

# **Artificial Intelligence and Data-Driven Decision-Making in Public Governance: Challenges and Opportunities**

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Nowadays, the rapid advancement of artificial intelligence (AI) technologies has led to significant transformations across almost all sectors of human activity; public governance is no exception. The integration of AI into public administration systems creates new opportunities to enhance the efficiency, clarity, and resilience of public service delivery.

With its ability to process significant quantities of information, learn from patterns and support decision-making through analytical reasoning, artificial intelligence is gradually changing traditional approaches to governance and administrative roles. Governments in different countries, both in developed and developing ones, are actively exploring effective ways for incorporating intelligent technologies into public sector management.

In particular, the integration of artificial intelligence and data-driven approaches enables public authorities to improve policy design and respond more efficiently to complex socio-economic challenges.

At the same time, the implementation of AI in public governance is connected with a range of challenges such as issues related to data quality, data governance, algorithmic transparency, and the risks of prejudgment in automated decision-making systems. Moreover, concerns regarding data privacy, cybersecurity and ethical standards require careful consideration to maintain public trust and ensure responsible use of technology.

This study examines the role of artificial intelligence and data-driven decision-making in modern public governance, focusing on their potential to improve clarity, accountability, and performance of public institutions. It is vital to explore how advanced analytical tools, including machine learning algorithms and big data analytics, can support evidence-based policymaking, optimise resource distribution and strengthen the resilience of public sector systems.

At the same time, the growing acceptance of AI technologies poses several critical challenges. These include issues related to data quality and availability, ethical concerns, algorithmic bias, cybersecurity risks, and the need for appropriate regulatory frameworks. The study emphasises that without effective governance mechanisms, the use of AI may lead to unintended consequences, including reduced public trust and increased inequality in access to public services.

The successful implementation of AI-driven governance models largely depends on the level of institutional capacity, the development of digital competencies, and effective cross-sector collaboration. When these conditions are in place, AI-based tools can significantly enhance governments' ability to identify emerging social challenges and respond with more adaptive and evidence-based policies. For example, artificial intelligence is increasingly used to detect and limit the spread of misinformation, thereby improving the quality and reliability of information available to citizens. In this context, public policy plays a crucial role in promoting innovation while simultaneously ensuring that the risks associated with technological transformation are properly managed and controlled.

All in all, the effective integration of artificial intelligence into public governance demands a balanced approach that would combine technological innovations with strong institutional patterns, ethical standards and inclusive governance practices. It is crucial to understand how data-driven and AI-enabled solutions can support sustainable development, improve decision-making quality and enhance citizen engagement in the digital era.

Keywords: AI-driven governance, government, artificial intelligence, digital technologies.