

New Technologies in Public Administration

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Abstract: The rapid development of new technologies has significantly transformed public administration worldwide. Digital tools, artificial intelligence, big data, and e-government platforms have reshaped how public institutions operate, deliver services, and interact with citizens. This article examines the role of new technologies in public administration, highlighting their impact on efficiency, transparency, accountability, and citizen participation. It also discusses challenges such as data protection, digital inequality, and ethical concerns. Through this analysis, the study demonstrates that technological innovation constitutes a critical factor for modernizing public administration and strengthening democratic governance.

Keywords: Public Administration, New Technologies, E-Government, Digital Transformation, Artificial Intelligence

1. INTRODUCTION

Public administration is undergoing a profound transformation due to the rapid advancement of digital technologies. Governments around the world are increasingly adopting innovative technological solutions in order to improve efficiency, reduce bureaucracy, enhance transparency, and respond more effectively to citizens' needs. The integration of new technologies into public administration represents not only a technical change but also a structural reform that affects governance, decision-making, and democratic participation.

2. DIGITAL TRANSFORMATION IN PUBLIC ADMINISTRATION

Digital transformation refers to the systematic integration of digital technologies into public sector operations. This process includes the digitization of administrative procedures, electronic document management, and the automation of internal workflows. Through digital platforms, public administrations can reduce processing time, minimize human error, and improve service delivery. E-government initiatives enable citizens to access public services online, reducing the need for physical presence and increasing administrative efficiency.

A central component of digital transformation involves the digitization of administrative processes. Conventional paper-based workflows are progressively being supplanted by electronic systems, which facilitate faster processing, more efficient data storage, and easier information retrieval. Electronic document management platforms help mitigate bureaucratic bottlenecks, decrease the likelihood of data loss, and promote environmentally sustainable administrative practices by reducing paper usage. Simultaneously, the automation of internal processes enables public institutions to standardize operations, minimize human error, and maintain higher consistency in decision-making outcomes.¹

Furthermore, digital transformation facilitates organizational change within public administration. The introduction of digital tools often requires the restructuring of administrative units, the redefinition of roles and responsibilities, and the development of new skills among public servants. As a result, digital transformation is closely linked to capacity building and continuous training of administrative personnel. Public officials are increasingly expected to possess digital competencies, adapt to new technologies, and engage in data-driven decision-making. This shift highlights that digital transformation is not solely a technological issue but also a human and institutional challenge. Digital

¹ Mahaphan, K. (2025). Digital transformation in public services: challenges and opportunities. *Proceeding of International Conference on Social Science and Humanity* 2(2), doi:10.61796/icossh.v2i2.14

platforms play a crucial role in improving service delivery and citizen interaction. Through centralized online portals, citizens can access a wide range of public services, such as tax declarations, social security services, licensing procedures, and administrative certificates, without the need for physical presence. This not only saves time and resources for both citizens and public authorities but also enhances accessibility, particularly for individuals living in remote areas or facing mobility constraints. Consequently, digital transformation contributes to greater inclusiveness and equality in access to public services².

Concurrently, digital transformation presents significant democratic challenges. The growing dependence on digital infrastructures can give rise to risks such as surveillance, improper use of data, and algorithmic decision-making processes that lack adequate transparency. Without appropriate regulatory frameworks, digital technologies have the potential to compromise fundamental rights, weaken mechanisms of democratic accountability, and diminish public trust. Consequently, effective democratic governance necessitates that digital transformation be supported by robust legal protections, clear ethical guidelines, and comprehensive institutional oversight. Overall, digital transformation constitutes a fundamental pillar of contemporary public administration reform. When implemented strategically, it can enhance administrative efficiency, improve the quality of public services, and strengthen democratic governance. However, its successful realization relies on a holistic strategy that integrates technological innovation with organizational restructuring, regulatory oversight, and a firm adherence to core public values.³

3. E-GOVERNMENT AND CITIZEN SERVICES

E-government represents one of the most significant technological innovations in public administration. It involves the use of information and communication technologies to deliver public services, facilitate communication with citizens, and promote transparency. Online portals for tax submissions, licensing, and social services enhance accessibility and convenience. Moreover, e-government strengthens trust between citizens and the state by increasing accountability and reducing opportunities for corruption.

A primary aim of e-government initiatives is to enhance citizen services by improving accessibility and convenience. Digital platforms enable citizens to interact with public services—including tax filings, licensing procedures, social security programs, and the issuance of administrative certificates—at any time and from any location. This reduces the necessity for physical visits to public offices, mitigates bureaucratic delays, and lowers administrative costs for both citizens and the state. By streamlining procedures and alleviating administrative burdens, e-government contributes to higher overall quality in public service delivery. Furthermore, e-government is instrumental in fostering transparency and accountability within public administration. Digital systems facilitate the systematic publication of administrative data, government expenditures, and regulatory decisions in an accessible and structured format. Open government portals and digital registries allow citizens to monitor governmental actions, assess administrative performance, and exercise democratic oversight over public authorities. Such transparency serves to curtail discretionary power, limit opportunities for corruption, and strengthen public trust in governmental institutions.⁴

Despite its advantages, the implementation of e-government also raises important challenges. Issues related to data protection, cybersecurity, and privacy are particularly significant, as public administrations manage sensitive personal information. Moreover, excessive reliance on digital systems may marginalize citizens who lack access to digital technologies or the necessary skills to use them effectively. Therefore, successful e-government requires complementary policies aimed at digital inclusion, legal safeguards, and the protection of fundamental rights⁵.

2 Jerab, D.A. (2024). *The Impact of Digital Transformation on Public Services*. [online] Available at: https://www.researchgate.net/publication/383836540_The_Impact_of_Digital_Transformation_on_Public_Services

3 Kenza, B. & Kouider, G.H. (2025). *The Role of Digital Transformation in Enhancing E-Government: Requirements, Challenges, Solutions & a Proposed Model*. [online] Available at: https://www.researchgate.net/publication/398154667_The_Role_of_Digital_Transformation_in_Enhancing_E-Government_Requirements_Challenges_Solutions_a_Proposed_Model

4 Malodia, S., et. al. (2021). Future of e-Government: An integrated conceptual framework. *Technological Forecasting and Social Change*, 173(2021), doi.org/10.1016/j.techfore.2021.121102

5 He, M. & Chen, Y. (2025). Personal data protection in China: Progress, challenges and prospects in the age of big data and AI. *Telecommunications Policy*, 49(10), doi.org/10.1016/j.telpol.2025.103076

In conclusion, e-government represents a cornerstone of modern public administration and a key instrument for enhancing democratic governance. By improving service delivery, increasing transparency, and fostering citizen participation, e-government strengthens the relationship between citizens and the state. Nevertheless, its democratic potential can only be fully realized when technological innovation is combined with institutional reform, ethical standards, and a strong commitment to inclusiveness and accountability.

4. BIG DATA AND EVIDENCE-BASED POLICYMAKING

The application of big data analytics allows public administrations to develop evidence-based policies grounded in empirical insights. By examining extensive datasets, governments can detect trends, evaluate the effectiveness of existing policies, and anticipate societal needs. For instance, analyzing healthcare records can help authorities predict disease outbreaks, while transportation data can inform the optimization of public transit routes. Such data-driven approaches support more informed decision-making and enhance the monitoring and evaluation of policy outcomes. However, the collection and utilization of large-scale datasets necessitate robust data protection frameworks to ensure the privacy and security of citizens' information.

One of the key benefits of big data analytics in public administration lies in its capacity to reveal patterns, correlations, and emerging trends within society. Advanced analytical tools enable governments to gain deeper insights into social behavior, economic activity, and public service demand. For example, analyzing social media sentiment during a natural disaster can guide emergency response strategies, while financial transaction data can identify economic disparities and inform targeted social welfare programs. By leveraging these insights, policymakers are able to anticipate societal challenges, address issues proactively, and design policies that are more targeted, adaptive, and responsive to dynamic real-world conditions.⁶

From a democratic perspective, evidence-based policymaking supported by big data contributes to the legitimacy of public decision-making. When policies are grounded in objective data and empirical analysis, citizens are more likely to perceive them as rational, fair, and effective. This enhances trust in public institutions and reinforces democratic governance. Moreover, the use of open data initiatives allows citizens, researchers, and civil society organizations to access and analyze governmental data, fostering transparency and enabling external scrutiny of public policies⁷.

Nonetheless, dependence on big data carries the risk of introducing biases into public policy formulation. Datasets can be incomplete, unrepresentative, or influenced by pre-existing social inequalities, potentially resulting in skewed or inequitable policy outcomes. Without careful evaluation, data-driven approaches may inadvertently perpetuate structural disparities rather than mitigate them. Consequently, evidence-based policymaking should be supplemented by informed human judgment, ethical considerations, and inclusive democratic deliberation⁸.

As a conclusion, big data represents a powerful tool for advancing evidence-based policymaking and improving public governance. When used responsibly and within a democratic framework, big data can enhance policy effectiveness, transparency, and legitimacy. Nevertheless, its successful integration into public administration depends on balancing technological innovation with the protection of fundamental rights, ethical standards, and democratic values.

5. TRANSPARENCY, ACCOUNTABILITY, AND OPEN GOVERNMENT

New technologies play a key role in promoting transparency and accountability within public administration. Initiatives that provide open access to government data allow citizens to scrutinize public spending, track policy decisions, and engage more directly in governance processes. By

6 Hossin, M.A., et. al., (2023). Big Data-Driven Public Policy Decisions: Transformation Toward Smart Governance. *SAGE Open*, 4(3), doi:10.1177/21582440231215123

7 Owen, B. & Era, D. (2024). *Big Data as a Catalyst for Evidence-Based Policymaking*. [online] Available at: https://www.researchgate.net/publication/398712130_Big_Data_as_a_Catalyst_for_Evidence-Based_Policymaking

8 Alonge, M. & Isreal, O. (2025). *Ethical Challenges in Predictive Analytics: Bias, Fairness, and Accountability*. [online] Available at: https://www.researchgate.net/publication/392166518_Ethical_Challenges_in_Predictive_Analytics_Bias_Fairness_and_Accountability

making information readily available, digital transparency not only informs the public but also strengthens democratic institutions and fosters trust between citizens and the state.

Open government initiatives further encourage citizen participation and collaborative governance. Through digital platforms, individuals can take part in policy discussions, contribute to participatory budgeting, and provide feedback on public services. Giving citizens these tools and opportunities transforms their role from passive observers to active participants, enabling them to propose solutions, assess government performance, and influence decision-making. This shift leads to a more inclusive and interactive relationship between the state and society. From a democratic standpoint, transparency and accountability enabled by digital technologies are essential for building and maintaining trust in public institutions. When citizens view public administration as open, responsive, and accountable, their confidence in democratic governance is reinforced. Such institutional trust is critical for the stability of democracy, as it encourages law compliance, civic engagement, and support for public policies. In this context, digital transparency becomes a central mechanism for legitimizing public authority and fostering a more participatory political culture.⁹

Nevertheless, digital transparency may inadvertently exacerbate inequalities if access to information is limited to digitally skilled citizens or groups with greater resources. To ensure inclusive transparency, public administrations must promote digital literacy and ensure that information is presented in accessible and user-friendly formats. Transparency must function not only as a formal principle but also as a substantive democratic practice that enables effective citizen oversight¹⁰.

In summary, new technologies have become essential tools for promoting transparency, accountability, and open governance within public administration. When deployed thoughtfully within a democratic and legal context, digital transparency gives citizens greater access to information, reinforces mechanisms of accountability, and fosters trust in public institutions. Yet, the full democratic potential of these technologies can only be achieved when innovation is paired with institutional reforms, ethical management, and a clear commitment to inclusivity and the protection of fundamental rights.

6. CHALLENGES AND RISKS OF TECHNOLOGICAL INTEGRATION

Despite their advantages, new technologies also present challenges for public administration. Digital inequality may exclude certain social groups from accessing online services. Cybersecurity threats pose risks to sensitive governmental data, while ethical concerns arise regarding surveillance and data misuse. Therefore, technological innovation must be accompanied by appropriate legal, ethical, and institutional safeguards.

A major challenge facing public administration today is digital inequality, which encompasses unequal access to digital technologies, internet connectivity, and the skills needed to use them effectively. Vulnerable groups—including older adults, low-income individuals, those with limited education, and residents of remote or rural areas—often encounter barriers to accessing online public services. As governments increasingly depend on digital platforms, there is a risk that these populations may be excluded from essential services, undermining the democratic principles of equality and fair treatment. Tackling digital inequality requires targeted policy interventions, programs to improve digital literacy, and the availability of alternative service channels. Ethical issues also arise from the widespread use of digital technologies, particularly regarding data collection, surveillance, and algorithmic decision-making. Heavy reliance on data-driven systems can result in extensive monitoring of citizens' behavior, posing threats to privacy and individual autonomy. Furthermore, algorithms employed in administrative processes may lack transparency and replicate biases inherent in the underlying data. Without robust accountability frameworks, such systems risk compromising fundamental rights and weakening democratic oversight.¹¹

9 Brummel, L. & de Blok, L. (2024). Do political and social accountability arrangements increase citizens' legitimacy perceptions? A vignette experiment in the Netherlands. *Public Management Review*, 26(11), doi.org/10.1080/14719037.2024.2337843

10 Ronda, Z.G., et, al. (2018). *Digital inclusion for low-skilled and low-literate people: a landscape review*. London: Pearson, pp. 41-62

11 Peeters, R. (2020). The agency of algorithms: Understanding human-algorithm interaction in administrative decision-making. *Information Polity*, 25(1), doi:10.3233/IP-200253

From a democratic perspective, the risks associated with technological integration highlight the necessity of strong legal, ethical, and institutional safeguards. Comprehensive data protection regulations, independent oversight authorities, transparency requirements, and clear accountability structures are essential to ensure that digital technologies serve the public interest. Ethical guidelines and impact assessments can help evaluate the societal consequences of technological innovations before their widespread adoption¹².

To summarize the above, while new technologies offer significant opportunities for improving public administration, they also introduce complex challenges and risks that cannot be ignored. A balanced approach to technological integration requires the careful management of digital inequality, cybersecurity threats, and ethical concerns. Only through a holistic framework that combines technological innovation with democratic principles, legal protections, and institutional capacity-building can public administration fully realize the benefits of digital transformation while safeguarding fundamental rights and public trust.

7. CONCLUSION

New technologies have become an integral component of modern public administration. Beyond their administrative benefits, new technologies carry profound democratic implications. Digital technologies broaden citizens' access to public services, enable more active participation in policymaking, and support decision-making grounded in empirical evidence. By enhancing transparency and fostering data-informed governance, public administrations can strengthen trust in institutions and reinforce democratic legitimacy. In this way, technological innovation plays a key role in modernizing democratic governance, upholding core principles such as equality, accountability, citizen engagement, and respect for the rule of law. However, the integration of new technologies into public administration is not without risks. Digital inequality, data protection concerns, cybersecurity threats, and ethical challenges related to surveillance and algorithmic decision-making highlight the potential dangers of unregulated or poorly designed digital reforms. If these challenges are not properly managed, technological innovation has the potential to deepen social inequalities, compromise fundamental rights, and weaken mechanisms of democratic accountability instead of reinforcing them. At the same time, new technologies present both significant opportunities and notable challenges for public administration and democratic governance. When implemented within a democratic framework that emphasizes transparency, accountability, inclusiveness, and the protection of fundamental rights, digital transformation can become a powerful tool for enhancing the effectiveness of public administration and improving the overall quality of democratic governance. Conversely, without such safeguards, technological progress risks undermining the very values it seeks to promote. Therefore, the future of public administration depends not only on the adoption of new technologies but also on a continued dedication to democratic principles and core public values.

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¹² Asimakopoulos, G., et. al. (2025). *Impact of Information and Communication Technologies on Democratic Processes and Citizen Participation*. [online] Available at: <https://www.mdpi.com/2075-4698/15/2/40>

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