, ability to track key performance indicators and metrics, gauge the effectiveness of services, identify areas for improvement, and more timely response to complaints.
- **Housing Lettings:** Prioritisation of urgent email requests, quicker response times, and clearance of backlogs.
- **Human Resources:** Quicker turnaround of Equality Impact Assessments and faster processing of job evaluations.
- **Education SEND Annual Reviews:** Reduced time taken to perform administrative tasks, quicker delivery of the right level of support for children, and faster decision-making to meet statutory deadlines.

NHS England

The NHS has been at the forefront of AI innovation and testing, launching the NHS AI Lab in 2019. The lab, a collaborative effort to leverage artificial intelligence in healthcare, brings together experts from government, hospitals, tech companies, and academia to tackle challenges in areas like early cancer detection and personalised care. A recent collaboration between the NHS AI Lab and the Accelerated Capability Environment (ACE) resulted in a successful proof-of-concept (PoC) tool to identify patients at risk of extended hospital stays. This AI-powered tool uses anonymized patient data to predict long-stayers, who experience worse health outcomes and consume more resources. **By highlighting these patients early, clinicians can adjust treatment plans to potentially reduce hospital stays and improve patient well-being.** The PoC achieved a 66% success rate in detecting high-risk patients and has the potential to save healthcare systems significant funds. A**I in the NHS is a great example of the potential that private-public partnerships have in transforming the lives of citizens.**



Newham Council aims to leverage AI tools such as Microsoft Copilot to alleviate the administrative burden on our staff, enhance response times and resident experience, improve our service insight, boost staff wellbeing by managing challenging workloads, and free up staff time for more resident-facing and strategic work.

Greater Cambridge Partnership: Smart Pedestrian Crossing Trial

The Greater Cambridge Partnership's Smart Pedestrian Crossing Trial demonstrates the application of AI in urban infrastructure to enhance public safety and traffic management. This initiative employs AI-driven sensors and cameras to monitor pedestrian movements and traffic flow at busy crossings. The system intelligently adjusts crossing times based on real-time data, prioritizing pedestrian safety while minimizing traffic disruption. By analysing patterns and predicting pedestrian behaviour, the AI ensures crossings are safe and efficient, particularly for vulnerable groups such as children, the elderly, and individuals with disabilities. This trial highlights the potential of AI to create smarter, more responsive urban environments, aligning with broader goals of improving liveability and sustainability in city planning. The project reflects a proactive approach to integrating advanced technology in public services, aiming to provide data-driven solutions to common urban challenges

By analysing patterns and predicting pedestrian behaviour, the AI ensures crossings are safe and efficient, particularly for vulnerable groups such as children, the elderly, and individuals with disabilities.

Cabinet Office: Automated Digital Document Review

The UK government has been integrating AI technologies to enhance efficiency and accuracy in its operations, exemplified by the Cabinet Office's use of an automated digital document review system. This system, designed to streamline the process of handling substantial volumes of documents, leverages advanced algorithms to categorize, summarize, and extract key information from texts. The primary objective is to reduce the manual workload on civil servants, allowing them to focus on higher-value tasks that require human judgment and expertise. By implementing this AI-driven tool, the Cabinet Office aims to accelerate document processing times, improve consistency in document handling, and ensure more reliable data management. The adoption of such technology underscores the government's commitment to embracing digital innovation to improve public administration efficiency and effectiveness.

CONCLUSION

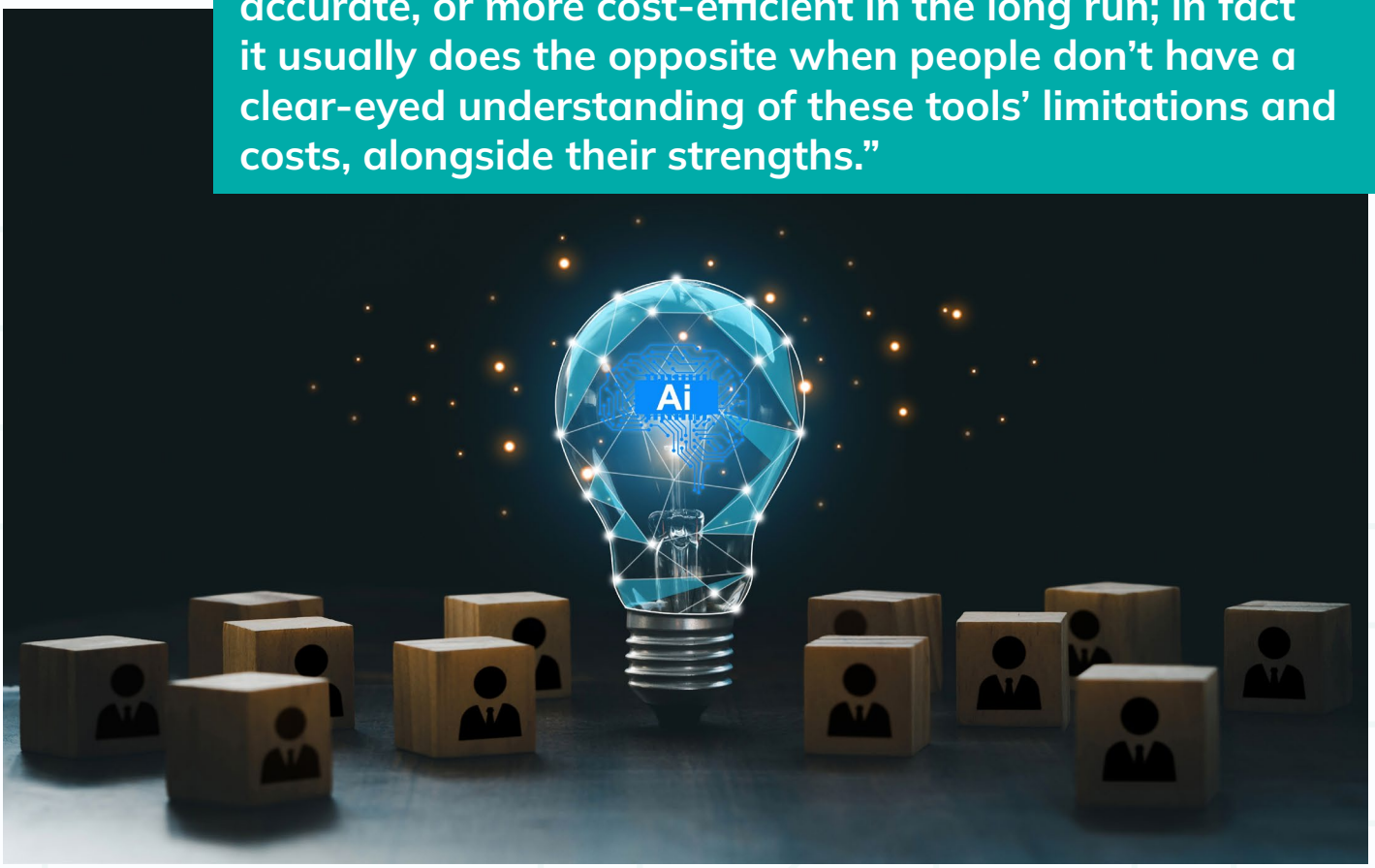
The use of AI in government operations presents a transformative opportunity to enhance public services. **AI can improve productivity, efficiency, and accessibility, making governmental functions more responsive and inclusive.** Projects like the iDEM initiative and the NHS AI Lab showcase how AI can simplify communication, optimise healthcare delivery, and enhance citizen experiences.

However, the adoption of AI in government is not without challenges. **Potential biases, privacy concerns, and issues of accountability must be carefully managed.** The UK's principles-based regulatory approach aims to balance innovation and safety, guiding the ethical deployment of AI. Case studies from Newham and Greater Cambridgeshire demonstrate the practical benefits of AI in improving public services.

These examples highlight the importance of strategic planning, workforce engagement, and dynamic policies in ensuring the ethical use of AI.

As Shannon Vallor argued when asked about the potential risks of AI use in government, "AI is not a magic solution to any government problem. It does not automatically make processes smarter, more accurate, or more cost-efficient in the long run; in fact it usually does the opposite when people don't have a clear-eyed understanding of these tools' limitations and costs, alongside their strengths." AI offers significant benefits for government operations, but its integration must be managed responsibly to mitigate risks and maintain public trust. With careful implementation, AI can modernise the public sector and better serve citizens.

"AI is not a magic solution to any government problem. It does not automatically make processes smarter, more accurate, or more cost-efficient in the long run; in fact it usually does the opposite when people don't have a clear-eyed understanding of these tools' limitations and costs, alongside their strengths."



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