Public Accounts Committee (Commons Select Committee)
Inquiry
On
Use of Artificial Intelligence in Government

Written Evidence

Submitted by: ***Dr Akshi Kumar,*** Senior Lecturer in Computer Science, Director-Post Graduate Research (PGR), Department of Computing, Goldsmiths, University of London, United Kingdom

"Balancing Act: Risks and Opportunities in AI Adoption within UK Government Services"

Executive Summary:

- AI adoption in government services promises significant enhancements in operational efficiency and public service delivery, enabling faster, more personalized responses to citizen needs while reducing costs through optimized resource allocation.
- Effective AI integration requires addressing key risks including privacy breaches, security threats, and potential biases. This demands stringent data protection measures, the development of secure and unbiased AI systems, and a commitment to enhancing AI literacy across the public sector.
- AI implementation across various government departments requires bespoke adaptations tailored to each department's unique data types, sensitivity levels, operational goals, and regulatory needs, ensuring flexible policies that uphold data integrity, quality, and privacy.
- Becoming AI literate is no longer just an advantage; it is a necessity. As we transition from computer to digital, and now to AI, understanding AI is crucial for navigating the challenges and opportunities of the future.

1. The integration of Artificial Intelligence (AI) into government services has the potential to transform public administration in the UK[1].

2. AI presents a unique set of opportunities and challenges for the UK government. By proactively addressing the associated risks and continuously enhancing the necessary data infrastructures and skills, the government can harness AI's potential to improve service delivery and operational efficiency while maintaining high standards of ethics, security, and public trust.

3. **Opportunities of integrating AI into UK government services:** The integration of AI within UK government operations offers several transformative benefits.

   3.1. ***Enhanced Operational Efficiency****:* AI can significantly increase efficiency across government departments by automating routine tasks, thereby reducing the manual workload. This leads to faster service delivery and reduces administrative backlogs[2, 3].

[1] Smart technology and the emergence of algorithmic bureaucracy: Artificial intelligence in UK local authorities. https://doi.org/10.1111/puar.13286
[2] Artificial intelligence in the delivery of public services. https://repository.unescap.org/handle/20.500.12870/368
[3] AI innovation for advancing public service: The case of China's first Administrative Approval Bureau. https://doi.org/10.1145/3325112.3325243

a) For instance, if local government bodies, such as city councils, were to integrate AI into their administrative processes, they could automate the handling of public inquiries and permit applications. This would not only expedite the processing times but also significantly reduce the workload on administrative staff. By employing AI-driven chatbots and automated processing systems, councils could offer 24/7 responsiveness, thereby improving service delivery and reducing delays[4].

b) Additionally, AI could be utilized to manage and analyze feedback from residents effectively. By using natural language processing, AI tools can assess sentiment, categorize feedback into relevant topics, and prioritize issues that require urgent attention[5]. This application of AI would enable local governments to respond more dynamically to residents' needs, fostering a more engaged and satisfied community. This streamlined approach would drastically reduce administrative backlogs and enhance the overall efficiency of local governance.

3.2. ***Improved Public Service Delivery****:* AI's capacity for advanced data analysis enables more personalized and responsive services, tailored to the specific needs of individuals. For example, AI-driven predictive analytics can be used by the National Health Service (NHS) to forecast patient admissions and manage hospital bed availability more efficiently, enhancing healthcare delivery[6].

3.3. ***Cost Reduction****:* By optimizing resource allocation and automating processes, AI can help lower operational costs. The savings generated can then be redirected towards other critical public services. For example, AI in the NHS can optimize inventory and appointment systems, reducing costs by enhancing resource utilization and minimizing wastage[7].

4. **Risks associated with AI Adoption in UK government services:** Adopting AI introduces certain risks, requiring thoughtful mitigation strategies.

4.1. ***Privacy concerns:*** The use of AI in government raises substantial privacy issues, particularly concerning the handling and protection of personal data. For example, with the implementation of AI in the NHS for patient data analysis, there is an increased risk of personal health information leakage[8]. To mitigate these risks, stringent data protection measures and compliance with privacy laws are crucial to maintain public trust and safeguard personal information.

4.2. ***Security risks when used in government services:*** AI systems can be vulnerable to cyber threats[9]. The security of these systems must be rigorously maintained to protect sensitive government and public data from unauthorized access.

---

[4] Responsible urban innovation with local government artificial intelligence (AI): A conceptual framework and research agenda.
https://doi.org/10.3390/joitmc7010071

[5] Machine learning and Natural Language Processing of social media data for event detection in smart cities
https://doi.org/10.1016/j.scs.2022.104026

[6] Revolutionizing healthcare: the role of artificial intelligence in clinical practice.
https://doi.org/10.1186/s12909-023-04698-z

[7] Optimizing Hospital Management with AI.
https://www.researchgate.net/profile/Kaledio-Potter/publication/379690196_Optimizing_Hospital_Management_with_AI/links/661564a366ba7e2359b93cf8/Optimizing-Hospital-Management-with-AI.pdf

[8] Security, privacy, and information-sharing aspects of healthcare artificial intelligence
https://doi.org/10.1016/B978-0-12-818438-7.00010-1

[9]Guarding the UK's Critical Infrastructure: The Rumour Challenge in Cyber Resilience, https://committees.parliament.uk/writtenevidence/125222/pdf/

4.3. ***Ethical and Bias Issues**:* There is a risk that AI algorithms may perpetuate existing biases or introduce new biases, leading to unfair treatment of certain groups[10]. To manage these ethical concerns, it's important to develop AI systems that are transparent and accountable. Regular audits and reviews should be conducted to check for and mitigate biases. Establishing ethical guidelines and training programs on ethical AI usage can also help maintain fairness and integrity in public sector AI applications[11].

a) For example, if AI is applied in law enforcement, such as in predictive policing by the Home Office, there is a risk of reinforcing societal biases[12]. Continuous monitoring and the development of unbiased algorithms will be necessary to ensure fairness and avoid discrimination.

5. **Addressing Data Challenges:** Challenges in data collection, maintenance, and accessibility can hinder AI's performance.

5.1. ***Data Quality and Accessibility**:* Many AI applications require high-quality, accessible data. The UK government needs to address these issues by upgrading data infrastructure and promoting open data initiatives[13], which facilitate better data availability and quality across departments.

5.2. ***Data Sharing**:* Enhancing data sharing between departments can improve the effectiveness of AI systems. Initiatives should be in place to standardize data formats, ensuring compatibility and efficiency across various systems. For instance, the adoption of AI in transportation management by the Department for Transport will necessitate extensive data sharing between local and national agencies. Developing standardized data-sharing protocols will be essential to optimize traffic management and reduce congestion[14].

6. **Addressing Skill Challenge:** The shift towards AI necessitates a new set of skills within the public sector. Smaller, sub-national agencies often face acute constraints in attracting highly skilled data science & AI (DSAI) staff or contractors[15].

6.1. ***Bridging the Skills Gap**:* The rapid deployment of AI technologies necessitates a workforce that is proficient in AI-related skills[16]. AI literacy and training programs that are specifically tailored for public sector employees, will ensure they are equipped to handle new technologies effectively.

---

[10] The Journey to Trustworthy AI-Part 1: Pursuit of Pragmatic Frameworks
https://arxiv.org/pdf/2403.15457.pdf

[11] Mapping Ethical Artificial Intelligence Policy Landscape: A Mixed Method Analysis
https://doi.org/10.1007/s11948-024-00472-6

[12] Policing the future? Assessing the mobilisation of Big Data by UK law enforcement
https://research.rug.nl/en/publications/policing-the-future-assessing-the-mobilisation-of-big-data-by-uk-

[13] Open Data Ownership and Sharing: Challenges and Opportunities for Application of FAIR Principles and a Checklist for Data Managers.
https://doi.org/10.1016/j.jafr.2024.101157

[14] Study methods for optimizing traffic flow in urban settings, including real-time routing, congestion management, and adaptive traffic signal systems.
https://www.researchgate.net/profile/Joseph-Oluwaseyi-2/publication/377219317_Study_methods_for_optimizing_traffic_flow_in_urban_settings_including_real-time_routing_congestion_management_and_adaptive_traffic_signal_systems/links/659ad5cb2468df72d301e1f9/Study-methods-for-optimizing-traffic-flow-in-urban-settings-including-real-time-routing-congestion-management-and-adaptive-traffic-signal-systems.pdf

[15] Data science, artificial intelligence and the third wave of digital era governance. DOI: https://doi.org/10.1177/09520767231198737

[16] Developing a model for AI Across the curriculum: Transforming the higher education landscape via innovation in AI literacy.
https://doi.org/10.1016/j.caeai.2023.100127

6.2. ***Partnerships for Knowledge Exchange****:* To sustain the development of AI skills, the government should foster partnerships with academic institutions and the private sector[17]. These collaborations aim to keep the public sector updated with the latest AI advancements and practices.

7. **AI Literacy**[18]**:** AI literacy is essential for understanding the mechanics, ethical implications, and practical interactions with AI technologies. The public sector workforce needs to be proficient in AI-related skills to adapt to new technologies. This is vital for ensuring ethical usage and mitigating risks associated with AI deployments in public services.

8. Different government departments may have varying requirements and constraints that necessitate bespoke adaptations in AI implementation. This is due to differences in the types of data handled, the sensitivity of information, operational goals, and regulatory frameworks.

9. A *one-size-fits-all* policy does not suffice; instead, policies must be flexible and adaptable to ensure data integrity, quality, and privacy across diverse governmental contexts[19]. This tailored approach helps address specific needs and challenges unique to each department. For example, the following considerations should be taken into account:

    9.1. ***Healthcare:*** Ensure AI systems comply with strict patient privacy laws and ethical standards for medical data use and support personalized patient care plans[20].

    9.2. ***Finance and Taxation:*** Prioritize robust security measures to protect sensitive financial data and implement AI for fraud detection and streamlined tax processing[21].

    9.3. ***Education:*** Develop AI tools that adapt to diverse learning environments and needs, while safeguarding student data privacy and supporting personalized learning paths.

    9.4. ***Transportation:*** Utilize AI to optimize traffic management and public transport logistics, ensuring compliance with safety and environmental regulations[22].

    9.5. ***Law Enforcement and Public Safety:*** Balance the use of AI in surveillance and crime prediction with civil liberties and privacy rights[23].

    9.6. ***Social Services:*** Implement AI to enhance service delivery efficiency, but with safeguards against bias in automated decision-making processes affecting public benefits[24].

    9.7. ***Defence:*** Deploy AI for defence strategies and operations ensuring strict adherence to ethical guidelines and national security protocols[25].

---

[17] Diplomacy in the Age of AI: Challenges and Opportunities
https://doi.org/10.60087/jaigs.v2i1.p110
[18] Conceptualizing AI Literacy: Educational and Policy Initiatives for a Future-Ready Society.
DOI: https://doi.org/10.56025/IJARESM.2023.1201241543
[19] Flexible, Pro-Innovation Governance Strategies for Artificial Intelligence
https://ssrn.com/abstract=4423897
[20] Ethics and governance of trustworthy medical artificial intelligence
https://doi.org/10.1186/s12911-023-02103-9
[21] AI-driven Tax Automation: An In-depth Review.
https://www.asjp.cerist.dz/index.php/en/article/240314
[22]AI Application in Transport and Logistics: Opportunities and Challenges (An Exploratory Study).
https://pure.hva.nl/ws/portalfiles/portal/35567013/AI_Application_in_TL_Final_Report_8_05_23.pdf
[23] Human Rights Review of Privacy and Policing.
https://niopa.qub.ac.uk/bitstream/NIOPA/16737/1/Human%20Rights%20Review%20of%20Privacy%20and%20Policing%20-%20Tagged.pdf
[24] The Implication of AI In Social Welfare Systems: Potential Risks And Prevention Measures.
https://www.etd.ceu.edu/2023/akhmedjonov_akmaljon.pdf

9.8. ***Environmental Management:*** Use AI to monitor and manage environmental resources effectively, ensuring technologies comply with environmental protection laws and contribute to sustainable practices[26].

10. Government's ambition is for the public sector to set an example in the safe and ethical deployment of artificial intelligence (AI) can only be achieved if there is a robust framework for AI governance, comprehensive training for AI literacy, and strict adherence to data protection and privacy standards. A balancing act is required to maximize AI's benefits while carefully managing its associated risks in UK government services.

X----------X

Credentials for the evidence submission concerning 'Use of AI in Government'

Greetings,

I am Dr. Akshi Kumar, an AI expert specializing in Natural Language Processing with applications in social media and healthcare. My work focuses on developing algorithms to analyze online behaviours, including sentiment and personality, and detecting fake news and rumours. Additionally, I apply AI to create personalized healthcare solutions. I hold a certification in Ethics in AI from the London School of Economics, underscoring my commitment to ethical AI practices.

My technical expertise has been recognized in significant ways, including through written evidence I've provided to Parliament concerning AI's impact on media (*Media in Transition: Assessing the Impact of Technology and AI on News Integrity and Trust*, Written Evidence: FON0002) and Cyber Resilience (*Guarding the UK's Critical Infrastructure: The Rumour Challenge in Cyber Resilience* Written Evidence: CYB0001). These works have contributed to broader discussions on how AI technologies affect our society and the precautions we need to take.

As a technologist deeply involved in understanding AI's inner workings, I bring a unique perspective to how we can better align AI developments with public policy and education, ensuring safe and beneficial use.

Additionally, my recent work includes a paper on AI literacy *(Conceptualizing AI Literacy: Educational and Policy Initiatives for a Future-Ready Society)* that has outlined strategies to improve public understanding of AI. This paper proposes integrating AI education into school curricula, running targeted public awareness campaigns, and continuously updating these efforts to adapt to new technological developments. It aims to prepare communities to use AI responsibly and effectively.

In conclusion, my varied and in-depth experience in AI, particularly in NLP and its applications across critical sectors, positions me uniquely to contribute effectively to the discourse on AI's role in government. My track record of engaging with policymakers and the academic community underscores my capacity to bridge the gap between technical solutions and societal needs, ensuring that AI advancements are harnessed ethically and responsibly for public benefit. I am committed to fostering an informed dialogue that enhances AI integration into public domains, promoting transparency, accountability, and inclusivity.

Warm regards,
Dr. A. Kumar
Akshi.Kumar@gold.ac.uk

---

[25] From AI Ethics Principles to Practices: A Teleological Methodology to Apply AI Ethics Principles in The Defence Domain.
https://doi.org/10.1007/s13347-024-00710-6

[26] Harnessing Technology for Environmental Sustainability: Utilizing AI to Tackle Global Ecological Challenges
https://doi.org/10.60087/jaigs.v2i1.p57