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Artificial Intelligence and digital governance in public administration: systematic review

Inteligencia Artificial y gobernanza digital en administración pública: revisión sistemática

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Abstract

The study analyzes the relationship between artificial intelligence and digital governance in public administration through a systematic review in Scopus and Web of Science covering the 2018–2025 search period. The literature search was conducted using PRISMA 2020 and its extension, PRISMA-S, to ensure transparency in the identification, screening, eligibility, and inclusion stages of the studies. Initially, 379 records were identified. After removing 101 duplicates, 278 documents were screened, from which 50 scientific articles were ultimately selected. The findings reveal a recent and rapidly growing body of scientific literature, focused primarily on ethics, transparency, responsibility, and accountability (92%); regulation of artificial intelligence (84%); risks, oversight, and institutional challenges (82%); decision automation (80%); and efficiency, modernization, or improvement of public services (70%). However, only 24% of the studies explicitly addressed issues related to equity, inclusion, or inequality. The study concludes that AI in public administration requires responsible governance, continuous human oversight, clear regulations, and the strengthening of state capacities.

Keywords: Artificial intelligence, public administration, Latin America.

Resumen

El estudio analiza la relación entre inteligencia artificial y gobernanza digital en la administración pública mediante una revisión sistemática en Scopus y Web of Science bajo el periodo de búsqueda documental 2018–2025. La búsqueda documental se realizó mediante PRISMA 2020 y su extensión PRISMA-S, con el propósito de garantizar la transparencia en las etapas de identificación, cribado, elegibilidad e inclusión de estudios. Inicialmente se identificaron 379 registros. Tras la eliminación de 101 duplicados, se cribaron 278 documentos, de los cuales finalmente se seleccionaron 50 artículos científicos. Los hallazgos muestran una producción científica reciente y en rápido crecimiento, concentrada principalmente en ética, transparencia, responsabilidad y rendición de cuentas (92 %); regulación de la inteligencia artificial (84 %); riesgos, vigilancia y desafíos institucionales (82 %); automatización de decisiones (80 %); y eficiencia, modernización o mejora de los servicios públicos (70 %). No obstante, solo el 24 % de los estudios abordó de manera explícita aspectos relacionados con equidad, inclusión o desigualdad. Se concluye que la IA en la administración pública requiere gobernanza responsable, supervisión humana continua, regulaciones claras y el fortalecimiento de las capacidades estatales.

Palabras clave: Inteligencia artificial, gestión pública, América Latina.

Introduction

Public administration constitutes an institutional field grounded in principles such as legality, hierarchy, and accountability as exercised through the classical bureaucratic model (Weber, 1978). Contemporary approaches, however, have broadened this perspective to incorporate citizen participation, accountability mechanisms, and institutional networks (Kooiman, 2003). This evolution has given rise to the

concept of digital governance, which represents an extension of public administration that integrates data, digital platforms, and intelligent technologies to enhance state management efficiency.

In recent years, artificial intelligence (AI) has consolidated its position as a transformative technology capable of reshaping public administration through process automation, rapid data analytics, and public service delivery. The scientific literature emphasizes that AI implementation extends beyond purely technical considerations to encompass political and ethical dimensions, as its use directly affects the state-citizen relationship and intervenes in democratic accountability mechanisms (Kuziemski & Misuraca, 2020). Consequently, applying AI in public administration raises challenges related to algorithmic bias, surveillance, accountability, and institutional legitimacy (de Bruijn et al., 2022; Fountain, 2022; Henman, 2020).

The intersection of classical public administration and artificial intelligence highlights the need to reconfigure bureaucratic rationality, requiring that AI applications adhere to principles of legality, neutrality, and efficiency while coexisting with emerging concepts such as algorithmic transparency and human oversight. In light of these considerations, AI adoption raises new questions about the extent to which automated systems should participate in public decision-making and the state's accountability for algorithm-driven outcomes (Cetina Presuel & Martinez Sierra, 2024).

International scholarship published between 2018 and 2025 reveals growing academic interest in artificial intelligence and digital governance within public administration. In Europe, the literature has concentrated on algorithmic regulation, legal and institutional frameworks, and responsible AI governance, as evidenced by studies on the European Union, Ukraine, and Estonia (Joamets, 2025; Küsters, 2025; Kwilinski & Reznik, 2025). In North America, particularly Canada and the United States, research emphasizes public trust, accountability, AI governance initiative evaluation, and risk management in government agencies (Attard-Frost et al., 2024; Khisro, 2025; Nalbandian, 2022; Robles & Mallinson, 2025). In Asia, discussions center on public service automation, process transparency, algorithmic regulation, technological standardization, and smart government, as observed in studies focusing on China and Asian local governments (Cantero Gamito, 2023; Long & Gil-Garcia, 2023; Xu, 2024).

The broader literature acknowledges that artificial intelligence can contribute to state modernization and strengthen public decision-making; however, it also cautions that implementation requires governance frameworks capable of regulating interactions among algorithms, data, and platforms while preventing social, institutional, and economic risks (Nitzberg & Zysman, 2022). From a complementary perspective, Wilson and van der Velden (2022) argue that AI adoption in the public sector should be guided by sustainability, diversity, institutional learning, self-organization, shared meaning, and trust to inform responsible public decisions.

For Latin America, studies addressing AI and public administration remain scarce, given the region's prevailing digital divides and inequality. Analysis of the corpus reveals limited representation of regional research, reflecting a scientific production gap relative to other regions. Nonetheless, existing works highlight progress in incorporating artificial intelligence into public services alongside challenges related to regulation, state capacities, digital inclusion, and rights protection (Juárez-Merino, 2025; Prieto et al., 2024).

This article presents a systematic review of the scientific literature identified within the 2018–2025 search period on artificial intelligence and digital governance in public administration. Drawing from a corpus of 50 articles, the study examines thematic trends, geographic foci, conceptual contributions, and research gaps at the global level, incorporating Latin America's presence as a relevant comparative dimension within the reviewed corpus.

Recent studies have further expanded the debate on artificial intelligence in public administration across multiple approaches. Some works address the legal challenges associated with AI and big data use, particularly concerning administrative liability, data protection, and public service efficiency (Al-Kasasbeh et al., 2025). Others analyze AI integration into institutional innovation models, such as the Triple Helix approach applied to public administration (Androniceanu & Colesca, 2025), as well as the benefits and

challenges of smart public administration oriented toward service improvement (Barsekh-Onji et al., 2025). Complementary research has examined the challenges of generative AI in urban policy and city governance (Calzada, 2025), the role of municipal governments as innovation actors in AI governance (Elbehairy et al., 2025), digital rights and legal frameworks in response to artificial intelligence (Khammassi & AlShanqityi, 2025), and institutional vulnerabilities arising from integrating AI into public administration (Vatamanu & Tofan, 2025).

The research question guiding this study is: How has the relationship between artificial intelligence and digital governance in public administration been addressed in the scientific literature published between 2018 and 2025, and what thematic trends, geographic foci, and research gaps can be identified in the reviewed scholarship?

Methodology

This study employed a systematic literature review to analyze scientific production on artificial intelligence and digital governance in public administration over the 2018–2025 period. The review aimed to identify thematic trends, geographic foci, conceptual contributions, and research gaps concerning AI use in digital transformation processes, regulation, transparency, decision automation, and public sector governance.

The methodological framework followed PRISMA 2020 guidelines to organize transparently the identification, screening, eligibility, and inclusion phases of the systematic review (Page et al., 2021). Additionally, the PRISMA-S extension was incorporated to strengthen reporting of the search strategy, databases consulted, search terms employed, applied filters, and document retrieval procedures (Rethlefsen et al., 2021).

The literature search was conducted in Scopus and Web of Science, recognized sources for retrieving indexed scientific literature. The search strategy included terms related to the study's core categories, such as artificial intelligence, AI governance, digital governance, public administration, public sector, algorithmic governance, automated decision-making, e-government, and their Spanish equivalents. These terms were combined using Boolean operators and filtered by publication year, document type, and indexing source.

Regarding inclusion criteria, articles published, accepted, or available online as of the search closure date in 2025 were considered, provided they were indexed in Scopus or Web of Science, included a DOI, and addressed evidence, data, or analysis relevant to the 2018–2025 period. Studies whose objectives and content directly related to artificial intelligence, digital governance, and public administration were included. Empirical, theoretical, conceptual, and review research published in Spanish, English, or Portuguese was accepted. For articles with definitive publication dates after 2025, only those accepted, available online, or registered in the consulted databases before the search closure were included, provided their content referred to processes, evidence, or information corresponding to the review period. This criterion allowed maintaining document traceability without modifying the temporal delimitation of the study. Regarding exclusion criteria, all records not meeting established inclusion requirements were excluded, along with duplicate documents and those not classified as scientific articles, including editorials, book chapters, conference proceedings, reviews, and gray literature.

The selection process began with record identification in Scopus and Web of Science. After removing duplicates, screening proceeded through review of titles, abstracts, keywords, DOI, language, and thematic relevance, resulting in 50 articles directly related to the research subject.

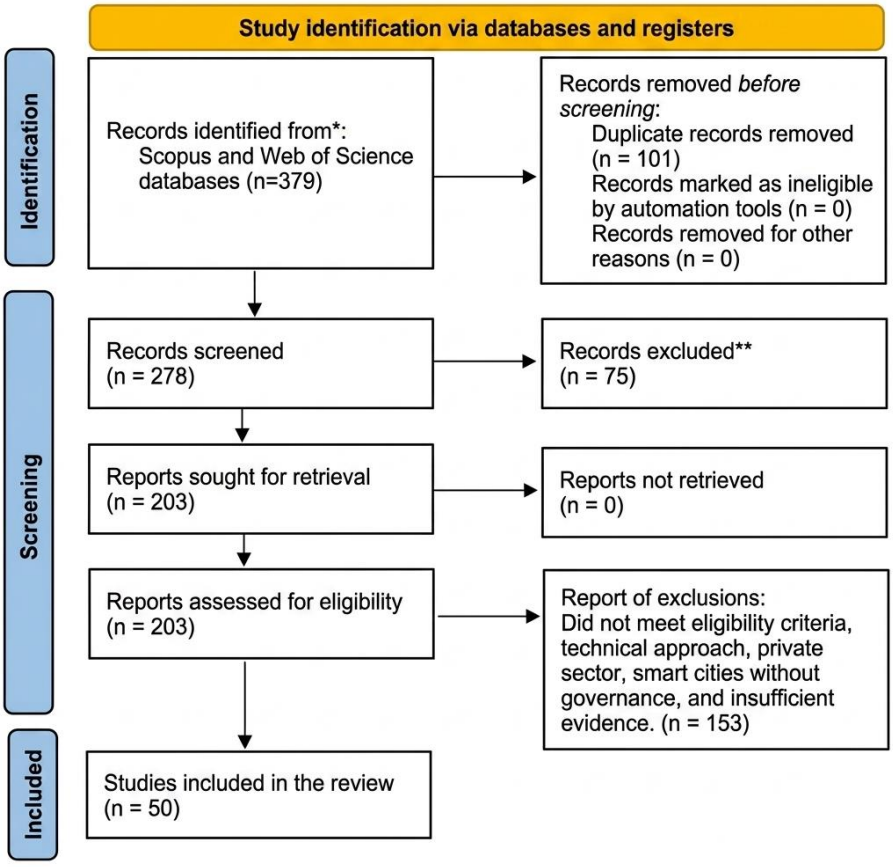
Methodological transparency was ensured through application of inclusion and exclusion criteria and use of a document screening matrix to record exclusion reasons. Selection and evaluation of studies were conducted independently by two researchers who reviewed identified records and compared decisions at each process stage. Discrepancies were resolved through joint discussion.

Methodological quality of the 50 selected studies was assessed using the Mixed Methods Appraisal Tool (Hong et al., 2018) and CASP checklists (Critical Appraisal Skills Programme, n.d.). Evaluated criteria

included clarity of objectives, methodological coherence, validity of findings, and relevance to the research subject. This assessment supported critical reading of included articles, which were organized in a data extraction matrix.

The identification, screening, eligibility, and inclusion process is represented in the PRISMA flow diagram (Figure 1).

Figure 1. *PRISMA flow diagram of the article selection process on artificial intelligence and digital governance in public administration, 2018–2025.*



Note. A total of 379 records were identified in Scopus and Web of Science. After removing 101 duplicates, 278 records were screened. Of these, 75 were excluded during the initial phase and 203 were assessed for eligibility. Ultimately, 153 were excluded for not meeting established criteria, and 50 studies were included in the synthesis. Own elaboration based on PRISMA 2020.

Results

Corpus characterization and temporal evolution

The final corpus comprised 50 scientific articles identified within the 2018–2025 search period, selected for their direct relationship with artificial intelligence, digital governance, and public administration. Of the 50 documents retrieved, 31 originated from Scopus, 11 from Web of Science, and 8 were indexed in both databases (Table 1).

Table 1. *Articles by database*

Source	Number of articles	Percentage
Scopus	31	62 %
Web of Science	11	22 %
Scopus and Web of Science	8	16 %
Total	50	100%

Source: Author's own elaboration

Regarding temporal distribution, the earliest included articles date from 2020; no articles were retrieved for 2018 or 2019. The year 2025 accounts for the largest share, with 25 articles (50%), while the 2024–2025 period together comprises 35 articles, representing 70% of the total.

The temporal evolution of the corpus reveals that the earliest included studies appeared in 2020, with production concentrated primarily in 2024 and 2025. This growth pattern is evident from review data, with works by Henman (2020), Kuziemski and Misuraca (2020), and Wirtz et al. (2020) serving as early contributions to the debate on AI, automation, risks, and governance in public administration.

Table 2. *Distribution of articles by publication year*

Year	Number of articles	Percentage
2020	3	6 %
2021	1	2 %
2022	8	16 %
2023	3	6 %
2024	10	20 %
2025	25	50 %
Total	50	100%

Source: Author's own elaboration

Thematic categories

Thematic categories were established to identify how AI is employed in public governance, particularly in association with regulatory principles and transparency (Table 3). Several studies caution that AI use within the public sector requires governance frameworks capable of controlling its effects on legitimacy and accountability (de Bruijn et al., 2022; Kuziemski & Misuraca, 2020; Wirtz et al., 2020).

Vesolovska et al. (2025) highlight that civil servants' emotional intelligence influences effective AI implementation in public administration. Complementarily, Robles and Mallinson (2023) advocate for consolidating cohesive AI governance frameworks that articulate responsibilities, institutional capacities, and public coordination.

This orientation is also evident in studies examining specific dimensions of AI governance: ethical and responsible AI development in public administrations (Sigfrids et al., 2022), accountability of AI-based systems in the public sector (Yuan & Chen, 2025), digital rights and legal frameworks in response to AI (Khammassi & AlShanqityi, 2025), and the intellectual and thematic evolution of digital governance as a research field (Gunawan et al., 2025).

Table 3. *Thematic categories identified across the 50 articles.*

Thematic category	Number of articles	Percentage

Ethics, transparency, responsibility, and accountability	46	92%
AI regulation	42	84%
Risks, surveillance, or institutional challenges	41	82%
Decision automation	40	80%
Efficiency, modernization, and public service improvement	35	70%
Justice, rights, and equity	28	56%
Citizen trust, legitimacy, and public acceptance	19	38%
Technological dependence and digital sovereignty	13	26%
Explicit equity: inclusion, inequality, discrimination, or vulnerable groups	12	24%

Source: Author's own elaboration

Positive findings versus critical or negative outcomes

Review of the literature revealed two positions regarding AI use in public administration. Thirty-five studies (70%) identified benefits, particularly in terms of efficiency and administrative capacity strengthening. Conversely, 41 studies (82%) emphasized risks and limitations associated with AI use (Table 4).

Table 4. *Comparison between positive and critical outcomes.*

Outcome orientation	Number of articles	Percentage
Report efficiency, modernization, or service improvement	35	70%
Report risks, challenges, or critical effects	41	82%
Present both benefits and risks simultaneously	31	62%
Present primarily benefits	4	8%
Present primarily risks or problems	10	20%
Present conceptual or general approach without clear benefit/risk emphasis	5	10%

Source: Author's own elaboration

These data indicate that while the literature acknowledges AI's potential to improve public efficiency, automation, and service delivery, it also cautions that such benefits depend on preexisting institutional conditions, including transparency, human oversight, technical capacity, and accountability mechanisms. Henman (2020) examines both possibilities and risks of AI in public services, while Hickok (2022) warns about risks associated with public procurement of AI systems, particularly when institutions lack sufficient capacity to evaluate, audit, or supervise these technologies. Complementarily, recent studies reinforce AI's positive dimension in the public sector by highlighting its potential to improve electronic services, smart public administration, and government transparency (Barsekh-Onji et al., 2025; Papageorgiou et al., 2024; Zhao et al., 2025).

Another identified aspect was that 70% of studies address efficiency or modernization compared to only 24% that explicitly examine equity or inequality. Regarding this gap, the analyzed literature pays greater attention to institutional optimization than to AI's consequences for vulnerable populations (Fountain, 2022; Joamets, 2025).

The positive dimension of AI has also been highlighted in research on local government financial reporting efficiency, electronic service improvement through language models, smart public administration, and citizens' intention to follow recommendations generated by government-supported AI systems (Barsekh-Onji et al., 2025; Darmawati et al., 2025; Papageorgiou et al., 2024; Wang et al., 2025).

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Critical problematization and Latin American presence

Regarding the challenges of AI within public administration, implementation without transparency or regulation was found to generate new asymmetries, with algorithmic opacity addressed in studies as a problem limiting citizens' ability to understand or question automated decisions (Adeleke & Razzano, 2024; de Bruijn et al., 2022; Nalbandian, 2022). Technological dependence (26%) emerged as another concern in studies warning that AI system implementation may create institutional risks when states lack sufficient technical capacity to audit such technologies (Hickok, 2022; Nitzberg & Zysman, 2022).

Complementary scholarship problematizes specific aspects of AI in the public sector: distribution of decisional power and responsibility in automated administrations (Langer, 2024), transparency of algorithmic decisions (Fang et al., 2025), links between AI, surveillance, power, and democracy (Suat, 2025), local algorithmic governance and sovereign AI (Capón et al., 2025), urban challenges of generative AI (Calzada, 2025), and AI use in sensitive electoral processes (Syafhendry et al., 2025).

Regarding studies on Latin America, these remain extremely limited, with only 2 articles (4%) explicitly addressing Latin American cases (Table 5). This underrepresentation reveals a regional gap in scientific production on artificial intelligence and public administration, reducing available evidence on how AI is implemented in contexts already characterized by serious digital divides and institutional fragility. Studies on Latin American governments and the public sector in Guayaquil evidence initial albeit insufficient progress on AI governance in the region (Juárez-Merino, 2025; Prieto et al., 2024).

Table 5. *Latin American presence in included articles*

Region	Number of articles	Percentage
Latin America	2	4%
Other regions or global approaches	48	96%
Total	50	100%

Source: Author's own elaboration

Discussion

Public artificial intelligence, efficiency, and democratic governance

The results revealed that from 2024 and 2025 onward, study of artificial intelligence and digital governance has attracted greater scholarly interest. This suggests that AI constitutes not merely a technical resource but an emerging challenge within public governance, as it influences processes involving decision-making, service automation, resource allocation, and related functions.

Various studies indicate that AI can contribute to improving public services, automating processes, and strengthening state administrative efficiency (Henman, 2020; Zhao et al., 2025; Al-Ansi et al., 2024). However, the literature also warns of risks linked to algorithmic opacity, surveillance, loss of institutional autonomy, and erosion of public trust when adequate oversight and accountability mechanisms are absent (de Bruijn et al., 2022; Wirtz et al., 2020). The debate thus shifts from whether AI improves public administration to evaluating the conditions under which it is implemented and the risks incurred when states lack sufficient capacity or maturity for its adoption.

Reconfiguration of classical public administration

The literature allows interpreting AI in public administration as a theoretical perspective explaining that AI reconfigures, rather than replaces, classical public administration principles. Principles such as legality and accountability remain fundamental but acquire greater complexity when public decisions are mediated by algorithms. Cetina Presuel and Martinez Sierra (2024) illuminate this tension through a Weberian reading of bureaucratic decision-making, where automation may strengthen efficiency but also weaken public accountability when decisions are justified solely by algorithmic outputs.

Vesolovska et al. (2025) emphasize that civil servants' emotional intelligence may influence effective AI implementation in public administration. Complementarily, Robles and Mallinson (2023) argue

for consolidating cohesive AI governance frameworks that articulate responsibilities, institutional capacities, and public coordination.

This discussion is reinforced by studies warning that AI system selection in public administration is not neutral but involves institutional ambiguity, decisional responsibility, ethical criteria, and new forms of algorithmic management in municipal and administrative settings (Filgueiras, 2021a, 2021b; Langer, 2024; Sergei et al., 2022).

International comparisons and scientific production gap

Comparison of studies reveals regional differences: in Europe, research concentrates on regulation, rights, administrative justice, and algorithmic governance, as observed in investigations on the European Union, Estonia, Italy, Spain, and Ukraine (Joamets, 2025; Küsters, 2025; Kwilinski & Reznik, 2025). In North America, particularly Canada and the United States, literature emphasizes public trust, accountability, and evaluation of automated systems in state services (Attard-Frost et al., 2024; Nalbandian, 2022; Robles & Mallinson, 2025). In Asia, discussion focuses on algorithm regulation, technological standardization, smart government, and local government automation (Cantero Gamito, 2023; Long & Gil-Garcia, 2023; Xu, 2024). In Latin America, studies remain scarce, highlighting the need for scientific production centered on AI research in digital divide contexts.

Other studies complement this international perspective through specific cases and approaches. Forgione (2024) examines AI application in administrative procedures and activities in Italy. Lozano-Paredes (2025) analyzes generative AI integration into New South Wales governance from a sociotechnical perspective. Khisro (2025) addresses AI governance, innovation, and risk management in U.S. government agencies. Elbehairy et al. (2025) study municipal governments' role as innovation actors in AI governance. Maria and Halim (2026) analyze institutional readiness and resistance to AI-based public accounting platforms in Indonesian local governments; although their bibliographic year is 2026, the article was accepted and published online in 2025, thus remaining within the corpus under the document availability criterion until search closure.

Technological dependence, data colonialism, and inequalities

A principal finding concerning AI implementation in public administration is that application in governments lacking capacity to audit automated systems may generate technological dependence. The use of highly complex technology through external providers can limit state autonomy by transferring important decisions to private actors (Hickok, 2022; Nitzberg & Zysman, 2022).

AI governance has also been discussed from perspectives of technological sovereignty, digital rights, democracy, surveillance, institutional transparency, and intelligent system regulation in public administration (Capón et al., 2025; Robles & Mallinson, 2025; Suat, 2025; Vatamanu & Tofan, 2025).

The concept of data colonialism from Couldry and Mejias (2019) is employed in this study as an external theoretical framework to interpret technological dependence risks in AI-based public governance. Although not specifically about AI in public administration, it enables critical analysis of how massive citizen data extraction and management through external platforms can generate new institutional asymmetries. Within the public sector, such phenomena manifest when citizen data are processed through external algorithmic platforms or when state decisions depend on platforms the state does not fully control.

Similarly, results demonstrate that AI use in public governance may reproduce inequalities when implemented on already biased or incomplete data. While 70% of studies address efficiency and public service improvement, only 24% focus on inclusion and inequality issues. This disparity indicates that literature continues to prioritize AI benefits over its negative impacts. Fountain (2022) and Joamets (2025) caution that bias prevention and algorithmic justice must form part of automated public service governance.

Conclusions

This article has examined the relationship between artificial intelligence and digital governance in public administration over the 2018–2025 period. Thematic trends, geographic foci, and research gaps

were identified, revealing that artificial intelligence offers opportunities for state modernization while simultaneously posing challenges, particularly when intervening in decisions affecting rights or citizen access to public services.

Scientific production was found to concentrate between 2024 and 2025, suggesting that AI applied to public administration is a growing topic whose study has been accelerated by rapid development of automated systems, generative AI, and digital transformation processes within the public sector.

A tension was identified between benefits and risks of AI use in the public sector. While numerous studies highlight benefits in terms of modernization, automation, and service improvement, they also warn of risks related to algorithmic opacity and bias. This situation reinforces the idea that AI evaluation should not be limited to efficiency criteria but must incorporate ethical and democratic dimensions.

The study's primary contribution lies in integrating discussion of artificial intelligence in public governance with critical approaches linked to technological dependence, data colonialism, and inequality reproduction. In this way, the research enabled understanding of how AI can redefine state capacities, institutional responsibilities, and power relations in public administration.

From a theoretical perspective, the study supports the position that artificial intelligence does not replace classical public administration principles but reconfigures them. It also broadened discussion regarding incorporation of a critical perspective on technological dependence and data colonialism, particularly in states with unequal institutional capacities. From a practical standpoint, results suggest that artificial intelligence implementation in the public sector should be grounded in responsible governance principles, implying establishment of clear regulatory frameworks and effective human oversight.

It is therefore recommended that public policymakers strengthen state capacities before mass adoption of AI systems, especially in contexts such as Latin America where high risk of technological dependence and adoption of biased algorithmic models exists.

Finally, future research should expand empirical analysis of artificial intelligence and digital governance in public administration, particularly in regions like Latin America where available literature is scarce. Further investigation considering AI's impact on vulnerable populations, including rural territories or communities with limited digital literacy, also remains necessary.

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