



RESEARCH ARTICLE

Efficiency of Digital Government in Public Management: Risks and Challenges. A Systematic Review

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ARTICLE INFO	ABSTRACT
Received: Sep 17, 2025	This systematic review aimed to analyze the scientific evidence published between 2020 and 2025 regarding the influence of digital government on the efficiency of public management, identifying the main challenges and opportunities arising from its implementation. The PRISMA 2020 methodology was applied through searches in Scopus, Web of Science, and SciELO, using keywords such as digital government, administrative efficiency, public management, and digital transformation. Out of 145 records initially identified, 20 studies met the inclusion criteria. The findings were organized into four thematic categories: administrative efficiency, digital divide, citizen participation, and sustainability. Results show that digital government significantly enhances process optimization, institutional transparency, and public value generation, provided that leadership, technological infrastructure, and adequate training are ensured. Nevertheless, access gaps, institutional resistance, and digital inequalities remain as barriers to its full potential. It is concluded that digital government is a key instrument to strengthen contemporary public management, promote sustainability, and foster more inclusive and efficient governance
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INTRODUCTION

In recent years, digital government has become a key tool for modernizing the state and optimizing administrative processes, enabling more efficient and faster management (Trein et al., 2025). Digitization in the public sector seeks to strengthen transparency and accountability, essential factors for consolidating citizen trust in public institutions (Rajpal et al., 2025). Digital transformation processes also contribute to reducing bureaucracy, improving the speed and accuracy of public service delivery (Pisár & Honzová, 2025). The transformation towards digital government is related to innovation in public management and the ability of states to adapt to the social demands of the current century (Lin & Yaakop, 2024). In addition, government digitization contributes to the fulfillment of the Sustainable Development Goals (SDGs), promoting more sustainable and inclusive public management (Lubis et al., 2024). Progress in digital government has demonstrated improvements in the operational efficiency of public entities and in the quality of public services (Djatkiko et al., 2025). However, technological implementation faces obstacles related to connectivity, lack of specialized human resources, and digital infrastructure (Barodi & Lalaoui, 2025). Digital divides persist in many countries, limiting equitable participation by the population in the digital services offered by the state (Makki & Alqahtani, 2022). Developing countries, such as those in Latin America, face the additional challenge of integrating digital policies with traditionally rigid institutional structures (Ahmed et al., 2025). Studies show that governments that implement digital platforms achieve greater citizen satisfaction and greater efficiency in public management (Chen & Ye, 2025). System interoperability and process automation are determining factors in achieving modern public management (Xhafka et al., 2024). Strengthening the digital skills of public servants is essential to ensuring the success of digital transformation (Aguilar, 2025).

However, technological implementation without adequate change management can increase inequality and digital exclusion (Elayah, 2025). Institutional resistance and a lack of strategic vision hinder the consolidation of sustainable digital systems in the public sector (Du et al., 2025). Bibliometric reviews confirm a significant increase in studies on digital governance and its relationship with administrative efficiency (Song et al., 2024). The use of emerging technologies, such as artificial intelligence, reinforces the capacity of digital government to improve decision-making in its management (Savveli et al., 2025). In Latin America, experiences such as those in Peru and Mexico show progress in digitization, but significant technological gaps still persist (Díaz-Guzmán Verástegui et al., 2025). In Asia and Europe, the integration of digital policies has promoted more sustainable management of natural resources (Zhang & Cao, 2025). Digital government can also act as a catalyst for sustainability, promoting energy efficiency and reducing inequalities (Latupeirissa et al., 2024). Finally, governments still face significant challenges such as cybersecurity, resistance to change, and lack of training (Amanbek et al., 2020).

Therefore, it is very important to systematically examine the scientific evidence that evaluates the efficiency of digital government in public management in order to identify the factors that limit or enhance its impact on institutions.

Based on this background, this systematic review was guided by the following research question: How does the implementation of digital government influence the efficiency of public management, compared to traditional models, considering the national and local contexts reported between 2020 and 2025? The research question formulated under the PICO model allowed us to structure the search, selection, and analysis of the scientific literature, considering public institutions as the population, government digitization as the intervention, traditional public management models as the comparison, and the levels of efficiency, transparency, and citizen participation achieved as the results. The objective of this systematic review is to analyze the available scientific evidence on the efficiency of digital government in public management, identifying the main risks, challenges, and opportunities arising from its implementation. Understanding these elements will strengthen public policy formulation, improve institutional capacities, and promote a more efficient, inclusive, and sustainable government.

METHODOLOGY

This research was conducted as a systematic literature review, following the guidelines of the PRISMA 2020 model, with the aim of ensuring transparency, rigor, and reproducibility in the process of searching, selecting, and analyzing scientific evidence. A qualitative systematic review design was considered, aimed at identifying, synthesizing, and analyzing evidence published between 2020 and 2025 on the efficiency of digital government in public management. The study was structured according to the stages proposed by the PRISMA 2020 guideline: the scientific literature was identified, screened, and duplicates were eliminated; eligibility was assessed using inclusion and exclusion criteria; and the studies selected for narrative analysis were finally included. The search for information was carried out between August and November 2025 in specialized academic databases: Scopus, Web of Science, and Scielo. Peer-reviewed open-access publications were considered, with the aim of ensuring the complete availability of content and verification of findings. Combinations of keywords and Boolean operators in English and Spanish were used, such as: "digital government" OR "e-government" AND "public management," "digital government" AND "public management," "government efficiency" OR "digital transformation of the state," "risks" AND "challenges" AND "public digitization." Filters were set to limit the results to articles published between January 2020 and November 2025, in English and Spanish, and with open access to ensure the availability of the full content.

Inclusion criteria: Original scientific articles or systematic reviews related to the efficiency, risks, or challenges of digital government in public management. Publications between 2020 and 2025. Studies with clear methodology and verifiable results. Studies available in full text, in Spanish or English. **Exclusion criteria:** Duplicate articles, conference abstracts, or reports without peer review. Studies focused on technical aspects of computer engineering unrelated to public management. Documents without full access or with insufficient information for analysis.

In the first phase, a total of 145 potentially relevant articles were identified. After eliminating 37 duplicates, 108 titles and abstracts were examined, of which 48 were discarded for not meeting the

inclusion criteria. Finally, 60 articles were reviewed in full text and evaluated in detail, resulting in 20 studies included in the qualitative analysis. The selection process was represented using the PRISMA 2020 flow diagram, which shows the stages of identification, screening, eligibility, and inclusion of studies (see Figure 1).

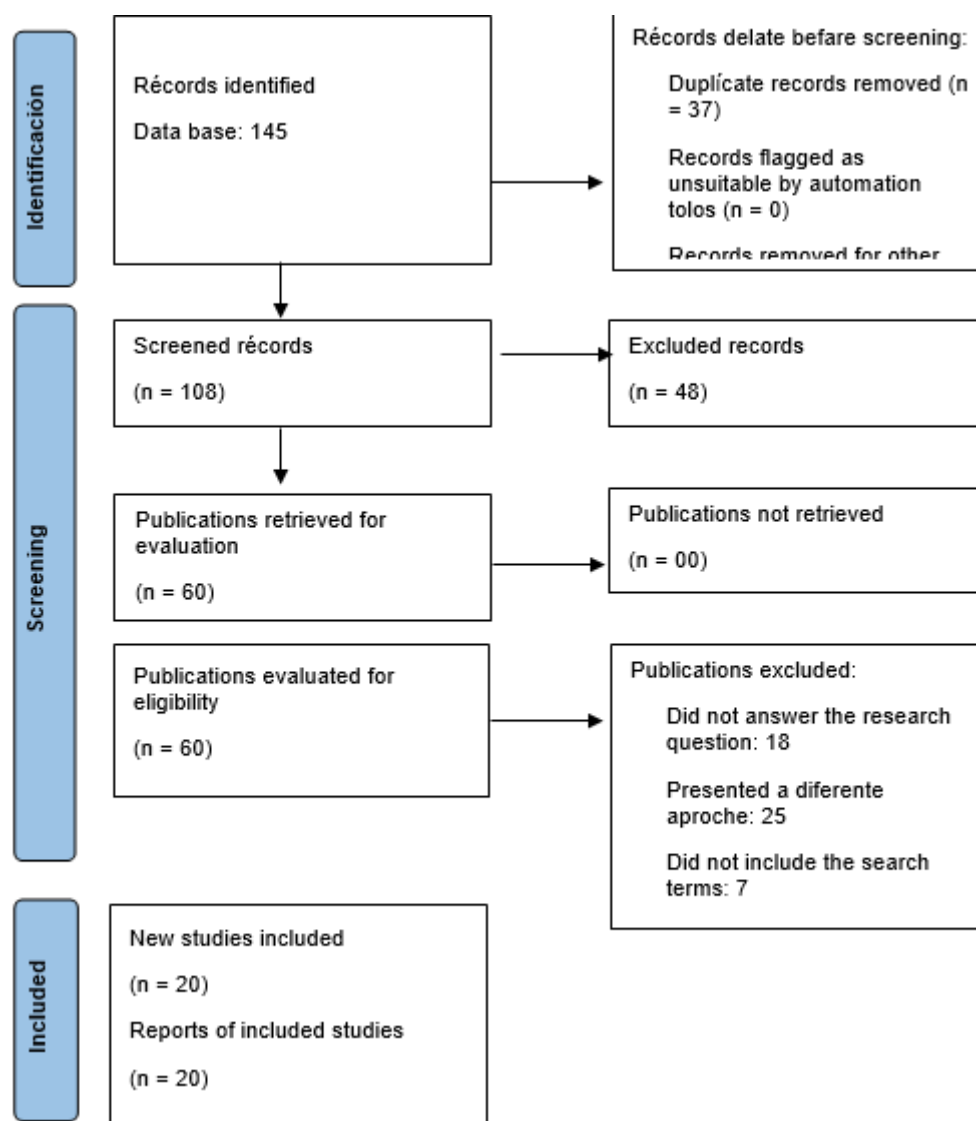


Figure No. 1

Each selected article was evaluated using an analysis matrix considering: Clarity of objectives and methodology. Relevance to digital government and public management. Theoretical and empirical contribution. Level of evidence and reported limitations. Studies that achieved a medium or high-quality rating were included in the final narrative synthesis. Given that the included studies present heterogeneous methodological approaches, a qualitative narrative synthesis was chosen, considering four main analytical categories as a result: "administrative efficiency and modernization of the state," "the digital divide and public staff skills," "citizen participation and digital inclusion," and "sustainability and digital governance." This categorization made it possible to identify patterns, research gaps, and common relationships between the findings of the different studies reviewed. The ethical considerations of this study did not involve experimentation with human subjects or the use of personal data. All articles analyzed are in the public domain and open access, cited in accordance with intellectual property standards and references in APA 7 style.

RESULTS

During the application of the PRISMA 2020 methodology, 145 studies were initially identified, of which 37 duplicates were eliminated and 48 were excluded for not meeting the inclusion criteria. Finally, 20 scientific articles published between January 2020 and November 2025 were selected for qualitative review, all from Scopus, Web of Science, and SciElo, and available in open access.

Table 1. Summary of studies included in the systematic review (2020–2025)

Author(s)	Year	Country/Region	Study objective	Main findings
Trein, Presset & Vagionaki	2025	Switzerland	Analyze collaborative innovation in digital government.	Interagency cooperation increases efficiency and public transparency.
Rajpal et al.	2025	India	Examine digital transformation in the public sector.	Digital policies strengthen the circular economy and institutional efficiency.
Pisár & Honzová	2025	Slovakia	Assess the impact of e-government on economic growth.	Digitization improves government performance and fiscal management.
Lin	2024	China	Conduct a bibliometric analysis on digital governance.	There is evidence of a sustained increase in research on administrative efficiency.
Lubis et al.	2024	Indonesia	Analyze e-governance and its contribution to the SDGs.	Digital government promotes sustainability and institutional equity.
Djarmiko, Sinaga & Pawirosumarto	2025	Indonesia	Assess digital inclusion in vulnerable communities.	Digitization improves access to public services, although usage gaps persist.
Barodi & Lalaoui	2025	Morocco	Explore the public sector's readiness for AI adoption.	Lack of leadership and training limits digital transformation.
Makki & Alqahtani	2022	Saudi Arabia	Identify barriers to digital government implementation.	The main limitations are institutional resistance and lack of strategic vision.
Ahmed, Kaya & Karanfiller	2025	Iraq	Develop sustainable strategies for regional e-government.	Digital sustainability requires intergovernmental cooperation.
Chen & Ye	2025	China	Assess the effects of urban mobile government on economic equity.	Mobile applications reduce gaps between urban and rural areas.
Khafka, Sinoimeri & Teta	2024	Albania	Measure the impact of e-government on service efficiency.	Digitization improves the quality and speed of public services.
Aguilar Soto	2025	Peru	Analyze the implementation of e-government in the Peruvian public sector.	Progress has been made in transparency, although it is limited by a lack of connectivity.
Elayah	2025	Qatar	Study social participation in digital governance.	Cooperation with NGOs improves trust and citizen inclusion.
Du, Xu & Yuan	2025	China	Assess the relationship between digital governance and technological innovation.	Digital governance promotes innovation and public business efficiency.
Song	2024	South Korea	Analyze the evolution of e-government globally.	Three historical phases of state digital development are identified.
Savveli, Rigou & Balaskas	2025	Greece	Review the incorporation of AI in e-governments.	Artificial intelligence increases administrative accuracy and efficiency.
Díaz-Guzmán Verástegui	2025	Mexico	Examine the perception of usefulness and usability of e-government.	Citizens perceive usefulness, but digital trust is still lacking.

Zhang & Cao	2025	China	Assess how digital governance improves environmental sustainability.	Data analysis optimizes the use of natural resources.
Latupeirissa, Dewi & Prayana	2024	Indonesia	Review digitization initiatives in public services.	Digital transformation improves energy efficiency and citizen participation.
Amanbek, Balgayev, Batyrkhanov & Tan	2020	Kazakhstan	Analyze the adoption of e-government.	Educational level and institutional culture condition digital efficiency.

Qualitative analysis allowed the results to be grouped into four thematic categories, in accordance with the objectives of the review.

In the first category, administrative efficiency and modernization of the state, studies agree that digital government has improved operational efficiency, reducing time and costs in public management. Interoperability between institutions and the use of artificial intelligence strengthen productivity and decision-making (Trein et al., 2025; Savveli et al., 2025).

In the second category, digital divide and institutional competencies, inequalities in technology adoption persist, especially in countries with low digital literacy and limited infrastructure. Lack of leadership and training of public personnel are common obstacles (Barodi & Lalaoui, 2025; Makki & Alqahtani, 2022).

In the third category, citizen participation and digital inclusion, digitization has facilitated communication between the state and citizens, although the level of participation varies according to political culture and institutional trust. In contexts with low transparency, digital adoption is progressing slowly (Elayah, 2025; Díaz-Guzmán Verástegui, 2025).

Finally, in the fourth category, sustainability and digital governance, digital transformation contributes to sustainable development and the SDGs by optimizing resources and energy efficiency. However, digital governance still needs to be strengthened to avoid new forms of inequality (Lubis et al., 2024; Zhang & Cao, 2025).

Overall, the results show that digital government has a proven positive impact on the administrative efficiency of public management, provided that technological infrastructure, institutional leadership, and coherent public policies are in place.

DISCUSSION

The results of this systematic review confirm that the implementation of digital government has a positive influence on administrative efficiency and institutional transparency, findings that coincide with previous studies on digital transformation in the public sector (Trein et al., 2025; Rajpal et al., 2025). These studies indicate that digitization not only optimizes internal processes but also promotes a culture of innovation, collaboration, and government openness.

However, the evidence also shows that the impact of digital government depends on institutional maturity and available technological infrastructure. In countries with consolidated administrative structures, digital transformation has achieved sustainable results, while in contexts with limited resources, progress has been partial or uneven (Makki & Alqahtani, 2022; Ahmed et al., 2025). This reveals the importance of strategic planning and public policies that integrate technology with organizational change management.

Findings related to the digital divide reflect a recurring pattern in the literature: lack of digital skills, cultural resistance, and poor training in the public sector remain the main challenges to effective transformation (Barodi & Lalaoui, 2025; Aguilar Soto, 2025). This problem is not limited to technical capabilities, but also to the need for leadership and strategic vision to promote a digital culture in institutions.

In terms of citizen participation, the review reveals a dual trend. On the one hand, digitization broadens the channels of communication between the state and citizens, promoting transparency

and accountability (Elayah, 2025; Díaz-Guzmán Verástegui, 2025). On the other hand, effective participation remains low in societies with low institutional trust or unequal access to technologies (Djatkiko et al., 2025). This suggests that technology adoption must be accompanied by digital literacy policies and social inclusion mechanisms.

The relationship between digital government and sustainability has emerged as a key trend in recent years. The studies reviewed show that digital technologies contribute to the achievement of the Sustainable Development Goals (SDGs) by optimizing resource use, reducing operating costs, and improving energy efficiency (Lubis et al., 2024; Zhang & Cao, 2025). However, digital sustainability requires strong governance and control mechanisms to prevent technological inequality or excessive dependence on private solutions.

Comparing these results with previous reviews, a conceptual evolution in the field of governance can be observed. While early studies focused on process automation, recent literature emphasizes public value creation and citizen participation as dimensions of efficiency (Song, 2024; Savveli et al., 2025). This evolution reflects a more mature and systematic view of digital government as an instrument of democratic governance.

Despite the progress, the review also identified research gaps. There are few comparative studies between local, regional, and national levels of government, and most of the evidence comes from Asia and Europe, which limits generalization to Latin American contexts. In addition, most of the articles analyzed are qualitative or , so it is recommended to incorporate mixed approaches and longitudinal analyses that measure the impact of digital government over time (Pisár & Honzová, 2025).

In terms of practical implications, the results suggest that governments should prioritize digital training policies, strengthen the interoperability of their systems, and promote public-private partnerships to ensure technological sustainability. It is also essential to consolidate regulatory frameworks that govern digital ethics, data security, and transparency in the use of information (Du et al., 2025).

Finally, the review reaffirms that the efficiency of digital government does not depend solely on technology, but on the balance between infrastructure, human capital, leadership, and citizen participation. A holistic and inclusive approach will enable states to move toward effective, sustainable, and people-centered digital governance.

CONCLUSIONS

This systematic review provided a comprehensive analysis of the scientific evidence available between 2020 and 2025 on the efficiency of digital government in public management. The findings confirm that digital transformation is a determining factor in improving administrative efficiency, transparency, and institutional sustainability, provided that there is adequate strategic planning and organizational leadership.

In relation to the PICO question posed, the results show that the implementation of digital government has a positive influence on the performance of public institutions compared to traditional models, by optimizing processes, reducing response times, and strengthening accountability. This influence is enhanced when digital policies are accompanied by staff training, technological interoperability, and clear regulatory frameworks.

However, structural risks and challenges persist that limit the impact of digital government, such as the skills gap, unequal access to technology, institutional resistance, and budgetary constraints. These factors demonstrate that digital efficiency does not depend solely on technological infrastructure, but also on the institutional capacity to manage change and promote innovation.

The review also showed that digital government can become an instrument of sustainability by promoting responsible resource management, equitable access to services, and the creation of public value. However, to consolidate these benefits, governments must strengthen digital governance and ensure citizen participation as a central pillar of technology policies.

Finally, it is recommended that future research adopt comparative and mixed approaches that allow for measuring the long-term impact of digital government, especially in Latin American contexts,

where the literature is still limited. The integration of technological innovation, public leadership, and social participation will be essential to advance toward a more efficient, inclusive, and sustainable model of public management.

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