Forum For Economic Studies and Research Journal
Volume:10/ N°:01 (2026), p 296 - 304

Artificial intelligence and Public Management

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Received: 12/02/2026 ***Accepted: 15/05/2026***

Abstract:

This study examines the integration of artificial intelligence (AI) in the Algerian public sector from a managerial and organizational perspective, beyond a purely technical approach. It focuses on managerial governance, leadership roles, skills development, and organizational change in AI adoption. Using a qualitative methodology based on semi-structured interviews with public managers and experts involved in administrative modernization, the findings show that successful AI integration depends more on governance quality and organizational capacity than on technological sophistication. The study also identifies challenges related to skills gaps, role reconfiguration, and resistance to change. It highlights the central role of public managers in balancing technological innovation with institutional stability and organizational effectiveness.

Key Words *: Artificial intelligence, public management, Managerial governance, Organizational change, Skills development.*

JEL Classification: *H11, H83, O33*

1. Introduction

The increasing use of artificial intelligence (AI) in public sector organizations is often presented as a major opportunity to improve administrative efficiency, decision making quality, and public service performance (Mishra et al., 2024). This trend is not only global but also visible in Algeria, where recent studies highlight the potential of AI to support economic transformation and address structural challenges, including governance issues and institutional capacity constraints in public institutions (Kaci, 2025).

In many countries, including Algeria, public authorities are progressively introducing digital and algorithmic tools to modernize administrative processes, enhance transparency, and optimize the allocation of public resources. Within this perspective, AI is generally perceived as a technical instrument designed to support rational and objective management.

However, beyond its technological dimension, the integration of AI into public organizations raises significant managerial and organizational challenges. The use of algorithmic decision support systems affects managerial discretion, accountability mechanisms, and organizational legitimacy (Alshahrani et al., 2024). While AI tools are expected to assist public managers in their decision making processes, they may also constrain managerial autonomy, redistribute responsibilities, and increase accountability pressures, particularly in the event of errors or contested decisions (Pamisetty, 2024).

Existing research on AI in the public sector has mainly focused on technological, ethical, or legal aspects. Although these studies provide important insights, they often overlook the managerial processes through which AI systems are adopted, interpreted and integrated into everyday organizational practices. In particular, the role of public managers as key actors in mediating between technological innovation and institutional requirements remains insufficiently explored, especially in developing public administration contexts (Cristofaro & Giardino, 2025).

From a public management perspective, AI should therefore be understood not only as a technological innovation but also as an organizational and managerial phenomenon. Its adoption reshapes managerial roles by requiring managers to interpret algorithmic outputs, validate automated recommendations, and justify decisions to multiple stakeholders. This transformation highlights the importance of managerial governance, leadership practices, and organizational capacity building in ensuring the effective and legitimate use of AI within public organizations (Alhosani & Alhashmi, 2024).

These issues are particularly relevant in the Algerian public sector, where administrative modernization efforts face constraints related to organizational capacities, skills development, and governance frameworks. In such a context, the introduction of AI may reinforce existing managerial challenges rather than automatically improve performance. Despite this, empirical research on AI adoption in Algerian public organizations remains limited, particularly from a management oriented perspective.

In response to this identified gap, the present study examines how public managers in Algeria navigate the complexities inherent in AI-supported decision-making. Specifically, it focuses on the interplay between technological advancement and the rigid requirements of administrative responsibility. Against this backdrop, the research seeks to address the following central question:

How do public managers in Algeria mediate the tensions between AI-driven technological innovation and the dual requirements of managerial accountability and institutional stability?

To provide a comprehensive answer to this inquiry, the study is structured around three specific **sub-questions**:

1. How does the adoption of algorithmic systems redefine the traditional roles and discretionary power of public managers?
2. To what extent do existing governance frameworks and prevailing skill sets within Algerian public institutions facilitate or impede the effective integration of AI?
3. What are the primary structural and cultural obstacles such as resistance to change, lack of transparency, or fear of displacement that managers encounter during the transition to algorithmic governance?

Drawing upon the existing literature and the unique institutional specificities of the Algerian context, we put forward the following **working hypotheses**:

- **H1:** The successful integration of AI depends more profoundly on the quality of managerial governance and leadership than on the technical sophistication of the systems themselves.
- **H2:** The use of AI increases accountability pressures, as managers must justify automated outputs while retaining full legal and professional responsibility for administrative outcomes.
- **H3:** A lack of specialized managerial competencies (such as data literacy and algorithmic mediation) constitutes a more significant barrier to AI adoption than financial or purely technological constraints.

To address the research problem and test the proposed hypotheses, this study adopts a **qualitative approach** based on **semi-structured interviews** with public managers and experts involved in administrative modernization. The analysis explores the implications of AI adoption for managerial practices, governance frameworks, and organizational change. By utilizing a management-oriented analytical framework, this article contributes to the literature in three ways: **First**, it provides empirical evidence on the governance challenges within the Algerian public sector. **Second**, it highlights the reconfiguration of managerial roles and the new skills required for AI-supported decision-making. **Third**, it offers insights into how institutional contexts shape the outcomes of AI-driven reforms. Ultimately, this study aims to assist policymakers in aligning AI initiatives with organizational effectiveness and the legitimacy of public action.

2. *Theoretical framework*

2.*1 Artificial intelligence as a managerial and organizational phenomenon*

In public management research, artificial intelligence (AI) is increasingly understood not merely as a technological artifact but as an organizational phenomenon that reshapes managerial practices, decision making processes, and power relations (**Mishra et al., 2024; Kaci, 2025**). While policy and practitioner discourses often present AI as a neutral tool enhancing efficiency and objectivity, management research highlights that its effects depend on how it is embedded within existing organizational structures, routines, and governance arrangements (**Cristofaro & Giardino, 2025**).

In public sector organizations, characterized by formal rules, hierarchical authority, and strong accountability requirements, AI-supported decision-making interacts with established forms of managerial discretion and responsibility. This interaction generates a central tension: AI may enhance analytical capacity and coordination while simultaneously constraining managerial autonomy and increasing accountability pressures (**Alshahrani et al., 2024; Pamisetty, 2024**). Understanding AI adoption therefore requires attention to managerial agency and organizational context rather than to technological performance alone.

2.2 Managerial discretion, accountability, and algorithmic decision-support

Managerial discretion is a core element of public management, enabling managers to interpret rules, adapt policies, and respond to complex situations. The introduction of AI-supported decision systems challenges this discretion by formalizing decision criteria and embedding them in algorithmic processes (Herath Pathirannehelage et al., 2025). Although such systems are designed to support managerial judgment, they may also redefine acceptable decisions by privileging data-driven recommendations.

At the same time, AI adoption raises critical accountability issues. Public managers remain institutionally responsible for decisions, even when these decisions are informed or constrained by algorithmic outputs. This situation creates asymmetric accountability, whereby managers are held responsible for outcomes over which they may have limited control. As a result, managers may adopt defensive practices, selectively rely on AI, or use algorithmic systems symbolically to demonstrate compliance rather than enhance organizational effectiveness (Bahangulu&Owusu-Berko, 2025).

2.3 Structuration theory and governance arrangements

To analyze the relationship between AI technologies, managerial practices, and organizational structures, this study draws on an analytical framework inspired by structuration theory. From this perspective, organizational structures consist of rules and resources that both enable and constrain managerial action. AI systems function as resources that can support coordination and decision-making, while embedded rules, validation procedures, and performance indicators may limit discretion and reshapeaccountability relations (Papagiannidis et al., 2023)

Governance arrangements play a central role in mediating these dynamics. Clear governance frameworks help managers appropriate AI as a supportive resource, whereas weak or fragmented arrangements may reinforce perceptions of AI as a constraining force. Managers thus act as mediators, translating governance principles into operational practices and negotiating the boundaries between algorithmic recommendations and human judgment, particularly in public organizations where legitimacy and trust are critical (Bracci, 2023).

2.4 Managerial capacities, organizational learning, and analytical implications

The effective mediation of AI-related tensions depends on managerial capacities that extend beyond technical expertise. Managers must develop interpretative skills to assess algorithmic outputs, ethical judgment to address fairness and legitimacy concerns, and change-management competencies to support organizational adaptation. Without these capacities, managers risk becoming dependent on technical experts, thereby weakening oversight and strategic leadership (Birkstedt et al., 2023)

From a structuration perspective, such skills constitute resources that shape managerial agency. Organizational learning processes, such as training, experimentation, and feedback, condition

how these resources are developed and mobilized. Drawing on this framework, the present study conceptualizes AI adoption as a process through which managers mediate tensions between algorithmic decision-support and managerial accountability. This perspective provides a coherent analytical foundation for interpreting empirical findings and identifying the conditions under which AI becomes a source of managerial empowerment or constraint in public sector organizations (Selten & Klievink, 2024).

3. Research Methodology

3.1 Research design and approach

This study adopts a qualitative research design to examine how public managers mediate tensions arising from the adoption of artificial intelligence (AI) in public sector organizations (Mishra et al., 2024; Kaci, 2025). The focus is on managerial practices, interpretations, and organizational processes, rather than on AI as a purely technological artifact. A qualitative approach enables in-depth exploration of managerial agency, governance arrangements, and accountability dynamics, which cannot be fully captured through predefined quantitative variables (HerathPathirannehelage et al., 2025; Alshahrani et al., 2024).

3.2 Data collection and participants

Data were collected through semi-structured interviews with thirteen participants, including senior managers, HR managers, and experts involved in public sector digital governance and modernization initiatives (Pamisetty, 2024; Bahangulu & Owusu-Berko, 2025). Interviews were complemented by documentary analysis of policy documents, administrative reports, and strategic plans to provide institutional context and support data triangulation.

Participants were selected using a purposive sampling strategy to ensure direct experience with AI adoption projects across different organizations, administrative levels, and regions, capturing variations in governance arrangements and organizational contexts (Cristofaro&Giardino, 2025). Interviews were conducted until thematic saturation was reached. The sample is appropriate for qualitative inquiry into complex managerial phenomena (Birkstedt et al., 2023).

3.3 Data analysis, reflexivity, and limitations

Data were analyzed through an iterative thematic approach, combining open coding with categorization according to the study's theoretical framework and structuration concepts (Papagiannidis et al., 2023; Bracci, 2023). Analytical categories included AI as a managerial resource, AI as a constraining force, managerial mediation strategies, governance conditions, and organizational resistance. NVivo software facilitated systematic coding and cross-case comparison.

The researcher maintained reflexivity, critically reflecting on prior assumptions and theoretical commitments, while ethical considerations were observed, including informed consent, voluntary participation, and confidentiality (Alhosani&Alhashmi, 2024).

Methodological limitations include the small sample size and focus on managerial perspectives. Findings are analytically rather than statistically generalizable, providing insights into managerial mediation, governance arrangements, and organizational dynamics in AI adoption (Kaci, 2025; Selten&Klievink, 2024).

4. Contributions

This study provides several contributions to public management research on artificial intelligence (AI) by shifting attention from technology-centered accounts to managerial and

organizational processes through which AI is enacted in public sector organizations (Mishra et al., 2024; Kaci, 2025).

4.1 Theoretical contributions

This research conceptualizes AI as a dual managerial phenomenon that both enables and constrains managerial action. Drawing on a structuration-inspired framework, AI is shown to function as a resource that supports coordination and decision justification, and as a structural constraint reshaping discretion and accountability (Cristofaro & Giardino, 2025; Papagiannidis et al., 2023).

By foregrounding public managers as active mediators, the study explains how similar AI technologies can produce divergent outcomes depending on managerial interpretation, selective appropriation, or avoidance. Governance arrangements and managerial capacities are identified as critical factors shaping whether AI empowers or constrains managerial action, providing empirical grounding for structuration theory in the context of algorithmic technologies (Bracci, 2023; Selten&Klievink, 2024).

4.2 Managerial contributions

From a managerial perspective, the study emphasizes that AI adoption cannot be reduced to technical deployment. Effective use requires explicit governance to clarify decision authority, accountability, and the role of human judgment (Alshahrani et al., 2024; Pamisetty, 2024). Managers lacking these frameworks may adopt defensive or symbolic uses of AI, limiting its organizational value.

The study highlights the need for managerial capacity-building. Beyond technical skills, managers require interpretative, ethical, and change-management competencies to supervise AI-supported processes and communicate outcomes to employees (Birkstedt et al., 2023; HerathPathirannehelage et al., 2025). Practical strategies, such as selective use of AI for routine tasks and active explanation of algorithmic outputs, can help managers navigate AI-related tensions while maintaining organizational trust and legitimacy.

4.3 Contextual and policy contributions

Focusing on the Algerian public sector, the study demonstrates that AI adoption unfolds in environments with strong institutional constraints, centralized governance, and uneven organizational capacities (Kaci, 2025; Ferroudja, 2025). Context is not merely a background variable; it actively shapes managerial mediation strategies and organizational outcomes.

From a policy perspective, the findings suggest that administrative modernization efforts in developing public administrations should prioritize governance clarity and managerial learning over technological sophistication. Investments in managerial capacity-building and structured organizational dialogue are critical to ensuring that AI initiatives enhance performance, accountability, and public sector legitimacy (Alhosani & Alhashmi, 2024).

5 . Discussion

This study examined the managerial and organizational implications of artificial intelligence (AI) adoption in public sector organizations, emphasizing that AI integration is not merely a technical process but a deeply managerial one, shaped by governance arrangements, managerial practices, and organizational capacities (Mishra et al., 2024; Kaci, 2025). Interpreted through a management-oriented framework inspired by structuration theory, the results highlight how AI both enables and constrains managerial action within public organizations

(Cristofaro&Giardino, 2025; Papagiannidis et al., 2023).

5.1 Governance and accountability

First, the findings confirm the central role of managers in mediating between algorithmic systems and institutional responsibilities. AI tools are often introduced to enhance efficiency, objectivity, and decision-making quality; however, the absence of clear managerial governance frameworks generates uncertainty and cautious use (Alshahrani et al., 2024; Pamisetty, 2024). Without explicit rules defining decision authority and responsibility, AI tends to remain a supplementary tool rather than a fully integrated component of managerial practice. This aligns with prior research highlighting that managerial oversight and structured governance are critical for the legitimate and effective use of AI in public sector contexts (Bracci, 2023).

5.2 Reconfiguration of managerial roles

Second, the study illustrates how AI reshapes rather than replaces management functions. Managers increasingly act as interpreters, supervisors, and coordinators of AI-supported processes (Cristofaro&Giardino, 2025; Selten&Klievink, 2024). This finding reflects broader organizational research indicating that digital technologies redistribute authority and redefine professional boundaries. In public sector organizations, where legitimacy, fairness, and accountability are essential, managerial judgment remains critical in validating algorithmic outputs and addressing ethical or transparency-related concerns (Alhosani&Alhashmi, 2024; HerathPathirannehelage et al., 2025).

5.3 Skills development and managerial capacity-building

Third, the analysis emphasizes the importance of managerial skills and capacity-building as key conditions for successful AI adoption (Birkstedt et al., 2023). Skills gaps identified by respondents underline the limitations of purely technocentric approaches to digital transformation. Effective AI adoption requires not only technical expertise but also analytical, interpretative, ethical, and change-management competencies. Managers lacking these skills may become dependent on technical experts, thereby weakening strategic oversight and reducing the organizational value of AI initiatives (Papagiannidis et al., 2023; Selten&Klievink, 2024).

5.4 Organizational resistance and acceptance

Finally, the study highlights that resistance to AI is primarily organizational rather than technological. Employees often express concerns regarding control, surveillance, and professional autonomy, reflecting broader issues of trust and organizational change (Alhosani&Alhashmi, 2024). The findings show that managerial practices play a decisive role in shaping acceptance or resistance. Managers who actively engage in communication, participation, and gradual implementation are more likely to facilitate organizational acceptance, legitimacy, and the perceived benefits of AI-supported processes (Bahangulu&Owusu-Berko, 2025; Alshahrani et al., 2024).

5.5 Implications for public management

Overall, these findings reinforce the relevance of a structuration-inspired perspective for understanding AI adoption. AI systems are embedded in existing organizational structures and acquire meaning through managerial practices (Cristofaro&Giardino, 2025; Papagiannidis et al., 2023). Managers are therefore not passive recipients of technology but active agents shaping organizational consequences, balancing empowerment and constraint, while ensuring alignment with public sector objectives and values.

The study highlights several practical implications for public managers:

- Governance frameworks should clearly define roles, responsibilities, and decision authority in AI-supported processes.
- Capacity-building initiatives should equip managers with interpretative, ethical, and change-management skills to effectively supervise AI systems.
- Change-management strategies should emphasize gradual implementation, stakeholder participation, and transparent communication to reduce resistance and foster trust (Birkstedt et al., 2023; Alhosani & Alhashmi, 2024).

6. CONCLUSION

This study examined the adoption of artificial intelligence (AI) in public sector organizations through a managerial and organizational lens (Mishra et al., 2024; Kaci, 2025). The findings show that AI integration is less about technological sophistication and more about managerial governance, leadership practices, and organizational capacity-building (Cristofaro & Giardino, 2025; Papagiannidis et al., 2023).

Successful AI adoption requires clear governance frameworks to define decision authority and accountability, as well as managerial skills in interpretation, ethics, and change management (Birkstedt et al., 2023; HerathPathirannehelage et al., 2025). Managers act as mediators between algorithmic outputs and institutional responsibilities, ensuring that AI supports organizational objectives and aligns with public sector values.

The study also highlights organizational resistance as a key challenge, emphasizing that employee concerns and trust issues must be addressed through communication, participation, and gradual implementation (Alhosani&Alhashmi, 2024).

Limitations include the qualitative design and limited sample, which restrict statistical generalization. Future research could extend these insights through comparative analyses, inclusion of frontline employee perspectives, or quantitative studies assessing the impact of managerial practices on AI performance.

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