



Toward Smart Governance: A Bibliometric Analysis of Digital Transformation in Public Administration

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A B S T R A C T

This study aims to examine global research trends, thematic structures, and scholarly contributions related to digital transformation in public administration as a pathway toward smart governance. Employing a bibliometric research design, the study analyzes Scopus-indexed journal articles published in English within the social sciences domain. Data were collected on July 2, 2024, using the keywords “digital transformation” and “public administration,” resulting in 12,871 relevant documents. Bibliometric techniques, including publication trend analysis, keyword co-occurrence, and institutional and country mapping, were applied to identify dominant themes, influential contributors, and emerging research directions. The findings reveal a sharp increase in publications since 2014, reflecting growing academic and policy interest in digital governance. Key thematic clusters include e-government, smart governance, Society 5.0, blockchain, data analytics, and cognitive automation, highlighting the expanding role of digital technologies in improving bureaucratic efficiency, transparency, and citizen engagement. The analysis also shows that research output is largely driven by leading universities and countries with advanced digital ecosystems, while developing nations contribute emerging perspectives shaped by contextual challenges. Despite significant progress, persistent barriers—such as digital inequality, limited institutional capacity, and regulatory uncertainty—continue to constrain effective implementation. The study concludes that achieving smart governance requires integrated policy reforms, strategic digital investments, and capacity-building initiatives. These findings provide valuable insights for policymakers and scholars, particularly in developing countries, to guide evidence-based digital transformation and public administration reform.

INTRODUCTION

Public administration as a concept has evolved over centuries, with roots traceable to ancient civilizations such as Egypt, Greece, and Rome (Aj dini, 2014). Aristotle's early thoughts on governance and statecraft laid foundational ideas for the field (Aristotle, 1986). During the feudal era in 13th-century Europe, administrative authority was decentralized and dominated by local lords (Harmathy, 2019). However, transformative revolutions in later centuries marked a shift toward centralized governance and the emergence of the modern state. These changes restructured social and economic systems and introduced bureaucratic complexity alongside modern management and organizational principles in public administration (Gersick, 2020). In contemporary times, public administration faces a new challenge: digital transformation. This shift demands not only technological adaptation but also a reevaluation of how public services are designed, delivered, and governed (Sebola, 2021).

Meanwhile, in the 19th century, in the United States and Germany, early thinking about public administration began to develop ideas about the importance of professionalism, efficiency, and rationality in public administration in the concept of administrative politics to separate public policy from its implementation (Wilson, 2010). In the late 19th and early 20th centuries, there was a development of academic institutions in universities that began to offer specialized courses in public administration (Altbach et al., 2009; Hallinger,

2019), to help develop the theoretical and methodological foundations of the discipline (Choice, 2013).

In the 20th century, various public administration ideas and theories have developed (Hildreth et al., 2021), including organizational theory, decision-making theory, and systems theory. Thinkers such as Herbert Simon, Frederick Taylor, and Chester Barnard made major contributions in developing conceptual frameworks for understanding and improving the performance of public administration (Material & Science, 2022; Victor, 2023). Furthermore, in the 21st century, public administration is faced with new challenges that arise from globalization, information technology, and the complexity of public problems at the same time such as climate change, migration, and inequality (Hildreth et al., 2021).

Public administration is a discipline and practice related to the management of (Popelo et al., 2021), maintenance (Manuhutu et al., 2021), and policy implementation (Choice, 2013) programs, and public services organized by the government to achieve certain objectives in serving the interests of the community (Holland, 2016). Public administration aims to achieve efficiency, effectiveness, and accountability in the implementation of public services and government policies (Lapunte & Van de Walle, 2020). The digital era brings fundamental changes (Thomas M. Siebel, 2019) in the traditional ways of public administration. Digital transformation includes the application of information and communication technology in all aspects of public

administration through digitalization. Green represents traditional administrative concepts, such as bureaucracy and administrative reform, showcasing the foundational elements of public administration studies. Purple and blue are used to indicate links to public policy and environmental concerns, including sustainability and environmental policy, signifying the growing importance of these issues in public administration. Finally, yellow marks the connections to national and regional studies, including references to the United States, the United Kingdom, and comparative studies, emphasizing the global and regional perspectives in public administration research. It means that the importance of research related to digital transformation in administrative science is shown based on a literature search on Scopus data, using the word "Digital Transformation" and "Public Administration" There are 12,871 document result and processed using VOS Viewer software version 1.6.20, then it can be seen that there is no data on scientific articles that discuss related *digital transformation* In the field of public administration, based on the findings of the literature, several researchers revealed that public administration discusses a lot of governance approaches (Hildreth et al., 2021), its governance (Meuleman, 2021), public management (Lapuente & Van de Walle, 2020) government (Treiblmaier & Sillaber, 2020) , smart city sustainability (Toli & Murtagh, 2020), innovation (Dziallas & Blind, 2019), and public services (Dick-Sagoye, 2020).

METHOD

The research we conducted by way of literature study uses a bibliometric analysis approach with the help of the vos viewer *application version 1.6.20* which functions to visualize the relationships that occur in the research data obtained. The data collection process was carried out using a literature review approach by looking for scopus data which was carried out on July 2, 2024 at 14.25 WIB. Literature search by keywords Literature search by keywords (TITLE-ABS-KEY ('digital transformation') OR TITLE-ABS-KEY ('PUBLIC ADMINISTRATION')) AND (LIMIT-TO (SUBJAREA , 'SOCI')) AND (LIMIT-TO (DOCTYPE , 'ar')) AND (LIMIT-TO (LANGUAGE , 'English')) on July 2, 2024, at 14.25 WIB, it was found that Scopus data had found 12,871 research documents. The results highlight the current research trend considering that in the 5.0 era that focuses on *civil society*, digital transformation refers to the use of digital technology to change the way organizations, governments, and other entities operate and interact with their *stakeholders*. Digital transformation in public administration aims to improve bureaucratic efficiency, improve the quality of public services, and strengthen the relationship between government and society, as well as insights into the intersection of digital transformation and public administration, exploring their impacts, challenges, and strategies for effective implementation in contemporary contexts.

Figure 2. Brief explanation About the article

Source: processed by Researcher, 2024

In this study, a bibliometric analysis was conducted to examine the trends and relationships within the field of public administration, specifically focusing on the digital transformation in governance. The analysis was performed using VOSviewer, a specialized tool for visualizing bibliometric networks, which was chosen for its robust capabilities in processing large sets of academic data and providing clear, interactive visualizations. VOSviewer allows for the

construction of network maps, where the nodes represent keywords, and the edges between nodes illustrate their co-occurrence and relationships.

Data Collection:

The data for this analysis was obtained from Scopus, a comprehensive database of peer-reviewed academic literature. Initially, a total of 12,871 documents related to public administration and digital transformation were retrieved. These documents include journal articles, conference papers, and books published between the years 2000 and 2023. To ensure the relevance and quality of the data, several exclusion criteria were applied.

Data Filtering:

The documents were filtered through a systematic process that included the following criteria:

1. **Language:** Only English-language documents were retained to maintain consistency and focus on the global research perspective.
2. **Document Type:** Non-peer-reviewed articles, such as news articles, editorials, and conference abstracts, were excluded. The focus was on peer-reviewed journal articles, books, and conference proceedings, which are considered to be higher quality research outputs.
3. **Time Frame:** Documents published between 2000 and 2023 were selected to ensure that the analysis reflects the most recent advancements and trends in the field.
4. **Relevance to Topic:** A keyword and abstract screening process was employed to exclude irrelevant documents that did not directly pertain to the topics of digital transformation and governance in public administration.

Analysis with VOSviewer:

Once the relevant documents were selected, VOSviewer was used to analyze and visualize the co-occurrence of keywords within the dataset. The software generates network maps that show how frequently certain keywords appear together, helping to identify the central topics and themes within the research. The size of the nodes represents the frequency of the keywords, and the thickness and length of the lines connecting the nodes represent the strength of the relationships between these terms.

VOSviewer's layout algorithm was applied to create clear and interpretable visualizations, highlighting clusters of related keywords that represent specific areas of focus in digital governance and public administration. These clusters were then analyzed to identify emerging trends and key areas of research in the field.

RESULTS AND DISCUSSION

The results of the bibliometric analysis reveal key trends and areas of focus within public administration research, with a clear emphasis on the growing influence of digital transformation. The analysis highlights several emerging themes, including e-government management, digital governance, and data management, which reflect the ongoing efforts by governments to modernize and optimize services in an increasingly digital world. These themes are closely aligned with real-world challenges faced by public administration entities as they navigate the complexities of managing vast amounts of digital data and transitioning from traditional governance models to more digitally integrated ones.

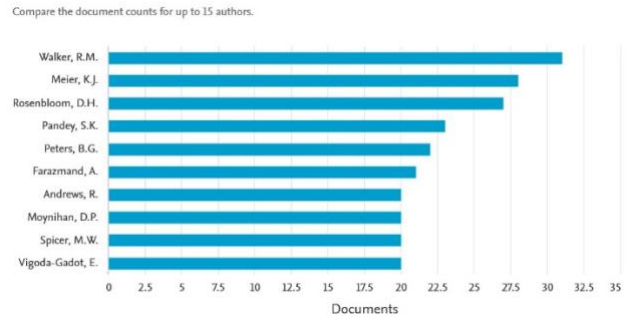
government agencies (Farazmand, 2022). The focus is on the efficiency of public services with principles such as accountability, transparency, community participation, and fairness, at all levels of administration from local to national (Mamokhere et al., 2022; Waddington et al., 2019). Theoretically, public administration also considers organizational structures, decision-making processes, and the impact of social, economic, political, and cultural factors in the implementation of public policies. Digitization is a terminology to describe the process of transferring media from printed, audio, and video forms to digital forms (Kirillova et al., 2020). It is related to digital transformation which brings changes to the way the government operates and interacts with the community with digital transformation which can facilitate all activities such as online public services, such as online tax payments, business license registration, digital issuance of identity cards (KTP), and so on (Danuri, 2019).

As part of digital transformation, the implementation of e-government is very important. E-government not only accelerates public services, but also increases the transparency and efficiency of government administration. Thus, digital transformation in the context of e-government allows the government to provide better services to the community. This form of digitalization is very important in digital government. As the times develop, government agencies increasingly need digital-based services to simplify the service process. This is closely related to the concept of e-government. E-government, or digital government, is a concept that combines various elements, including information technology, public services, accountability, and the internet. According to the United Nations (UN), e-government is the use of information and communication technology by the government to support and improve information accessibility to citizens, as well as improve public services, democratic processes, and e-government support. The following is an explanation of how each of these elements contributes in the context of e-government.



Figure 5. The Nine Elements of E-government

Source: processed by Researcher, 2024



Based on the figure, the implementation of e-government in developing countries often involves efforts to modernize bureaucracy and increase public access to government services through information technology, with the aim of increasing the efficiency and transparency of public services. This research process is carried out by researchers inseparable from the active role of the agency or affiliate of the researcher to provide support so that the research process and scientific publications can continue to be developed and improved in figure six, it can be seen that the top 10 affiliates who are actively conducting research on digital transformation.

Figure 6. Research developments based on affiliate infographics
Source: processed by researchers using the Scopus bibliometric data device

Based on figure six, it can be seen that there are 10 productive affiliates conducting research on digital transformation in the 2014-2024 period, among which Erasmus Universiteit Rotterdam is ranked first in conducting research by contributing as many as 12,871 documents published in the Scopus database.

Several authors who are actively conducting research on the topic of digital transformation can be seen in the seventh figure.

Figure 7. Author

Source: processed by researchers using the Scopus bibliometric data device

As seen in figure seven, there is a relationship between several authors and co-authors in conducting scientific publications related to the topic of digital transformation research. Various subject areas in the field of science that conduct research on digital transformation in various countries can be seen in figure eight.

Documents by subject area

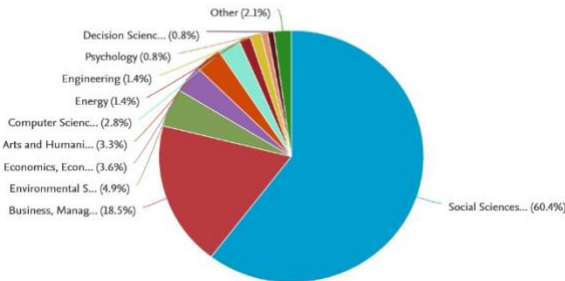


Figure 8. Infographics by area subject

Source: processed by researchers using the Scopus bibliometric data device

Based on figure eight, the information of the subject of the area that conducted research on digital transformation included the subject area of social sciences (60.4%), business, management (18.5%), environmental sciences (4.9%), economics et.al (3.6%), arts and humanities (3.3%), computer sciences (2.8%), energy (1.4%), engineering (1.4%), psychology (0.8%), decision decisions (0.8%), and other (2.1%).

In the data stored in the Scopus database, there are several studies that collaborate with researchers of different affiliations and even countries to conduct scientific publications, the data can be seen in figure nine.

Documents by country or territory

Compare the document counts for up to 15 countries/territories.

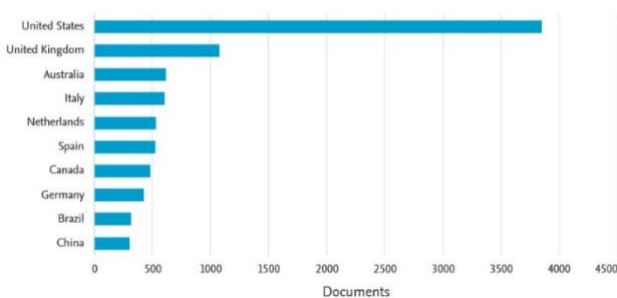


Figure 9. Publicity by country

Source: processed by researchers using the Scopus bibliometric data device

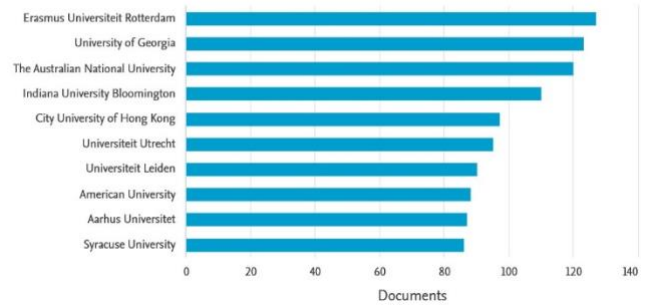
The data in figure nine shows that 10 countries that are actively conducting scientific research and publications in collaboration with other countries can be seen in the *United States* being the top country contributing to the publication.

CONCLUSION

The bibliometric evidence presented in this study demonstrates that digital transformation has become a central pillar in contemporary public administration research, with a pronounced acceleration of scholarly output since 2014. The mapping of 12,871 Scopus-indexed publications reveals a clear consolidation of key thematic clusters—such as e-government, smart governance, Society 5.0, blockchain, data analytics, and cognitive automation—indicating a paradigmatic shift from

Documents by affiliation

Compare the document counts for up to 15 affiliations.



administrative digitalization toward more integrated, data-driven, and citizen-centered governance models. These findings suggest that digital transformation is no longer perceived merely as a technological upgrade, but as a structural and strategic mechanism for redefining governance capacity, transparency, and public service delivery.

The analysis further shows that research leadership in this field remains concentrated in countries and institutions with advanced digital ecosystems, which largely shape dominant narratives and conceptual frameworks of smart governance. At the same time, contributions from developing countries, although quantitatively smaller, introduce context-specific perspectives that highlight governance challenges related to institutional readiness, regulatory adaptability, and digital inequality. This asymmetry underscores a critical implication: pathways toward smart governance are not uniform and must be adapted to differing socio-economic, institutional, and technological contexts.

From a policy perspective, the findings imply that successful digital transformation in public administration requires more than technology adoption. Governments must pursue integrated reforms that align digital innovation with regulatory modernization, organizational capacity-building, and inclusive access to digital infrastructure. Strategic investments in human capital, digital literacy, and cross-sector collaboration—particularly through public-private partnerships—emerge as essential conditions for translating digital potential into sustainable governance outcomes.

Despite its contributions, this study has several limitations. The analysis relies exclusively on Scopus-indexed journal articles published in English, which may exclude relevant regional studies, policy reports, or non-English scholarship that could enrich the global discourse. Additionally, bibliometric methods emphasize publication patterns and thematic relationships but do not assess the substantive effectiveness or real-world impact of digital transformation initiatives.

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