International Journal of Technology, Management and Humanities Volume 11, Issue 2, 2025

Artificial Intelligence as a Tool for Enhancing Transparency in Public Administration

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Abstract

Artificial intelligence (AI) has become an increasingly accepted tool for enhancing transparency in government. AI assists governments in reducing corruption, enhancing service delivery, and improving accountability by enabling automated data analysis, real-time monitoring, and greater citizen engagement. The use of machine learning and natural language processing can provide tools to identify anomalies in government expenditure, ease access to government information, and facilitate the use of evidence in decision-making. The introduction of AI into public administration is fraught with difficulties, despite its potential, including the risk of data loss, algorithmic bias, and the need for a robust regulatory framework. These issues will have to be tackled in order to guarantee that AI not only improves transparency but also promotes ethical governance. This paper examines AI-based solutions that may promote open, responsible, and transparent institutions of the people.

Keywords: Artificial intelligence, Transparency, Public administration, Accountability, Governance, Machine learning, Open data.

International Journal of Technology, Management and Humanities (2025) DOI: 10.21590/ijtmh.11.02.12

Introduction

In public administration, transparency is fundamental, shaping how the government interacts with citizens, manages resources, and enforces accountability. Artificial intelligence (AI) has become an evolving tool to transform transparency in government systems. As governments worldwide adopt digital technologies to improve transparency, effectiveness, and trust, AI can increase information availability, streamline administrative operations, and enhance inspection functions (Henman, 2020; Ejjami, 2024).

The increasing incorporation of AI into state-sector activities is driven by its ability to process large volumes of data, identify complex trends, and automate routine decision-making. Such features can help governments make administrative processes more transparent, quicker, and more trustworthy. For example, machine learning applications can detect procurement and financial flow anomalies and help prevent corruption, whereas natural language processing systems make it easier to communicate and engage in open data practices (Wirtz, Weyerer and Geyer, 2019; Stankovich, Behrens and Burchell, 2023). AI promotes a more open and responsible delivery of public services by processing information in real time and making evidence-based interventions.

Nevertheless, applying AI in state administration is straightforward. Scholars have argued that algorithmic decision-making systems should prevent new obscurity or administrative bias (Busuioc, 2021; Bignami, 2022). AI systems must ensure transparency by documenting design, logic, and data sources, allowing citizens and oversight bodies to understand and question automated decisions (Larsson and Heintz, 2020; Felzmann et al., 2020). AI transparency standards have increased, urging governments to adopt responsible systems as automation shapes rights and access to services (Romero and Villarroel, 2024).

Proper AI governance is key to ensuring transparency. Policymakers and administrators should apply robust regulatory and ethical principles to oversee AI, mitigate risks of data misuse and algorithmic discrimination, and foster organisational preparedness for AI innovation (Taeihagh, 2021; Kuziemski and Misuraca, 2020). Research also shows

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How to cite this article: Akinsanya, O.B. (2025). Artificial Intelligence as a Tool for Enhancing Transparency in Public Administration. *International Journal of Technology, Management and Humanities,* 11(2), 69-75.

Source of support: Nil

Conflict of interest: None

that institutional capacity, management commitment, and a culture that balances accountability and innovation are fundamental to successful AI implementation (Neumann, Guirguis, and Steiner, 2024).

As public administrations become more intelligent and data-driven, AI is central to this transformation. It can greatly increase transparency, but demands careful design, responsible execution, and consistent adherence to openness and democracy (Rachmad, 2022; Engstrom et al., 2020; Wirtz, Weyerer and Sturm, 2020). This introduction lays the groundwork for discussing how AI can enhance transparency in public governance and for considering the technical, ethical, and institutional issues that come with AI implementation.

Key AI Technologies Driving Transparency

Artificial intelligence provides a suite of technologies that support transparent, accountable, and efficient public administration. These technologies enhance data accessibility, automate oversight functions, and reduce human discretion, thereby strengthening integrity in public sector processes. The literature emphasises that AI, when properly governed, enables public institutions to detect irregularities, monitor performance, and improve communication with citizens (Henman, 2020; Stankovich et al., 2023).

Machine Learning for Anomaly and Fraud Detection

Machine learning (ML) algorithms analyse large administrative datasets to find hidden patterns, detect anomalies, and flag potential fraud. These activities target procurement, budgeting, taxation, and welfare disbursement. ML enhances transparency by providing objective, evidence-based insights. These insights limit the influence of opaque administrative practices. As Wirtz et al. (2019) highlight, ML helps governments identify inefficiencies and reduce corruption risks through predictive analytics. This aligns with Ejjami (2024), who notes that smart technologies increase oversight capacity in complex administrative systems.

Natural Language Processing (NLP) for Open Data and Citizen Communication

NLP technologies convert extensive administrative documents, regulations, and records into user-friendly formats. NLP tools support automated information extraction, sentiment analysis, and AI-driven chatbots. These tools offer citizens clearer access to public information. Larsson and Heintz (2020) emphasise that transparency is strengthened when algorithms simplify complex governmental language. Felzmann et al. (2020) emphasise that transparency-by-design requires explainable AI interfaces so that citizens can understand decisions that affect them. Romero and Villarroel (2024) note that NLP also aligns with emerging international standards for AI transparency and disclosure in public administration.

Robotic Process Automation (RPA) for Reducing Human Discretion

RPA automates repetitive administrative tasks, reducing opportunities for manipulation and enhancing procedural consistency. By automating steps such as document verification, application processing, and auditing workflows, RPA improves clarity and predictability in public service delivery. Bignami (2022) argues that automation can increase accountability, provided that governance frameworks regulate discretion and ensure auditability of automated decisions. This is consistent with Busuioc's (2021) insights, which highlight the importance of accountable AI systems in limiting administrative opacity.

Explainable and Interpretable AI (XAI) for Accountability

XAI technologies make algorithmic decisions easier to understand, question, and audit. They clarify decision pathways and help build public trust and institutional legitimacy. Stankovich et al. (2023) state that transparency needs not just model outputs but also clear explanations of algorithmic impact. Engstrom et al. (2020) argue that government use of AI should include ways for human administrators to audit algorithmic decisions.

Blockchain-Integrated AI for Secure and Traceable Administrative Processes

Although not only AI, blockchain combined with AI enables transparent record-keeping, unalterable audit trails, and secure verification processes in public administration. Taeihagh (2021) and Kuziemski & Misuraca (2020) argue that hybrid governance models that use both AI and distributed ledger technologies improve accountability in digital administration.

Together, these AI technologies support a transparent, accountable, and responsive public administration. However, Wirtz et al. (2020) warn that strong governance frameworks are necessary to reduce risks like bias, lack of clarity, and misuse.

Applications in Public Administration

Artificial intelligence now plays a key role in reforms aimed at promoting transparency in public administration. It supports actions ranging from financial oversight to citizen engagement. These applications are changing how governments monitor operations, detect problems, and share decisions with the public in clearer and more accountable ways.

Transparent Budgeting and Procurement Systems

AI-driven analytics enhance oversight of public expenditure by detecting anomalies in procurement, contract awards, and budget execution. Machine learning models enable

Table 1: Key AI Technologies and Their Transparency Contributions

AI Technology	*Primary Transparency Contribution*	*Supporting Insights from Literature*
Machine Learning	Detects anomalies, fraud, and irregular spending	Enhances oversight and reduces corruption (Henman, 2020; Wirtz et al., 2019; Ejjami, 2024)
Natural Language Processing (NLP)	Converts complex documents into accessible information; strengthens citizen communication	Supports explainable communication and transparency standards (Larsson & Heintz, 2020; Felzmann et al., 2020; Romero & Villarroel, 2024)
Robotic Process Automation (RPA)	Reduces human discretion, increases procedural fairness	Automation improves auditability and consistency (Bignami, 2022; Busuioc, 2021)
Explainable AI (XAI)	Provides clear reasons for algorithmic decisions; enhances accountability	Meaningful transparency in algorithmic governance (Stankovich et al., 2023; Engstrom et al., 2020)
Blockchain-Integrated AI	Ensures secure, traceable digital records	Supports transparent digital governance (Taeihagh, 2021; Kuziemski & Misuraca, 2020)
Decision Support Systems (AI-DSS)	Offers evidence-based recommendations for policy decisions	Expands administrative capacity for transparent governance (Neumann et al., 2024; Rachmad, 2022)

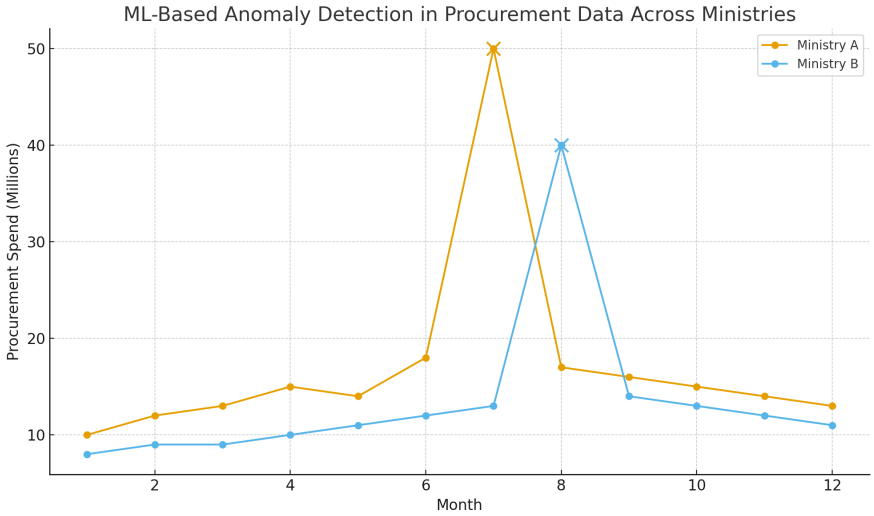

Fig 1: The graph illustrates machine-learning–based anomaly detection in procurement data across ministries.

governments to identify fraud patterns and irregular spending, thereby reducing corruption risks and improving accountability (Henman, 2020; Wirtz, Weyerer & Geyer, 2019). Automated dashboards allow stakeholders to track real-time spending flows, contributing to open, data-driven financial governance (Bignami, 2022).

AI-Powered Service Delivery Monitoring

AI tools improve the transparency of service delivery through automated service tracking, predictive performance insights, and digital audit trails. These systems enable more precise monitoring of waiting times, service outcomes, and staff performance (Stankovich et al., 2023). Predictive models help identify resource gaps and inefficiencies before they escalate, strengthening accountability mechanisms (Busuioc, 2021; Ejjami, 2024). Furthermore, transparency-by-design frameworks ensure that AI-generated decisions remain explainable and publicly understandable (Felzmann et al., 2020; Larsson & Heintz, 2020).

Open Data Platforms and Citizen Communication

Natural language processing (NLP) supports more accessible government communication by simplifying complex regulatory documents and facilitating multilingual citizen engagement (Romero & Villarroel, 2024). Chatbots and virtual assistants provide automated, transparent, and consistent information on public services, enhancing responsiveness while reducing human discretion (Engstrom et al., 2020). These tools help democratize access to government information and reduce information asymmetry (Taeihagh, 2021).

Automated Decision-Making for Fair and Consistent Administrative Processes

AI systems support administrative decision-making in areas such as licensing, benefits distribution, and public safety assessments. When properly governed, these tools enhance transparency by standardising criteria and making decision pathways traceable (Kuziemski & Misuraca, 2020). Documentation of algorithmic processes ensures that decisions are auditable and align with established public values (Wirtz, Weyerer & Sturm, 2020; Rachmad, 2022). However, these applications require robust accountability frameworks to prevent bias and ensure fairness (Busuioc, 2021).

Strategic Planning and Policy Analysis

AI supports transparent policy development by enabling scenario modelling, urban planning simulations, and evidence-based decision support. Governments use predictive analytics to forecast social trends, environmental risks, and infrastructure needs, enhancing clarity in policy justification (Neumann, Guirguis & Steiner, 2024). By providing data-driven insights, AI helps policymakers communicate the rationale behind policy choices, reinforcing trust and reducing opacity in governance processes.

Benefits and Opportunities

Artificial intelligence offers significant benefits and opportunities for enhancing transparency in public administration. These gains stem from AI's capacity to automate analytics, improve access to information, and support accountable decision-making processes. Collectively, these contributions strengthen citizens' trust in governance systems while enabling more efficient and equitable delivery of public services.

Improved Accountability and Oversight

AI enhances monitoring mechanisms by allowing real-time analysis of administrative activities, reducing the likelihood of corruption and misuse of public resources. Machine learning-driven fraud detection, audit automation, and anomaly identification strengthen oversight functions and promote responsible governance (Henman, 2020; Busuioc, 2021). Algorithmic systems also support decision traceability, enabling clearer lines of accountability in complex administrative workflows (Bignami, 2022; Stankovich et al., 2023).

Enhanced Transparency in Decision-Making

AI systems facilitate the disclosure of decision criteria and the auditable logic behind automated or semi-automated administrative procedures. Transparency-by-design frameworks promote explainability and interpretability, ensuring citizens understand how administrative outcomes are generated (Felzmann et al., 2020; Larsson & Heintz, 2020). This strengthens public confidence and supports compliance with emerging international standards for AI governance in the public sector (Romero & Villarroel, 2024).

Efficient and Citizen-Centric Service Delivery

AI-enabled platforms streamline administrative processes, reduce delays, and expand access to services. Chatbots, predictive analytics, and automated service channels contribute to more responsive governance and improved user experience (Wirtz et al., 2019; Ejjami, 2024). When combined with open-data initiatives, these tools enhance transparency by providing timely, accessible information tailored to citizen needs (Rachmad, 2022).

Strengthened Evidence-Based Policymaking

AI supports data-driven insights that improve the quality and transparency of policy formulation. Through automated data processing and scenario modelling, policymakers can justify decisions with clearer evidence and a more transparent public rationale (Engstrom et al., 2020; Kuziemski & Misuraca, 2020). This approach not only enhances legitimacy but also reduces discretionary opacity within administrative institutions (Taeihagh, 2021).

Table 2: Key AI-Driven Benefits for Enhancing Transparency in Public Administration

Benefit Area	*Description*	*Key Supporting Literature*
Accountability & Oversight	Real-time monitoring, fraud detection, audit automation	Henman (2020); Busuioc (2021); Bignami (2022)
Transparent Decision-Making	Explainable algorithms, transparency-by-design, interpretability tools	Felzmann et al. (2020); Larsson & Heintz (2020); Stankovich et al. (2023)
Citizen-Centric Service Delivery	Automated services, improved responsiveness, open-data interfaces	Wirtz et al. (2019); Ejjami (2024); Rachmad (2022)
Evidence-Based Policymaking	Data-driven insights, scenario modelling, justification of decisions	Engstrom et al. (2020); Kuziemski & Misuraca (2020); Taeihagh (2021)
Organizational Efficiency & Innovation	Reduced administrative burden, enhanced workflows, innovation in public management	Neumann et al. (2024); Wirtz et al. (2020)

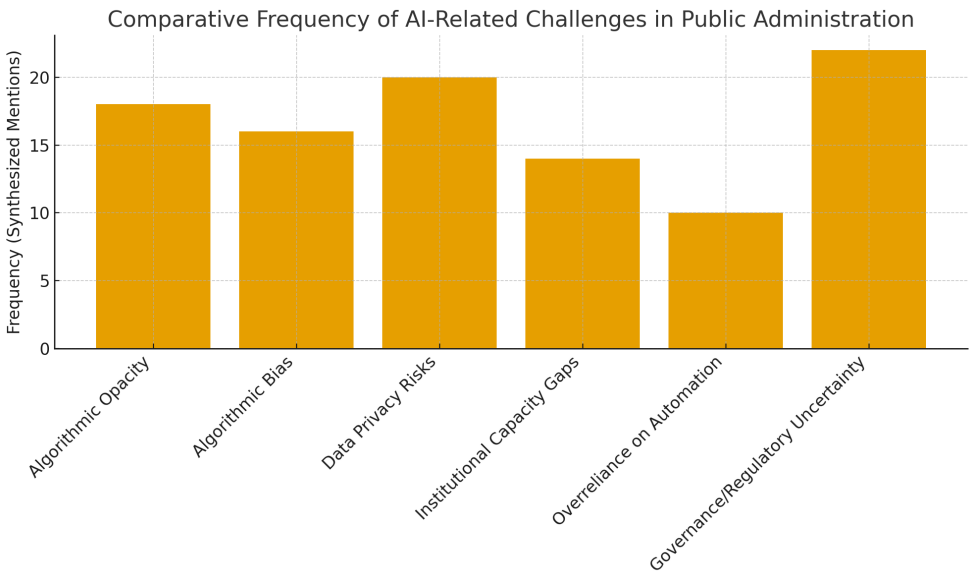

Fig 2: The comparative graph illustrates the prominence of key AI-related challenges in public administration, based on a synthesis of scholarly sources

Organisational Efficiency and Innovation

Increased automation reduces bureaucratic bottlenecks and strengthens institutional capacity. Public organisations adopting AI report improved workflow efficiency, reduced administrative burdens, and greater innovation in service design (Neumann et al., 2024; Wirtz et al., 2020). These efficiency gains indirectly support transparency by making processes more systematic, consistent, and less vulnerable to manipulation.

Together, these benefits demonstrate AI's substantial potential to foster more transparent, accountable, and efficient public administration systems, aligning with contemporary demands for openness and ethical governance.

Challenges and Risks

The integration of artificial intelligence into public administration offers substantial opportunities to enhance transparency, yet it also presents complex challenges and risks. One of the most prominent concerns is algorithmic opacity, in which the internal logic of AI systems remains difficult for both administrators and citizens to interpret. This opacity can undermine democratic accountability and reduce trust in automated decision-making processes (Larsson & Heintz, 2020; Stankovich et al., 2023). As Henman (2020) notes, the reliance on data-driven systems without sufficient explainability increases the likelihood of misinterpretation and weakens public oversight.

Another major challenge is algorithmic bias, which can lead to discriminatory or inequitable outcomes, especially when public services affect vulnerable populations. Bias may stem from incomplete or skewed training datasets, poorly designed models, or systemic inequalities embedded in the data itself (Wirtz et al., 2020; Felzmann et al., 2020). In the context of public administration, such biases can distort eligibility decisions, resource allocation, and service delivery, thereby exacerbating existing disparities. Scholars such as Busuioc (2021) and Bignami (2022) emphasise the need for accountability structures capable of detecting and correcting these biases.

Data governance and privacy risks also pose major concerns. AI systems require large volumes of personal and administrative data, raising issues around data security, consent, and compliance with legal frameworks. Weak data governance practices can expose citizens to surveillance or misuse of sensitive information, undermining the legitimacy of AI-enabled governance (Romero & Villarroel, 2024; Taeihagh, 2021). Ejjami (2024) underscores the importance of strong institutional safeguards to prevent the misuse of smart technologies in government settings.

A further challenge arises from institutional capacity and readiness. Many public organisations lack the technical expertise, financial resources, and organisational structures required for the responsible deployment of AI technologies (Neumann et al., 2024; Kuziemski & Misuraca, 2020). Without adequate training and governance frameworks, agencies risk implementing solutions that do not align with administrative needs or ethical standards. Engstrom et al. (2020) highlight that government agencies often struggle to evaluate AI tools effectively, leading to potential misapplications or unintended outcomes.

Additionally, the introduction of AI into bureaucratic processes raises concerns related to overreliance on automation. Excessive dependence on algorithmic decision-making can reduce human oversight, suppress discretion where it is needed, and limit avenues for contesting

automated decisions (Wirtz et al., 2019; Rachmad, 2022). This may result in rigid administrative practices that fail to respond to unique or context-specific cases. Busuioc (2021) warns that automation without meaningful accountability mechanisms can erode procedural fairness.

AI systems may introduce governance and legal uncertainties, as existing regulatory frameworks often lag behind technological advancements. Policymakers and administrators face difficulties in defining responsibility, liability, and transparency standards for AI-assisted governance (Bignami, 2022; Henman, 2020). This regulatory gap heightens the risk of inconsistent practices across different levels of government.

Recommendations

Enhancing transparency in public administration through artificial intelligence requires a structured, ethical, and governance-driven approach. First, governments should adopt comprehensive AI governance frameworks that clearly define standards for transparency, accountability, data management, and public oversight. Such frameworks help mitigate risks related to algorithmic opacity and misuse, aligning with the calls for structured governance made by Henman (2020), Wirtz, Weyerer, and Sturm (2020), and Taeihagh (2021). Clear governance mechanisms also ensure that AI systems are deployed responsibly and in ways that uphold democratic values, echoing the insights of Engstrom et al. (2020) and Kuziemski and Misuraca (2020).

Second, public institutions should implement transparency-by-design practices throughout the AI lifecycle, ensuring explainability, documentation, and auditability of algorithms. This includes publishing model intentions, data sources, and decision rationales in accessible formats to strengthen public trust. Scholars such as Larsson and Heintz (2020), Felzmann et al. (2020), and Bignami (2022) emphasise that embedding transparency into design processes is fundamental for making algorithmic decisions understandable and accountable to citizens. Similarly, Romero and Villarroel (2024) highlight the importance of aligning these practices with emerging international standards for AI transparency in governance.

Third, there is a need to focus on capacity building and institutional preparedness, and for governments to be ready to adopt AI effectively. It includes educating public servants in data literacy, algorithmic reasoning, and the ethical application of AI, as suggested by Ejjami (2024) and Neumann, Guirguis, and Steiner (2024). The increase in organisational capabilities will lower implementation barriers and improve the agencies' ability to oversee AI systems and address potential errors or biases.

Fourth, independent oversight and audit mechanisms should be embraced in order to advance accountability. The workings of AI systems are made in accordance with the limits of the law and morality through external audits, routine algorithmic evaluation, and multi-stakeholder review committees. This aligns with Busuioc's (2021) suggestions on accountable AI and with Stankovich, Behrens, and Burchell's (2023) focus on meaningful transparency and the algorithm's scrutiny in the delivery of services to the people.

Fifth, governments are supposed to invest in responsible data management, ensuring that datasets used to train AI are high-quality, representative, secure, and compliant with privacy standards. Data governance is a poor practice that decreases transparency and increases the risk of biased results. Wirtz, Weyerer, and Geyer (2019) and Rachmad (2022) emphasise that clear and efficient AI systems in the field of administration must be based on a reliable data infrastructure.

Lastly, legitimacy can be enhanced by promoting collaborative, citizen-centric approaches. The inclusion of citizens, civil society, and experts in the design, evaluation, and monitoring of AI tools helps make governance more inclusive. This participatory practice aligns with broader trends toward open and responsible AI systems and supports the literature's suggestions.

Altogether, these suggestions aim to ensure that AI is used to enhance transparency, accountability, and trust in public administration.

Conclusion

Artificial intelligence offers great potential to improve transparency in public administration through effective, responsible, and citizen-oriented governance. Through AI-driven systems, the decision-making process can become more efficient, discretionary errors can be minimised, and citizens can more readily see what is happening in government, thereby increasing trust among the population (Henman, 2020; Ejjami, 2024). Open data initiatives are facilitated by the integration of AI technologies, including machine learning and natural language processing, which make information more easily accessible to citizens and contribute to meaningful transparency (Stankovich, Behrens, and Burchell, 2023; Larsson and Heintz, 2020).

Nevertheless, as much as AI offers transformative advantages, algorithmic accountability, data privacy, and potential bias issues must be considered to ensure ethical implementation (Bignami, 2022; Busuioc, 2021; Wirtz, Weyerer, and Sturm, 2020). Transparency by design, facilitated by well-defined international standards and governance frameworks, is necessary to prevent abuse and ensure that people do not doubt AI-enabled administrative procedures (Romero and Villarroel, 2024; Felzmann et al., 2020; Kuziemski and Misuraca, 2020).

Empirical research supports the idea that the effective implementation of AI in governmental organisations requires careful organisation, alignment with institutional goals, staff capacity building, and ongoing review of system functionality (Neumann, Guirguis, and Steiner, 2024; Engstrom et al., 2020). Besides, responsible integration of AI can turn the public

administration system into a more proactive, evidence-based, and transparent one, in line with the Public Administration 5.0 concept (Ejjami, 2024; Rachmad, 2022).

To sum up, AI can become the key to better transparency and accountability in theTo sum up, AI can be a key to greater transparency and accountability in state administration, but it can only be effective when the rules are well-established, ethical principles are upheld, and the maze is closely monitored.Sons of the population by balancing regulatory protection and technological innovation (Taeihagh, 2021; Wirtz, Weyerer, and Geyer, 2019).

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