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Mapping the Intellectual Landscape of Digital Governance: Trends, Thematic Development, and Global Research Networks

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Abstract

This study conducts a comprehensive bibliometric analysis to map the evolution, intellectual structure, and research frontiers of Digital Governance (DG) from 2014 to 2025. Using the Scopus database and the Bibliometrix package in R, a total of 270 journal articles were analyzed following the PRISMA protocol. The results reveal a steady growth in DG publications, particularly after 2020, driven by global digital transformation initiatives and the expanding role of artificial intelligence in governance. Thematic and co-occurrence analyses identify three dominant clusters: (1) institutional and administrative transformation in public governance, (2) technological and ethical innovation, including AI, data ethics, and algorithmic accountability, and (3) sustainability-oriented digital governance. Network analyses highlight China, the United States, and the United Kingdom as leading contributors with strong transnational collaboration, while emerging economies such as Indonesia, India, and Brazil are increasingly active in this field. The study concludes that DG has evolved into a mature, interdisciplinary domain that bridges governance, technology, and society. Future research should focus on exploring institutional sensemaking, policy learning, and adaptive governance to better understand how digital transformation reshapes public value creation, accountability, and inclusivity across diverse contexts.

Keywords: *Digital governance, bibliometric analysis, public administration, artificial intelligence.*

Introduction

The concept of digital governance has emerged as a defining feature of contemporary public administration, reflecting the profound transformation of bureaucratic institutions in the digital age. As governments increasingly rely on data, algorithms, and networked infrastructures to design and deliver public policies, governance practices have evolved beyond traditional notions of e-government toward a more systemic and integrative framework known as Digital Era Governance (DEG) (Margetts & Dunleavy, 2013; P.J. Dunleavy & H.Z. Margetts, 2025). DEG emphasizes three interrelated principles: reintegration, needs-based holism, and digitalization, which collectively redefine the relationship between state institutions, citizens, and technology. This paradigm underscores not only efficiency and transparency but also the institutional and cultural reconfiguration of governance in response to digital transformation.

Scholarly interest in digital governance has expanded significantly over the past decade, driven by technological innovations such as artificial intelligence, big data analytics, blockchain, and cloud computing. These developments have reshaped the operational and normative foundations of governance, leading to new modes of policy implementation, accountability, and citizen engagement. (Janssen & Zuiderwijk, 2014; Safarov et al., 2017). As Cordella & Tempini (2015) Argue, digital governance entails more than the technological modernization of public service delivery; it represents a new institutional logic that intertwines digital infrastructures with political authority and administrative rationality.

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Despite the growing volume of literature, the knowledge structure of digital governance research remains fragmented. Previous studies have explored specific dimensions such as open government data (Kassen, 2013), smart cities (U.E. e Ammara et al., 2022), digital inclusion (Reisdorf & Rhinesmith, 2020), and algorithmic policy design (van Noordt & Misuraca, 2022) However, there is limited synthesis of how these subfields collectively contribute to the broader conceptual and theoretical development of digital governance. Moreover, existing research tends to privilege the technological and instrumental aspects of digitalization while overlooking its institutional, ethical, and socio-political dimensions (Williamson, 2016). Consequently, a systematic mapping of digital governance scholarship is necessary to identify its thematic evolution, intellectual foundations, and emerging trajectories.

To address this gap, bibliometric analysis offers a rigorous methodological approach for quantifying and visualizing patterns of knowledge production, collaboration, and thematic convergence. (Aria & Cuccurullo, 2017; Donthu et al., 2021). By analyzing citation networks, keyword co-occurrences, and thematic clusters, bibliometric methods allow scholars to uncover the epistemological architecture of a research field and trace its longitudinal evolution. Applying this approach to digital governance is particularly timely, as it enables a comprehensive understanding of how academic discourse in this area has matured in response to global digital transformations.

Accordingly, this study aims to provide a comprehensive bibliometric examination of Digital Governance (DG) research published between 2014 and 2025, with the objective of understanding how the field has evolved, matured, and diversified over time. The analysis focuses on mapping the evolution of scholarly attention, tracing both the quantitative growth of publications and the qualitative shifts in intellectual influence and thematic orientation. It seeks to delineate the structural and conceptual contours that define DG as an emerging interdisciplinary field, exploring how its core ideas spanning technology, governance, and policy innovation have developed through interconnected networks of authors, journals, and institutions.

The study is guided by three overarching research questions. First, it examines how digital governance research has evolved in terms of publication growth, intellectual influence, and thematic development during the period 2014–2025. Second, it identifies the dominant clusters, conceptual linkages, and intellectual structures that characterize the field, revealing the foundations and interconnections of key research streams. Third, it explores emerging themes and knowledge gaps that can inform future research agendas and theoretical integration within DG scholarship.

Through this inquiry, the study contributes to the ongoing consolidation of digital governance as a coherent and mature research domain. By offering an integrative overview of its intellectual evolution, this research not only clarifies how the field has progressed conceptually and methodologically but also provides a roadmap for advancing future theoretical and empirical exploration of digital transformation, institutional adaptation, and governance innovation in the digital era.

Research Methodology

This study employed a quantitative bibliometric approach to systematically examine the development, thematic evolution, and intellectual structure of the digital governance research domain. Bibliometric analysis provides an established and rigorous method for mapping the dynamics of scientific knowledge by quantifying publication patterns, citation structures, and conceptual linkages among studies. (Aria & Cuccurullo, 2017; Donthu et al., 2021). Through this approach, it becomes possible to identify not only the most influential authors, sources, and institutions but also to trace the trajectory of ideas and theoretical debates that have shaped the field of digital governance. The selection of a bibliometric design was based on its strength in offering a holistic perspective, enabling the visualization of research productivity, collaboration networks, and thematic structures within a defined period.

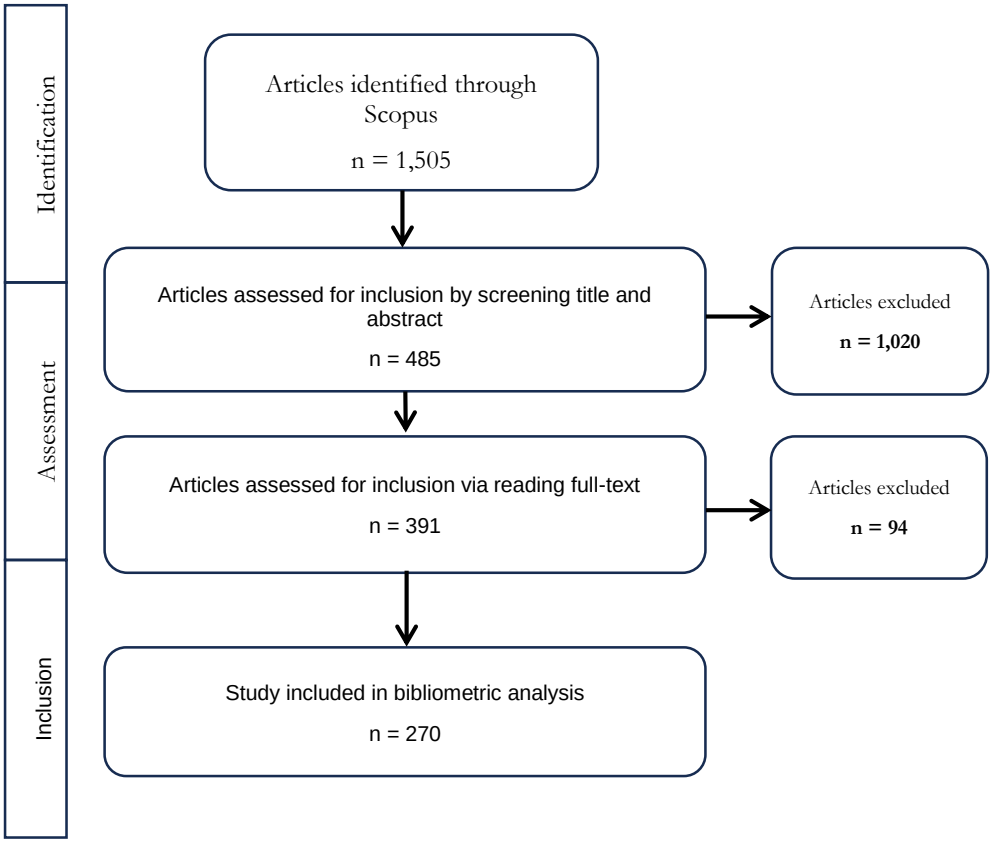
The research adhered to the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) protocol to ensure methodological transparency and reproducibility throughout the data collection process (see Figure 1). The initial step involved conducting a targeted search within the Scopus database, which is widely recognized as a comprehensive repository for peer-reviewed literature in the fields of social sciences, governance, and public administration. The search strategy utilized a combination of keywords designed to capture the full spectrum of scholarship related to digital governance, including the terms “digital governance,” “digital era governance,” “e-governance,” and “digital government.” This process generated a total of 1,505 documents published between 2014 and 2025. The dataset was then refined through several sequential screening stages. After the removal of duplicates and non-relevant items, 485 documents were retained for abstract and title screening.

Subsequently, 391 full-text articles were assessed for eligibility, resulting in a final corpus of 270 publications that met the inclusion criteria for bibliometric analysis.

This research employed the search string TITLE-ABS-KEY (“digital governance” OR “digital era governance”) AND (LIMIT-TO (SUBJAREA, “SOCI”)) AND (LIMIT-TO (DOCTYPE, “ar”)) AND (LIMIT-TO (LANGUAGE, “English”)) to collect relevant bibliographic data from the Scopus database. The query was specifically designed to capture academic articles that explicitly mention the term digital governance in the title, abstract, or author keywords, while restricting the scope of analysis to publications within the field of social sciences. Furthermore, the search was limited to document type “ar” (articles) and language “English”, ensuring that only peer-reviewed journal articles were included for consistency and quality of analysis.

This research was carried out through several systematic procedures to ensure analytical validity and methodological coherence. The analysis was conducted using the Bibliometrix R-package and its associated web-based interface, Biblioshiny. (Aria & Cuccurullo, 2017). These tools allowed for the application of both performance analysis and science mapping techniques. First, the dataset obtained from the Scopus database was cleaned by removing duplicate records and standardizing author names, institutional affiliations, and keywords to ensure data uniformity and reliability. (Aria & Cuccurullo, 2017). Second, a descriptive analysis was conducted to generate statistical indicators such as the number of publications per year, the most productive authors, journals, and contributing countries. This stage aimed to provide an overview of publication dynamics and the overall development of *digital governance* research. Third, a co-authorship and collaboration analysis was performed to examine patterns of scholarly collaboration among authors, institutions, and countries. This involved generating a co-authorship matrix and a collaboration network map to visualize global research linkages within the field.

Fourth, a keyword co-occurrence analysis was carried out to explore the conceptual structure of *digital governance* by identifying how frequently keywords appeared together in the title, abstract, or author keyword fields. This process included the creation of a co-occurrence matrix and a network map to visualize the relationships among thematic areas. Fifth, a thematic evolution analysis was undertaken to investigate how research topics and dominant themes have evolved over time, employing longitudinal mapping techniques to trace conceptual changes within the field. Finally, all analytical procedures were complemented by data visualization, including graphs, diagrams, and network maps, which served to enhance the interpretability of patterns and trends, allowing for a clearer and more comprehensive understanding of the intellectual development of *digital governance* research.



Finding

Main information

Table 1 presents the main bibliometric information of the dataset on Digital Governance (DG) research published between 2014 and 2025. The analysis identifies 270 documents drawn from 177 academic sources, with an annual growth rate of 39.19%, indicating a strong upward trajectory of scholarly attention to digital governance. The average document age of 2.47 years suggests that the field remains highly contemporary, while an average of 17.64 citations per document demonstrates a notable level of academic impact and visibility. These results reflect the growing importance of digital governance as a central research theme in the context of public administration and digital transformation.

Table 1: Main Information

Description	Results
Timespan	2014:2025
Sources (Journals, Books, etc.)	177
Documents	270
Annual Growth Rate %	39,19
Document Average Age	2,47
Average citations per doc	17,64
References	2421
Keywords Plus (ID)	1125
Author's Keywords (DE)	1835
Authors	1524
Co-Authors per Doc	8.99
International co-authorships %	20
article	270

Sources: By Author

The table also shows that the dataset includes contributions from 1,524 authors, with an average of 8.99 co-authors per publication, highlighting a high degree of collaboration and interdisciplinary engagement. Furthermore, 20% of the total publications involve international co-authorship, underscoring the global nature and cross-border relevance of digital governance research. The corpus also contains 2,421 references, 1,125 Keywords Plus, and 1,835 Author's Keywords, forming a comprehensive foundation for mapping the intellectual and conceptual structure of the field.

Most relevant source

The analysis of publication sources reveals that research on Digital Governance (DG) is widely disseminated across a variety of interdisciplinary journals, reflecting the field's diverse and evolving nature. As shown in Table 2, Sustainability (Switzerland) stands out as the most productive outlet, contributing 28 articles to the corpus. This dominance illustrates the strong linkage between digital governance and sustainability discourses, particularly in areas related to smart cities, environmental monitoring, and sustainable policy design. The prominence of this journal highlights the tendency of DG scholarship to intersect with broader developmental and sustainability frameworks.

Following closely are IEEE Access with 8 articles and Information (Switzerland) with 5 articles, representing the technological and data-centric orientation of the field. Journals such as Big Data and Society, Digital Government: Research and Practice, Frontiers in Public Health, and Systems each contributed four publications, underscoring the interdisciplinary applications of digital governance in sectors ranging from public health to administrative systems. Meanwhile, outlets like Applied Mathematics and Nonlinear Sciences, Data and Policy, and Government Information Quarterly each publish three papers illustrate the increasing sophistication of DG research that integrates computational, analytical, and governance perspectives.

These publication patterns indicate that digital governance has emerged as a multidimensional field bridging public administration, information systems, and sustainability studies. The variety of

publication venues suggests both intellectual maturity and cross-disciplinary appeal, confirming that the discourse on digital governance continues to evolve across diverse academic and policy-oriented domains.

Table 2: Most relevant source

Sources	Articles
Sustainability (Switzerland)	28
Ieee Access	8
Information (Switzerland)	5
Big Data and Society	4
Digital Government: Research And Practice	4
Frontiers In Public Health	4
Systems	4
Applied Mathematics and Nonlinear Sciences	3
Data And Policy	3
Government Information Quarterly	3

Sources: By Author

Source Local Impact

A closer examination of journal impact reveals the key publication outlets that have shaped the intellectual landscape of Digital Governance (DG) research over the past decade. As shown in Table 3, Sustainability (Switzerland) stands out as the most influential journal in this field, achieving an h-index of 12, a g-index of 23, and accumulating 576 total citations from 28 articles published since 2016. Its strong performance underscores the journal's role as a central venue connecting discussions of digital transformation, sustainability, and smart governance frameworks. The consistent citation rate also highlights how DG has become an integral component of broader sustainability and innovation research agendas.

The journal IEEE Access follows as another major contributor, with an h-index of 6, g-index of 8, and 244 citations across 8 publications, reflecting its focus on the technological dimensions of governance, particularly data systems, digital infrastructure, and artificial intelligence. Meanwhile, Big Data and Society and Frontiers in Public Health each register an h-index of 3, indicating growing academic attention toward data-driven governance and the ethical, social, and health implications of digital transformation.

Other journals, such as Information (Switzerland), Technological Forecasting and Social Change, and AI and Society, also demonstrate increasing relevance, linking DG research to foresight studies and the socio-technical dynamics of policy design. Newer outlets, including Central European Public Administration Review, Cogent Social Sciences, and Data and Policy, though relatively recent in publication (from 2019 to 2023), contribute to expanding the diversity of perspectives within the field. Together, these journals reveal that digital governance research has become both conceptually plural and methodologically diverse, bridging technology, policy, and society through an increasingly global and interdisciplinary scholarly network.

Table 3 Source Local Impact

Source	h_index	g_index	m_index	TC	NP	PY_start
Sustainability (Switzerland)	12	23	1,2	576	28	2016
Ieee Access	6	8	0,75	244	8	2018
Big Data and Society	3	4	0,273	113	4	2015
Frontiers In Public Health	3	4	0,75	28	4	2022
Information (Switzerland)	3	5	0,375	57	5	2018
Technological Forecasting and Social Change	3	3	0,6	212	3	2021
AI and Society	2	2	0,667	226	2	2023

Central European Public Administration Review	2	2	0,286	39	2	2019
Cogent Social Sciences	2	2	0,667	5	2	2023
Data And Policy	2	3	0,667	11	3	2023

Sources: By Author

Authors local impact

An examination of author-level impact reveals several key scholars who have significantly shaped the intellectual development of Digital Governance research. As summarized in Table 4, Ben Williamson emerges as the most influential author, with an h-index of 6, g-index of 6, and a total of 772 citations from six publications since 2014. His extensive contributions demonstrate a sustained engagement with the sociotechnical dimensions of digital governance, particularly in the context of data infrastructures, algorithmic regulation, and educational policy.

Table 4: Authors' local impact

Author	h_index	g_index	m_index	TC	NP	PY_start
B. Williamson, Ben	6	6	0.50	772	6	2014
L. Floridi, Luciano	5	5	1.25	302	5	2022
J. Cowls, Josh	3	3	1.00	235	3	2023
A. Tsamados, Andreas	2	2	0.47	226	2	2023
M. Taddeo, Mariarosaria	2	2	0.47	226	2	2023
A. Dhir, Amandeep	1	1	0.20	186	1	2021
S. Malodia, Suresh	1	1	0.20	186	1	2021
Z.A. Bhatti, Zeeshan Ahmed	1	1	0.20	186	1	2021
M. Mishra, Mahima	1	1	0.20	186	1	2021
G.D. Sharma, Gagan D.	1	1	0.17	168	1	2020

Sources: By Author

The second most prominent scholar is Luciano Floridi, with an h-index of 5, g-index of 5, and 302 citations across five papers published since 2022. Floridi's philosophical framing of digital ethics and governance has become central to contemporary debates, influencing both normative and policy-oriented studies of digital transformation. Following him, Josh Cowls records an h-index of 3 and 235 citations, while Andreas Tsamados and Mariarosaria Taddeo, each with an h-index of 2 and 226 citations, represent an emerging cluster of scholars advancing the ethical and regulatory dimensions of AI governance.

Other authors, such as Amandeep Dhir, Suresh Malodia, Zeeshan Ahmed Bhatti, Mahima Mishra, and Gagan D. Sharma, show growing influence despite having a smaller number of publications each with an h-index of 1. Their work reflects the expanding geographical and thematic diversity of DG scholarship, including studies on digital public service innovation, data policy, and citizen engagement. Collectively, these findings indicate that the intellectual structure of digital governance research is driven by a mix of established theorists and emerging contributors, signaling a healthy and expanding academic ecosystem characterized by theoretical depth, ethical inquiry, and interdisciplinary collaboration.

Most relevant affiliations

The institutional distribution of publications demonstrates the global and interdisciplinary nature of Digital Governance (DG) research. As summarized in Table 5, the Universidade de Brasília emerges as the most productive institution, contributing 15 publications, followed by the Oxford Social Sciences Division with 11 articles, indicating a strong concentration of research in both Latin America and Europe. Several universities, including the Central University of Finance and Economics, Universitas Padjadjaran, and Université de Liège, each contributed eight publications, highlighting active participation from institutions in emerging and developed economies alike. Meanwhile, Cardiff

University, China University of Geosciences, Universidad Politécnica de Madrid, and Yanshan University each produced seven articles, with the Delft University of Technology following closely with six. This distribution underscores that DG scholarship is no longer concentrated in Western institutions alone but has become a globally networked research field, with growing engagement from Asia and Latin America reflecting diverse regional perspectives in the study of digital governance, policy innovation, and technological transformation.

Table 5: Most relevant affiliations

Affiliation	Articles
Universidade De Brasília	15
Oxford Social Sciences Division	11
Central University of Finance and Economics	8
Universitas Padjadjaran	8
Université De Liège	8
Cardiff University	7
China University of Geosciences	7
Universidad Politécnica De Madrid	7
Yanshan University	7
Delft University of Technology	6

Sources: By Author

Most Global cite document

The most globally cited documents in Digital Governance (DG) research highlight the field's theoretical evolution and interdisciplinary depth. As shown in Table 6, Williamson, (2016) Leads with 375 citations, establishing a foundational perspective on data-driven and algorithmic governance, particularly in educational contexts. Cowls et al., (2023) Follows with 193 citations, underscoring the growing integration of AI governance and sustainability in addressing climate challenges. Other highly cited works, such as Malodia et al., (2021) on conceptual e-government frameworks, Sharma et al., (2020) on AI and governance, and Shen & Pena-Mora, (2018) Blockchain for cities reflects the broadening scope of DG toward smart cities, participatory governance, and digital ethics. Collectively, these studies demonstrate that DG scholarship has matured into a multidimensional domain that bridges technological innovation, policy transformation, and societal impact, positioning it as a critical field for understanding governance in the digital era.

Table 6: Most Global cite document

Paper	Total Citations	TC per Year	Normalized TC
Digital education governance: data visualization, predictive analytics, and 'real-time' policy instruments (Williamson, 2016)	375	37.50	3.94
The AI gambit: leveraging artificial intelligence to combat climate change—opportunities, challenges, and recommendations (Cowls et al., 2023)	193	64.33	13.83
Future of e-Government: An integrated conceptual framework (Malodia et al., 2021)	186	37.20	5.30
Artificial intelligence and effective governance: A review, critique, and research agenda (Sharma et al., 2020)	168	28.00	3.70
Blockchain for Cities—A Systematic Literature Review (Shen & Pena-Mora, 2018)	160	20.00	2.47
City-as-a-Platform: The Rise of Participatory Innovation Platforms in Finnish Cities (Anttiroiko, 2016)	149	14.90	1.56

Public administration, public leadership, and the construction of public value in the age of the algorithm and 'big data' (Andrews, 2019)	131	18.71	4.92
Improving Rural Accessibility: A Multilayer Approach (Vitale Brovarone & Cotella, 2020)	114	19.00	2.51
Governing software: networks, databases, and algorithmic power in the digital governance of public education (Williamson, 2015)	113	10.27	1.38
Energy Optimization for Smart Cities Using IoT (Humayun et al., 2022)	108	27.00	6.04

Sources: By Author

Co-Occurrence Network

The Co-Occurrence Network (Figure 2) illustrates the conceptual landscape and interconnections that define the field of Digital Governance research. The visualization highlights digital governance as the dominant and most central keyword, reflecting its role as a unifying construct linking various subdomains. Surrounding this core, three main thematic clusters emerge. The first cluster (in green) focuses on the intersection between public administration, e-government, digital transformation, and artificial intelligence, emphasizing the institutional and managerial dimensions of digital governance. The second cluster (in blue) connects governance approaches, sustainability, innovation, and urban development, signaling a growing research interest in the role of DG for sustainable cities and smart governance. Meanwhile, the third cluster (in red and purple) includes topics such as blockchain, privacy, and economic effects, indicating a rising concern with the ethical, social, and economic implications of digital technologies. Overall, this network structure reveals how DG has evolved from a narrow focus on digitalization within government institutions to a multi-level governance paradigm that integrates technological innovation, institutional reform, and sustainability goals. The prominence of links between "digital governance," "sustainable development," and "artificial intelligence" also underscores the field's ongoing shift toward understanding how digital technologies enable adaptive, data-driven, and inclusive governance systems.

Figure 2 Co-Occurrence Network

Sources: By Author

Thematic Map

The Thematic Map (Figure 3) illustrates the conceptual structure and maturity of research in DG by mapping key themes according to their relevance (centrality) and development (density). In the basic themes quadrant, clusters such as digital governance, digital government, artificial intelligence, smart city, and public administration form the intellectual foundation of the field. These themes represent the

essential focus of DG research, emphasizing how digital technologies reshape governance structures, service delivery, and citizen participation.

In the motor themes quadrant, topics like sustainability, China, and machine learning emerge as dynamic and well-developed areas, showing how DG increasingly intersects with sustainability agendas and technological innovation, especially in rapidly digitalizing countries. The niche themes, including urban development, 5G systems, and ICT stakeholders, reflect specialized yet advanced research directions, while emerging or declining themes, such as management and cybersecurity, indicate domains that are either in early development or being redefined.

This thematic distribution demonstrates that digital governance has evolved into a mature and integrative research domain, bridging technology, administration, and sustainability. The growing presence of AI, big data, and smart city studies highlights a paradigm shift from viewing digitalization merely as a tool of efficiency to understanding it as a transformative force in institutional behavior, policy innovation, and public value creation.

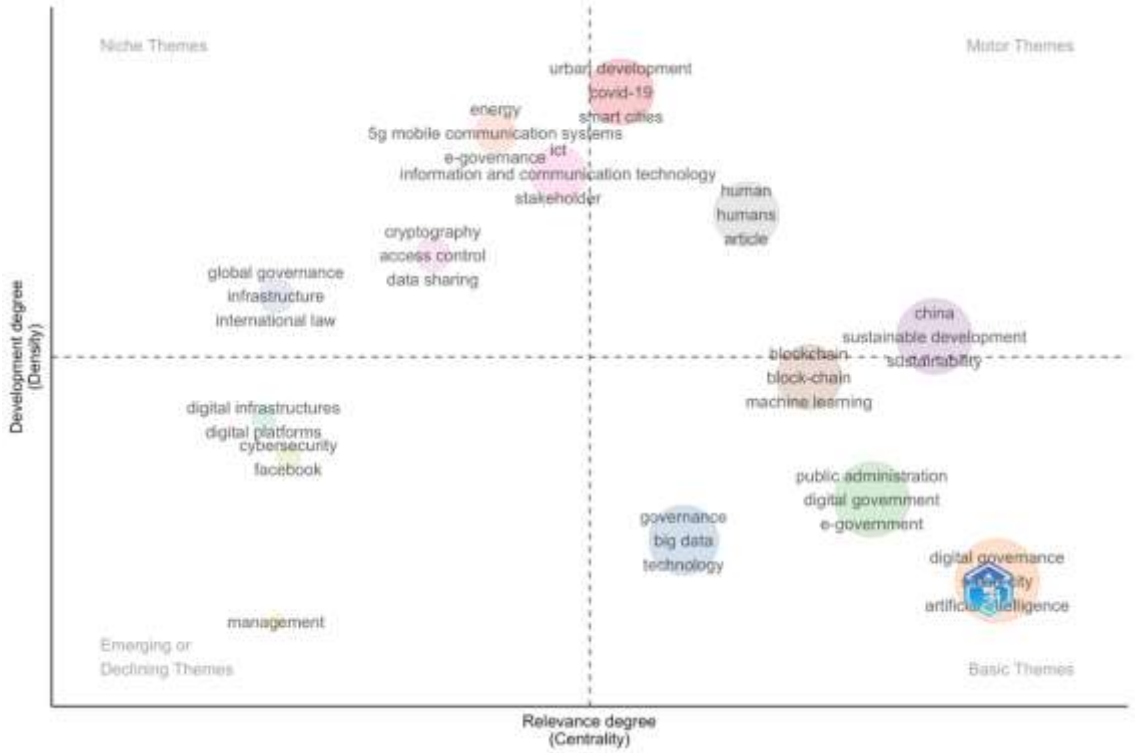


Figure 3 Thematic Map

Sources: By Autho

Country Collaboration Map

Figure 4 depicts a dynamic global network of research partnerships in the field of Digital Governance (DG). The visualization indicates that collaboration is highly concentrated among several leading nations. China records the highest number of international research linkages, with approximately 82 collaborative connections, followed by the United States with 76 and the United Kingdom with 63. These three countries form the core of the global DG research ecosystem, bridging academic exchanges between Asia, Europe, and North America. Their strong connectivity reflects both their research productivity and their strategic roles in advancing digital governance discourse, particularly in areas such as artificial intelligence, data management, and e-government transformation.

Within Europe, the United Kingdom, Germany, 41 collaborations, and Italy, 37 collaborations emerge as key contributors, shaping normative and policy frameworks related to public administration and digital ethics. These countries maintain vibrant intra-European collaboration networks, emphasizing the social, legal, and institutional dimensions of digital transformation. Meanwhile, China's extensive

partnerships with the United States and various European countries signify its growing leadership in digital government studies and global technology governance.

In contrast, emerging economies such as Brazil 14 collaborations, India 12, and Indonesia 9 show increasing but still modest involvement in international research networks. Their participation, however, marks an important trend toward greater inclusivity, as Global South scholars engage in DG research addressing issues of institutional adaptation, smart governance, and digital inclusion. The frequency pattern underscores that digital governance has evolved into an interconnected global research domain, where cross-national collaboration enriches theoretical integration, methodological diversity, and comparative insights into how governance adapts to the digital era.

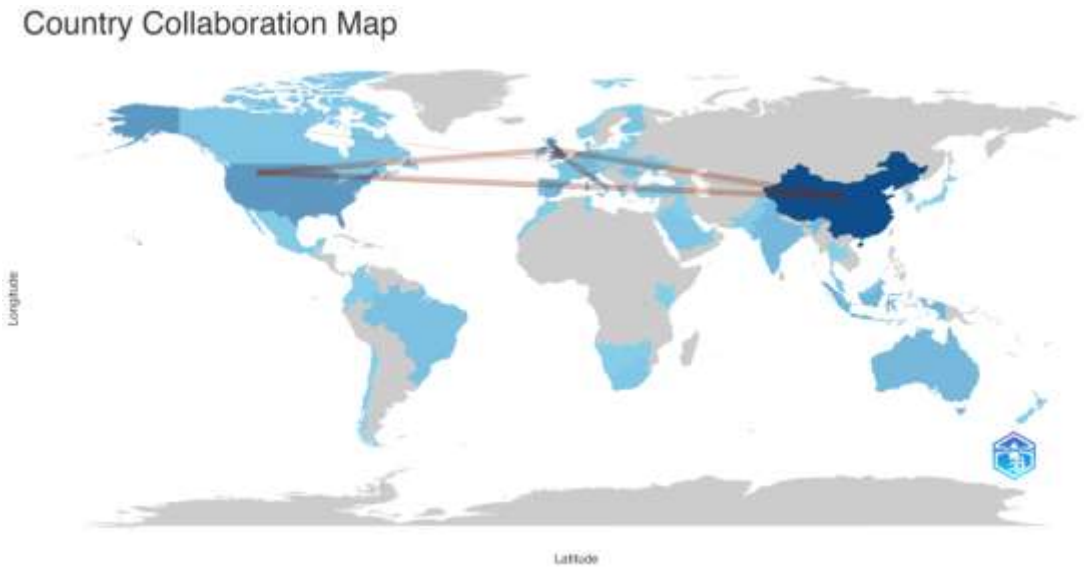


Figure 4. Country Collaboration Map

Sources: By Author

Discussion

The evolution of Digital Governance (DG) research between 2014 and 2025 demonstrates a rapid transition from technological determinism toward a more institutional and interpretive understanding of digital transformation in public administration. (Aria & Cuccurullo, 2017; Mergel, 2018; Safarov et al., 2017). The consistent rise in publication output after 2020 aligns with the acceleration of digital transformation policies globally, particularly those related to artificial intelligence, open data, and algorithmic decision-making. (Janssen & Zuiderwijk, 2014). This period also coincides with a growing academic interest in the governance implications of digital infrastructures, such as accountability, transparency, and the ethical data era. (J.S. Criado et al., 2024; P.J. Dunleavy & H.Z. Margetts, 2025). The strong citation influence of highly referenced works such as (Safarov et al., 2017), (Bannister & Connolly, 2014), and Zuiderwijk et al., (2021) Indicates the field's maturation into a distinct interdisciplinary domain bridging computer science, policy studies, and administrative theory.

From a conceptual standpoint, the field has diversified into three interconnected clusters that define its intellectual structure. The first cluster emphasizes institutional transformation and digital public administration, focusing on how bureaucratic systems adapt to new technological imperatives. (Cordella & Tempini, 2015; Mergel, 2018). The second cluster centers on innovation, sustainability, and participatory governance, showing how digital tools foster co-production and collective intelligence in governance processes (L.G.F. Rittl et al., 2025; V. Santolamazza et al., 2024; Z. Ma & F. Wu, 2023). The third cluster relates to data ethics, algorithmic governance, and AI accountability, reflecting an ongoing shift from the mere deployment of ICTs toward the critical governance of digital technologies. (Cowls et al., 2023; D. Wong & L. Floridi, 2023; Williamson, 2016). This conceptual pluralism signifies that DG has moved beyond e-government's service-oriented logic, evolving instead into a governance paradigm characterized by adaptivity, reflexivity, and ethical awareness. (G. Kontogeorgis & N. Varotsis, 2021; P.J. Dunleavy & H.Z. Margetts, 2025).

The collaboration analysis reinforces the globalized and networked nature of DG scholarship. Research hubs in China, the United States, and the United Kingdom dominate the field, forming transnational clusters that link institutional research agendas with global governance debates (C. Alexopoulos et al., 2021; Gil-Garcia et al., 2018). European scholars, particularly from Germany, Italy, and the Netherlands, continue to advance theoretical and normative discussions on democratic innovation and ethical digitalization (Cordella & Tempini, 2015; J. Shahin, 2024; J. Torrent-Sellens, 2024). Meanwhile, emerging economies such as China, India, and South Africa demonstrate increasing participation, contributing empirical insights into digital transformation under institutional and capacity constraints (J.S. Criado et al., 2024; M. Jiang, 2024). These cross-national linkages signify that DG is no longer dominated by Western-centric epistemologies but is evolving into a pluralistic, comparative, and context-sensitive research domain (B. Williamson, 2016; J.P. Roy, 2019; Stratu-Strelet et al., 2021).

In answering the third research question, the thematic evolution and keyword analyses reveal several emerging topics and research gaps that shape the next frontier of DG inquiry. Themes such as AI governance, data justice, cybersecurity, and sustainability reflect a growing concern for the ethical and societal dimensions of digital transformation. (Cowls et al., 2023; H. Roberts et al., 2024). However, gaps persist in understanding the micro-foundations of implementation, specifically, how public actors make sense of digital reforms and how institutional work supports or hinders these processes. Current research remains predominantly focused on system-level and technological aspects, leaving a lack of integration between interpretive, behavioral, and structural perspectives in digital governance. (J.P. Roy, 2019; Mergel, 2018).

Thus, the findings underscore the importance of integrating sensemaking and institutional work into DG studies to explain how meaning, legitimacy, and adaptation occur in digital reforms. Viewing digital governance as an evolving institutional field allows scholars to bridge structuralist approaches with process-based insights into learning, adaptation, and co-creation (Dunlop & Radaelli, 2018). This theoretical synthesis can expand DG scholarship beyond its managerial and technological origins, fostering a holistic understanding of how digitalization reshapes governance logic, actor behavior, and public value creation across diverse political and administrative contexts.

Conclusion

The study concludes that Digital Governance (DG) has evolved from a fragmented concept of e-government into a coherent and interdisciplinary field that bridges governance, technology, and society. Over the past decade, research has expanded rapidly in scope and depth, reflecting the increasing role of digitalization in shaping institutional behavior, decision-making, and public accountability. Thematic and network analyses reveal that DG scholarship now revolves around three main dimensions: administrative transformation, technological and ethical innovation, and sustainability-driven governance, each contributing to a more holistic understanding of how digital systems reconfigure the public sector. Future research should deepen this integration by examining how digital reforms are interpreted and institutionalized through processes of learning, sensemaking, and adaptive governance. Greater attention is also needed to comparative studies across regions, especially in the Global South, and to exploring the normative challenges of artificial intelligence, data ethics, and digital inclusion. In essence, DG stands at a pivotal stage of intellectual maturity, where advancing theoretical integration and global collaboration will be key to ensuring that digital transformation supports equitable, transparent, and citizen-centered governance in the years ahead.

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