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Artificial Intelligence in Public Administration: A Comprehensive Bibliometric Review*

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Abstract

Current international academic literature on public administration unequivocally highlights the key role of artificial intelligence, producing a full body of work that seamlessly integrates technology, law, ethics, and social sciences through an interdisciplinary framework. Although many academic gaps and research opportunities remain on the subject. Mapping the field's intellectual structure using 344 peer-reviewed articles from the Web of Science (1992, 2025), this study presents a bibliometric analysis of artificial intelligence (AI) research in public administration. Analyzed through the Bibliometrix package, the findings reveal rapid growth since 2019. The peak output is in 2024. Although the United States and China dominate total publication volume, Germany and Japan achieve higher average citations per article. Although elite western institutions, such as Harvard and Oxford, account for the most productive research, they are not without competition. Since key thematic clusters include artificial intelligence, governance, accountability, and digital transformation, they provide a full framework for analysis. A multi-theoretical framework drawing on National Innovation Systems and Center-periphery Theory, among others, is applied by the study to contextualize geographic and institutional disparities. Turkey contributes 12 articles, indicating emerging engagement. Although the analysis highlights the field's geographic concentration, interdisciplinary nature. Swift expansion, it offers a foundational map for scholars, policymakers, and practitioners dealing with AI's integration into public administration.

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Key words: Public Administration, Artificial Intelligence, Bibliometric Analysis, Web of Science.

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1. Introduction

In today's world, where the foundations of public administration are being questioned and transformed, states and governments are dealing with many increasingly complex problems (climate change, forced migrations, new social movements, increasing populism), and this directs research within the discipline of public administration to new and intriguing topics (McDonald et al, 2022: 63). As the world has become a digital village since the beginning of the 21st century, transportation, communication, production, consumption and capital have surpassed borders; human history has begun to witness unprecedented developments thanks to advanced computers, internet networks and highly equipped technological opportunities. Artificial intelligence technologies are one of the most striking of these developments. Artificial intelligence, which was first expressed as smart measurement systems and machines in the 1950s, has today become a superior technology that can imitate human characteristics, produce its own algorithms and perform operations in almost every field with the commands given to it. Public administration has also been affected by this technology, as in every branch of science. The use of artificial intelligence applications is increasing in the discipline of public administration, which covers areas such as the effective and efficient provision of public services, the creation, implementation and supervision of public policies, regarding the functioning of states. Especially in developed countries, the use of artificial intelligence has increased significantly in recent years in every field, from the analysis of big data using data analytics, to e-government applications and digitalization, to education, health, environment and traffic services.

It is an undeniable fact that the basis of this change and transformation in public administration policies and services is academic publications that have increased significantly in quantitative and qualitative terms in the last few years in the literature of the public administration discipline. Therefore, it is important to examine the subject of artificial intelligence in depth within the international academic research articles published in the public administration discipline. The academic impact of AI applications on the public administration discipline has not yet been systematically evaluated. However, the development of the scientific literature requires an understanding not only of theoretical debates but also of the subjects, countries, institutions, and academics on which these debates focus. Given the increasing volume of publications in recent years, the type of analysis aimed at in this study has the potential to not only contribute academically but also provide a strategic roadmap for policymakers, public administrators, researchers and students.

2. Literature Review

John McCarthy, who coined the term "Artificial Intelligence" in 1955, defined it as "the science and engineering of creating machines that can perform tasks that normally require human intelligence." Long before this conceptualization, which formed the basis of all subsequent studies in the field of artificial intelligence, Alan Turing's 1935 claim that machines could imitate any reasoning process with his concept of the Turing Machine laid an important foundation for developments in the field of artificial intelligence (eimt.edu.eu, 2025). Artificial intelligence, defined in dictionary definitions as the capacity of computers and/or machines to exhibit or simulate intelligent behavior (oecd, 2025) and the study of how to create machines that possess some of the human mind's qualities, such as understanding language, recognizing images, solving problems, and learning (cambridge.org, 2025), has encompassed various approaches and techniques such as machine learning (deep learning, etc.), machine reasoning (planning, scheduling, and reasoning, etc.), and robotics (adapting control, perception, sensors, and other techniques to cyber-physical systems) (EC.Europa.EU, 2018). Since the 1970s, the widespread use of personal computers, the internet, and social media has led to radical changes in technology, production tools, and public administration. In this process, referred to as New Public Administration or Public Administration 3.0, data has been digitized, processed, compared, and analyzed. Furthermore, the technological tools and applications used have enabled more active and effective participation of stakeholders and business partners in process management (Yılmaz and Mecek, 2021: 103).

The pioneering work of the late 1980s and early 1990s, which discussed how expert systems could be used in administrative decision-making, has its roots in the literature on artificial intelligence in public administration. In this foundational period, Snellen (1998) definitively established the groundwork for future transformation by rigorously analyzing the detailed relationship between public administration and information technologies. Similarly, Bellamy and Taylor (1998) presented a full framework. It addresses the encounter of government agencies with information and communication technologies from a governance perspective. Early studies emphasize that public administration should see technology as a strategic force transforming institutional structures and processes. Both studies clearly demonstrated the need for systematic academic attention to the subject. Dunleavy et al. (2006) showed ICT's key role in state operations restructuring.

Since the beginning of the 21st century, the fourth industrial revolution (Industry 4.0), a blend of computer and internet technologies also described as the "Internet of Things," has led to the convergence of advanced technologies such as robotics, artificial intelligence, nanotechnology, biotechnology, and IoT, while the

boundaries between digital, physical, and biological systems have begun to blur and disappear (Philbeck and Davis, 2018).

In an environment where technological advancements are so rapidly advancing, states and governments have been forced to urgently respond to citizens' expectations of fast and uninterrupted service in the provision of public services. It is a fact that digital policy strategies that embody solidly founded visions and objectives are needed to ensure sustainable and long-term digital transformation, especially in the public sector (OECD, 2024). Artificial intelligence, as the main actor of these digital strategies, is a machine-based system that produces outputs such as predictions, content, suggestions or decisions from the inputs it receives in line with explicit or implicit goals, and these can affect physical or virtual environments (oecd.ai, 2025). Artificial intelligence is a concept that refers to the intelligence of machines, computers, software, programs, and robots. This reflects the human effort to create a similar intelligence by examining their own minds, their workings, and their characteristics. Artificial intelligence can manifest itself in the form of a computer capable of thinking, speaking, understanding sentences and concepts like a human mind, and possessing problem-solving capabilities, a computer-controlled robot, or intelligently designed software. Artificial intelligence is concerned with the study of the pathways followed by the human mind in learning, decision-making, and problem-solving processes. The aim is to use the data obtained from these studies to develop intelligent software and computer systems (Önder and Saygılı, 2018: 635).

It is generally accepted that artificial intelligence is a technological paradigm used in areas such as data-based decision-making, automation and citizen-focused service delivery, which has the potential to create radical changes and transformations in the functioning of public administration (Mergel et al, 2019). The first step in the use of AI in public administration is enabling citizens to quickly conduct public transactions digitally, without physically visiting a public institution. Public administrations must prioritize AI by directing their IT and technology-related institutions to develop and learn in the field, providing the infrastructure for AI systems in all public institutions, and training experts. AI's ability to rapidly collect and analyze data, analyze it, and select the most appropriate option reduces unnecessary workload for public institutions and saves time (Önder and Saygılı, 2018: 659).

The integration of artificial intelligence technologies into public administration is realized in the form of acceleration of decision-making processes, reduction of human error and personalization in service delivery (Wirtz et al, 2019). While the AI development process within public policies should be supported by responsive design, stakeholder participation, regulatory frameworks and continuous monitoring mechanisms, interdisciplinary collaboration is also important for technological innovation to serve social benefit (Floridi et al, 2018). There are a number of things that affect the use and growth of AI in the public sector. The issues include technological readiness (such as data quality, clarity of

algorithms, and reliability), organizational readiness (governance readiness, leadership, and competency readiness), and environmental impacts (legal environment, society's demands, and ethics). While artificial intelligence can create new methods of service provision that could serve to strengthen the values of the general public, there are ongoing concerns about such issues as data privacy, bias, and accountability (Kankanhalli et al., 2019). By employing proper management practices, establishing strong legal regulation, and ensuring constant improvement with proper monitoring, the opportunities presented by artificial intelligence for public administration can be taken advantage of. This way, AI-enabled public service delivery will greatly improve the quality and long-term viability of future public services by creating a governance model that is more inclusive, effective, and focused on the needs of citizens (Güven, 2024: 147).

There is no doubt that artificial intelligence systems and applications will be more common over the next few years. However, the bigger question is how and where these systems are produced. Misuraca & van Noordt (2020) highlight that while the use of AI in public services is still at a very early stage and EU member states have not seen much journey into becoming AI user-friendly, there is a larger gap between the promises of AI and the failures to use it. In particular, they observe that AI projects are often stuck in pilot projects and are not conducive to large-scale public service delivery. The Artificial Intelligence Law, which was approved by the European Union in December 2023, is developed with a risk-based, prospective regulation to minimize the risks that AI systems may pose to the rights of human health, safety and other fundamental rights. The Law is constructed on an analysis of four levels of risk classification: Systems deemed minimal risk (for example spam filters) are not subject to any additional obligations; Systems that have a certain transparency risk (for example, chatbots) must clearly identify the content the user is working on as AI originated. Systems that fall into the high-risk category (for example medical diagnostic software, or aspects of recruitment tools), must satisfy strict compliance requirements matrix, including those related to quality of data, human stewardship, transparency, and risk mitigation mechanisms. Applications deemed unacceptable risk, especially those undermining fundamental rights, such as social ratings shall be banned entirely. The purpose of the legislation is to induce innovation whilst minimizing the administrative and financial burden for businesses, and furthermore supports the EU objective of becoming a leader in globally human rights-centred, safe and reliable AI ecosystem. If the law is implemented properly, it is expected to deliver substantial improvements in efficiency, sustainability and quality of service, especially in the fields of health, transport, energy and public sector services (European Commission, 2024). At this time, Denmark engages in significant research on the use of artificial intelligence technology in numerous sectors, particularly in health care. In Italy, application of AI technology occurs in a very broad range of fields, for example with education and businesses. In France, AI technology is essential, particularly in the legal field (Sözen, 2024: 334).

The US, China, Russia, and European countries are making significant investments in this field and are leading the way. According to Stanford University's

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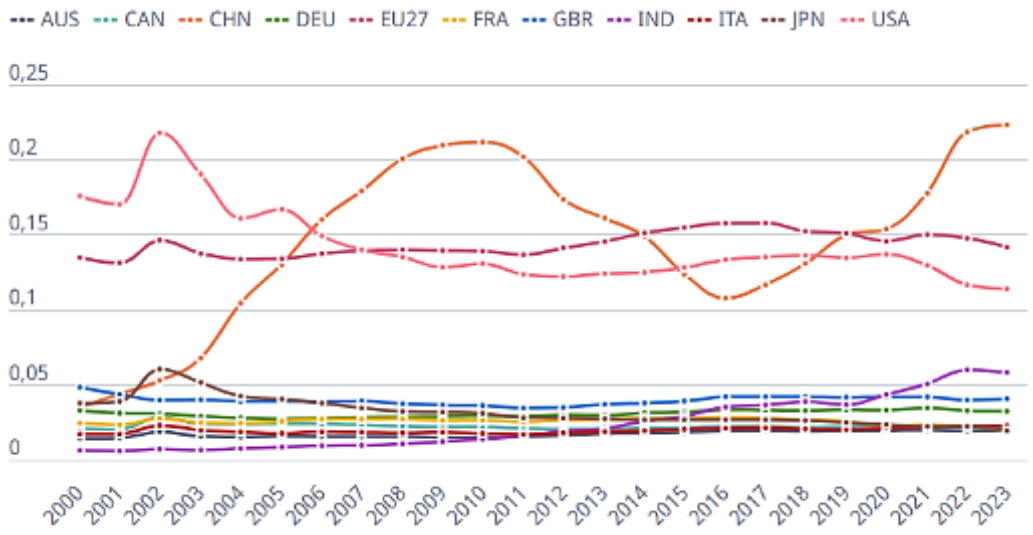
2025 Artificial Intelligence Index Report, the top ten countries investing the most in AI between 2013 and 2024 are, in order: the US, China, the UK, Canada, Israel, Germany, India, France, South Korea, and Singapore (hai.stanford.edu, 2025). Scientific research publications on AI are also an indicator of a country's AI development. Examining scientific publications across countries over time is a good indicator of the expansion of AI R&D funding that leads to innovation. According to OECD data, China represents 22% of global AI publications, while the EU accounts for 14% and the US for 11% (oecd.org, 2025).

Graph 1. AI Research Publications Time Series by Country (% of Total Publications)



Source: https://oecd.ai/en/data

The graph 1 shows the proportions of artificial intelligence (AI) research publications by country over time (as a share of total publications) between 2000 and 2023. According to the graph, China had a very low share in 2000 (~0.02%) and began to increase rapidly after 2004. From 2019 onwards, China increased sharply, reaching the highest share in 2023, and China became the leader in AI publications (around 0.23%). While the US had the highest share in the 2000s (close to 0.2%), it gradually decreased over time and fell well behind China by 2023 (down to around 0.13%). In contrast, India has experienced a dramatic growth rate from 2022-to 2023, exceeding 0.05%. Recent years in India have been characterized by a strong increase in AI research. The trend in the EU27 countries has remained relatively constant (0.05%). Germany, France, and the United Kingdom's rates are stable, but they lag behind countries like China and India. Japan, which ranked alongside the United States in the early 2000s, saw its rate drop significantly by 2023. Japan appears to have largely lost its influence in AI publications.

Given the purpose and importance of this study, it would be beneficial to conduct an analysis similar to the one in Graph 1 for the discipline of public administration. As shown in Graph 2, according to SCImago Journal Rank (SJR), a portal containing journals and country scientific indicators developed from information in the Scopus database (Elsevier), the ranking of scientific publication performance of countries in the field of "public administration" between 1996 and 2024, showing that international academic production in the field of public administration, particularly in terms of the number of publications, number of citations, and H-index, is largely centered in the United States and the United Kingdom. In contrast, despite the relatively high number of publications in China (9.05) and Brazil (6.21), their impact remains low. This suggests that the international visibility and citation capacity of these publications are limited.

Graph 2. Ranking of Academic Publication Production in the Field of Public Administration by Country Between 1996 and 2024

	Country	↓ Documents	Citable documents	Citations	Self-Citations	Citations per Document	H index
1	United States	41351	38180	861307	396487	20.83	291
2	United Kingdom	15668	14308	353237	118874	22.55	188
3	Australia	6344	5936	109987	30088	17.34	116
4	Canada	5944	5638	108973	24617	18.33	126
5	Germany	5164	4361	91332	19606	17.69	117
6	China	5087	4931	46054	21443	9.05	75
7	Spain	4831	4481	46919	11853	9.71	78
8	Netherlands	4671	4208	129250	23804	27.67	148
9	Italy	3933	3347	53501	12259	13.60	93
10	Brazil	3736	3555	23207	9076	6.21	47

Source: https://www.scimagojr.com/countryrank.php?category=3321

If we conclude from the two graphs above, while the global center of AI research production is shifting to Asia, Western countries still maintain their dominant role in academic impact and quality indicators. Public administration literature, on the other hand, presents a Western-centric image. Though Anglo-Saxon nations excel in the volume of publications, citations, and H-index, it would seem that China and Brazil, while trying to become more visible in the international literature, have had a relatively limited effect. Additionally, while there should be more research and theorizing on technological developments and change in the public administration literature, there are increasing complexities and a growing number of technological challenges pertaining to the work of practitioners of public administration (including algorithms, big data, machine learning, and artificial

intelligence) (Andrews, 2018, p. 304). In summary, discussing AI and AI's implications for public administration demonstrates both a potential for transformational change and problems of real concern. It is true that AI technology has evolved from being an irrelevant innovation into something much more important which plays a vital role in the process of governance. The application of this technology in the processes of administration brings increased speed and precision. This helps in identifying what people need at any point in time and makes it easier for governments to strategize their resource allocation process.

3. Theoretical Background of AI and Public Administration

An analysis of the geographical distribution, institutional mechanisms, and developmental pathways associated with the field of AI research in the context of public administration requires a multiple theory perspective. Four key theories underpin this research, namely NIS approach, center-periphery theory, resource dependence theory, and technological capacity/digital government. All these theories present a separate perspective on the phenomena that allows explaining the geographical concentration of research on AI in particular states, institutional cooperation between different organizations, as well as development inequality in terms of states. It is important to emphasize that the presented theories do not compete with one another and should be considered from an integrative perspective in order to create the necessary foundation for further discussion of the bibliometric results.

National Innovation Systems Approach

The National Innovation Systems (NIS) approach refers to an analysis of the whole ensemble of actors, their relations, and processes involved in making up the ability of the state to innovate technologically. According to this approach, which was originally outlined by Freeman (1987) and subsequently elaborated by Lundvall (1992) and Nelson (1993), it should be noted that innovation is not simply about the efforts made by specific firms or scientists but rather the result of intricate interaction networks between all the aforementioned entities.

Using the concept of NIS for analyzing AI studies within public administration, one could obtain the following conclusions. In particular, it enables one to understand how certain states become leaders in scientific research. The reason why the US, China, and the UK are considered leaders in the production of AI literature is their highly efficient university-industry-government cooperation, effective mechanisms for financing scientific projects, and advanced technology transfer system (Etzkowitz & Leydesdorff, 2000). In this context, the dominant position of these countries in the WoS database may be understood as a natural reflection of their institutional and systemic advantages.

The NIS approach also explains why international collaboration among researchers follows systematic rather than random patterns. Invisible colleges and research networks largely mirror the institutional architecture of national innovation

systems: collaboration between countries with strong national systems is far more prevalent and sustainable than collaboration between countries with weaker ones (Leydesdorff & Wagner, 2008). The NIS perspective additionally draws attention to the decisive role of state policy in shaping research agendas. Major policy programs - including the European Union's Horizon Europe initiative, China's New Generation AI Development Plan, and the United States' National AI Initiative - directly shape the orientation of AI research in public administration (OECD, 2021).

Finally, drawing on the work of Edquist (1997) and Malerba (2002), the NIS approach emphasizes that innovation systems follow a cumulative and path-dependent development trajectory. This provides a powerful analytical framework for explaining how the gap between countries that lead in AI research and those that fall behind deepens over time, and the mechanisms through which this divergence is reproduced.

Center–Periphery Theory

The concept of the center-periphery relation can serve as an effective framework for the analysis of the architecture of global scientific research. In this respect, the center-periphery model suggests that the distribution of knowledge in particular countries, organizations, and languages perpetuates existing power inequalities and imbalances in institutions. Within the world systems approach, as theorized by Wallerstein (1974), the center-periphery dichotomy, when applied to the sociology of science, becomes a useful tool for analyzing academic hegemony used by a variety of researchers, especially Shinn and Shrum (2002).

Thus, the database in question becomes a means of structural disparity. The pressure to publish in English, certain methodological preferences, and the geographically localized nature of high citation journals create an exclusion system that favors North American and Western European scientists (Glänzel & Schubert, 1995). The center-periphery dynamic is particularly relevant to studies in artificial intelligence within public administration since scientists working in peripheral regions such as Turkey, Brazil, South Africa, and other Southeastern Asian countries face considerable limitations in gaining access to international academic networks, finding collaboration partners, and having their works published in highly rated journals (Archibugi & Coco, 2005).

However, it is necessary to point out that the center-periphery paradigm does not imply a historically frozen structure. Countries such as South Korea, China, and Taiwan have managed to strengthen significantly their scientific potential due to purposeful actions performed by the government during the last few decades, reaching the status of the center in comparison with their previous peripheral position (Kim, 1997). The path traced by these semi-peripheral states can provide an exemplary illustration of the factors influencing the dynamics of inequalities in the domain of artificial intelligence within public administration. This hypothesis was supported by Gaillard (1994) and Kreimer (2006), who revealed that the geographical distribution in bibliometric statistics is determined

by structural mechanisms rather than individual capabilities and institutional standards.

Resource Dependence Theory

Resource Dependence Theory, as proposed by Pfeffer & Salancik (1978), is an interpretative approach to organizational behavior which looks at relations between the organization and its environment in connection to the need to acquire critical resources for survival. Resource Dependence Theory assumes that organizations will develop dependencies on entities controlling access to necessary resources, which will create consistent patterns of behavior related to power and collaboration.

Resource Dependence Theory provides a powerful explanation of why academic institutions organize research on AI, why some kinds of international collaboration are preferred over others, and why some universities have the potential to affect research agendas and other do not. Through this theoretical lens, the list of key resources in the domain of public sector AI research includes the following elements: research funding, data availability, computer equipment, human capital, and institutional prestige.

Regarding the first point – research funding – major institutions distributing research grants, namely national research councils and scientific foundations, will inevitably become centers of resource dependence with their own influence over the research agenda. This explains the fluctuating patterns seen in AI research conducted in the field of public administration where outputs are shaped by funding decisions at particular conjunctures (Hillman et al., 2009). Concerning data availability, resource dependence theory should incorporate the unique factor that characterizes AI research – its intensive use of data. With researchers having access to information available in databases of particular public institutions, one would expect to observe the emergence of a growing gap between data-rich and data-poor research communities (Janssen et al., 2012).

Concerning human capital, the brain drain process can be viewed as a case of resource dependence as well with peripheral countries losing valuable talent to more central locations where they will accumulate even greater power while research capabilities of peripheral countries will suffer as a result. The bibliometric analysis conducted by Nielsen et al. (2021) demonstrated empirically that brain drain is a determining dynamic in high-impact AI research communities. Finally, considered through the lens of citation networks and prestige, work published in particular journals and indexed in prominent platforms (Scopus, WoS) enjoys a marked visibility advantage over work produced by researchers with limited access to these networks a circumstance that contributes to the cyclical reproduction of resource dependency and reveals that bibliometric patterns are not merely technical reflections but the products of structural power relations.

Technological Capacity and Digital Government Approaches

The technological capacity framework is an analytical paradigm that explores how well a state can design, implement and operate digital systems. First developed by Lall 1992 and by Kim 1997, and then applied to e-government, this framework has been used to help understand why there are such large differences between different states as to their abilities to adopt and govern digital technologies.

Digital government theories and concepts include a wide variety of disciplines, including information technology, public administration, and theories of governance. Much of the work in this area has been conducted by Dunleavy et al., 2006; Gil-Garcia, 2014, who developed three key dimensions of digital government: (i) technical infrastructure capacity, which includes hardware, software, bandwidth, and interoperability standards among government organizations; (ii) human capacity to adopt and govern technology; and (iii) organizational capacity to use technology to improve service delivery. The availability of broadband connectivity and the ability to use cloud computing are two key indicators of a state's ability to utilize AI in delivering services (West 2004). Therefore, states with higher levels of technological capacity will have higher levels of outputs in the area of AI-assisted public service research.

The idea of institutional capacity for adoption includes a range of variables (e.g., not only technical expertise) with respect to the effective implementation of many e-government initiatives; in fact, some of the most important predictors of effective adoption of e-government technology include; learning within an organization as it relates to an organization's ability to manage change; and the digital literacy of e-government employees. To support the above assertions, Heeks (2001) provided empirical support for his argument using theoretical work that demonstrated most e-government failures were not due to technical incapable reasons, but because of the tensions created by organizational/institutional issues between the two entities involved in the implementation of e-government technologies.

In relation to governance capacity, the social transformations necessary for the successful implementation of e-government technology will be substantial. In contrast to prior definitions of e-government, e-government can now be defined as extending beyond just technological solutions to include; the broad and simple nature of the social transformations required for e-government technology implementation includes; social/psychological transformations of the user of the technology (citizen, employee, etc.); use of legal policies to create regulations governing the use of the technology; development of appropriate governance frameworks to address data management; establishment of cybersecurity protocols; etc. Countries (e.g., some Northern European and East Asian nations), that have a solid governance foundation for implementing e-government technology, have

been the most successful in developing governance frameworks for the public sector use of AI; shape the research agenda included within this discussion (Bannister & Connolly, 2014).

Maturity models represent key concepts related to digital government literature and play a key role in the theoretical discussion outlined above. An excellent example of an internationally recognized model for assessing the maturity of a country's digital government is the UN E-Government Survey. Specifically, this model uses a set of standardized indicators to compare measurements in digital government capacity among countries. These maturity models can provide statistically significant evidence of a relationship between the number of AI research publications in the WoS database and a country's level of digital government. In addition to these models being developed, Lăzăroiu et al. (2022) and Wirtz et al. (2019) provide empirical support to confirm and reinforce some of the theories described within this section.

The four theoretical frameworks; national innovation systems, centre-periphery theory, resource dependence theory and technological capacity approached to analyze public administration in relation to artificial intelligence research and within the context of a multi-layered analytical framework. The approaches are used as follows: National Innovation Systems to identify the macro-institutional level factors which enhance research productivity; centre-periphery theory to highlight the systems of power asymmetries and structural inequalities that result from the global distribution of publications; resource dependence theory to analyses the strategic behaviours of institutions to establish their own research networks and gain the resources necessary to conduct AI; technological capacity and digital government approaches to describe the practical realities and institutional conditions necessary for state-level adoption of artificial intelligence.

The integrated theoretical framework provides the basis for the multiple levels of interpretation of the results of the bibliometric analysis. The relative dominance of certain countries in terms of research output can only be understood when taking into account not just their research activity, but also the cumulative advantage of established institutional structures and the global research economy's structural inequalities. Use of multiple theoretical perspectives has been intentionally selected as a theoretical choice to ensure that no single theoretical perspective is applied in a reductive manner. The complexity of artificial intelligence research in public administration requires a multi-dimensional and integrated analytical perspective to understand the full range of factors influencing the development of AI research in public administration.

4. Methodology

This study intends to perform a bibliometric analysis of scientific research articles on the theme of artificial intelligence in the field of public administration science according to various variables, and thus contribute to the field of public administration, and to provide clues about the present and the future to researchers,

students and policy makers who work or want to work in the field of public administration and artificial intelligence. In order to achieve these goals, some of the research questions (RQ) sought to be answered within the scope of this study are as follows:

RQ1: How has the subject of artificial intelligence in public administration developed throughout the historical process of academic literature?

RQ2: Who are the authors who have published and received the most citations on the subject of public administration and artificial intelligence?

RQ3: Which journals have the most publications and citations on this subject?

RQ4: What are the most commonly used keywords in studies on this subject? What is the relationship between the words?

RQ5: Which countries have published the most on public administration and artificial intelligence? Where does Türkiye rank in this ranking?

RQ6: What do collection and thematic mapping analysis indicate in terms of studies performed of public administration and AI?

RQ7: What suggestions can be made to researchers, students and policymakers who want to work on this subject and field?

This study used bibliometric analysis. Bibliometric analysis is the quantitative and qualitative analysis of published academic literature to reveal the development of a particular research field over a long period of time (Pritchard, 1969). The findings derived from utilizing R Bibliometrix consist of datasets (including primary information, yearly scientific output, and additional collections). This scientometric methodology integrates performance analysis instruments and mapping tools within bibliometric to examine research domains, generalize and visualize conceptual subdomains, and to develop the thematic evolution of a specific research topic (Muñoz-Leiva et al., 2012).

Academic literature includes numerous databases, including Web of Science (WoS), Scopus, Google Scholar, and PubMed. While each database has different metadata levels, WoS provides the most suitable metadata for analysis in the social sciences within the field categories. For these reasons, this study focused on scientific research articles published in academic journals within the WoS database. Proceedings, book chapters, and review articles were excluded from the scope. Furthermore, due to the breadth of the topic of artificial intelligence across all scientific fields, the study was limited to the fields of public administration and management. To this end, the Web of Science was searched using the keywords "public administration," "public management," and "artificial intelligence" to uncover a bibliography of relevant studies. A search of the WoS database on January 11, 2025, yielded 344 scientific research articles that met the study's limitations. The resulting datasets were converted to bibtex text format and analyzed using the "biblioshiny for bibliometrix" application within RStudio. Biblioshiny is a web interface application that enables the import of metadata, conversion into a data frame collection, and analysis based on various metrics (bibliometrix.org, 2025). The research model for this study is shown in Table 1.

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Table 1. Model of Research

First Stage:	*Research Topic: Public Administration and Artificial Intelligence *Database: WoS (Web of Science) *Search Date: January 11, 2025 *Research Area: "Public Administration" and "Management" *Keywords: "Public Administration AND Artificial Intelligence" OR "Public Management AND Artificial Intelligence" *Publication Type: Article
Second Stage: Data Evaluation	*Timespan: 1992-2025 *Documents: 344 *Sources: 174 *Annual Growth Rate: 5% *Authors: 989 *Articles with a single author: 59 *International co-authorship: 30.81 %
Third Stage: Evaluation of Findings and Conclusion	*Analysis Method and Program: R- Bibliometrix Biblioshiny *Data Analysis Criteria: Annual Scientific Production, Most Relevant Sources, Most Relevant Authors, Most Relevant Affiliations, Corresponding Author's Countries, Countries Scientific Production, Most Cited Countries, Most Global Cited Documents, Most Frequent Words. *Evaluation of The Findings *Interpretation of the Results

Source: Created by the authors.

5. Findings

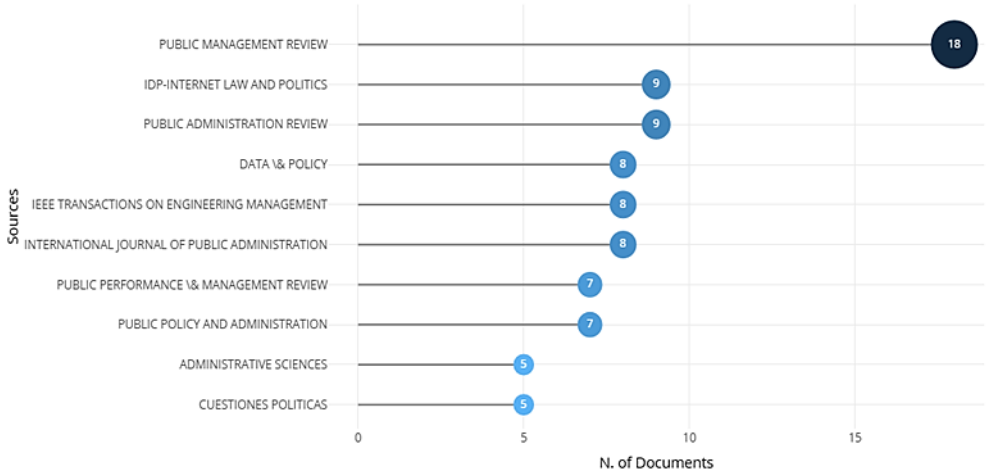
Table 2 shows the distribution of articles covering this study by year. Accordingly, while a limited number of articles were published until 2019, an upward trend in studies on public administration and artificial intelligence has been observed since 2019. 2024 was the year with the highest number of articles published to date.

Table 2. Number of Articles on Public Administration and Artificial Intelligence by Year

Year	2017	2018	2019	2020	2021	2022	2023	2024	2025
Article	3	3	17	30	38	44	72	123	5

Source: Created by the authors.

Graph 3. Most Relevant Sources



Source: Created by the authors via Biblioshiny.

According to Graph 3, Public Administration Review is by far the source with the most published documents, with 18. IDP-Internet Law and Politics and Public Administration Review are in second place with 9. Data & Policy, IEEE Transactions on Engineering Management, and the International Journal of Public Administration follow with 8 documents.

Table 3. Most Relevant Authors

Authors	Articles	Articles Fractionalized
Bullock JB	6	2.42
Wirtz BW	5	2.00
Wu J	4	0.73
Young MM	4	1.08
Ahmad N	3	0.67
Androniceanu A	3	1.50
Balland PA	3	0.50
Cugurullo F	3	0.89
Dunleavy P	3	1.50
Georgescu I	3	1.50

Source: Created by the authors.

According to Table 3, Bullock J.B. is the author with the most contributions, with a total of six articles. His fractionalized value is 2.42, indicating that he has participated in many co-authorships. This table provides insight not only into the total productivity but also into the level of each author's contribution. Bullock J.B.

and Wırtz B.W. stand out as both the authors with the highest number and highest level of contributions.

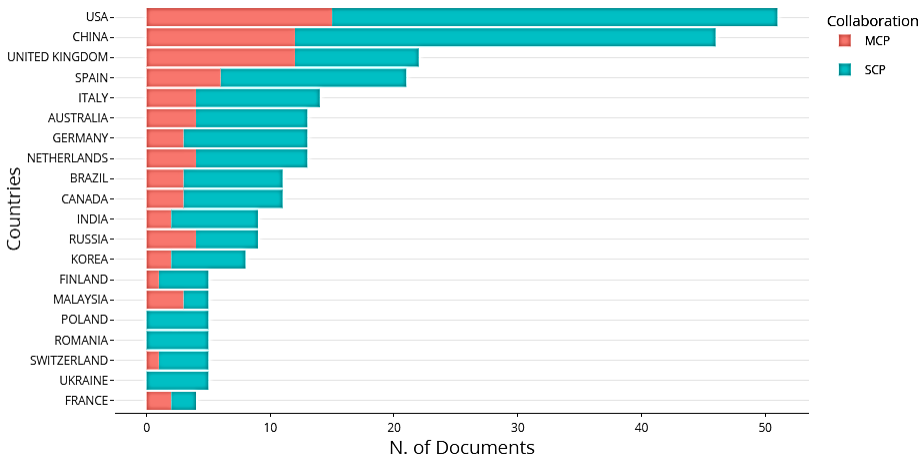
Table 4. Most Relevant Affiliations

Affiliation	Articles
Harvard Uni	14
Leiden Uni	12
Oxford Uni	12
Queensland Tech Uni	10
Uni Georgia	10
German Uni ADM SCI Speyer	9
Shanghai JIAO TONG Uni	9
Texas AANDM Uni	9
Uni Utrecht	9
Bucharest Uni Econ Studies	8

Source: Created by the authors.

The rankings in Table 4 clearly reveal which universities are leading the field globally. Harvard University leads the way as the most productive institution with 14 articles, while Leiden University and the University of Oxford each have 12. Universities based in the US and Europe are leading the field. Following the analysis, it was concluded that there were a total of 12 articles originating from Turkey, including Ankara Yıldırım Beyazıt University (2), Boğaziçi University (2), Istanbul University (2), Nişantaşı University (2), Yıldız Technical University (1), Yaşar University (1), Atılım University (1) and Hacettepe University (1).

Graph 4. Corresponding Author's Countries



Source: Created by the authors via Biblioshiny.

Graph 4 shows each country's contribution to the studies and the type of collaboration. SCP (Single Country Publication – Blue) represents articles written with authors from a single country, while MCP (Multiple Country Publication – Red) represents articles written with international co-authors. According to Graph 4, the US is the most active country both domestically and internationally. The US leads in both productivity and collaboration. European nations typically exhibit elevated MCP rates, reflecting an academic environment that is receptive to global collaboration. In contrast, while China demonstrates significant productivity, it mainly focuses on internal research activities.

Table 5. Countries Scientific Production

Country	Freq
USA	209
China	172
UK	76
Spain	66
Italy	53
Australia	51
Germany	45
Netherlands	44
Russia	43

Source: Created by the authors.

According to Table 5, similar to Graph 4, the USA (209) and China (172) are by far the countries with the most publications. This reflects the global leadership of these two countries in academic production.

Table 6. Most Cited Countries

Country	Total Citation	Average Article Citations
USA	1028	20.20
Germany	791	60.80
China	585	12.70
Netherlands	353	27.20
UK	314	14.30
Italy	258	18.40
Japan	201	67.00
Australia	192	14.80
Spain	169	8.00

Source: Created by the authors.

Table 6 displays the total citations (TC) that academic publications from various nations have received, as well as, how many citations an article has received

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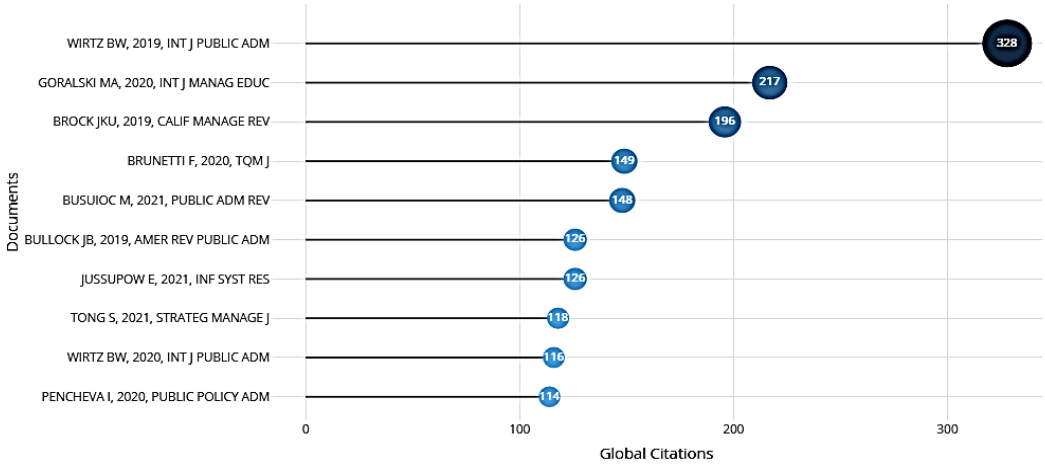
on average (Average Article Citations). The United States has the largest total citation count but has a lower total citation count than other countries do relative to the total number of articles published in academic literature. Japan and Germany produce very few publications that have had a very high impact on the worldwide academic community, whereas China has produced a relatively high volume of publications but does not appear to have had as large of an impact on the worldwide academic community.

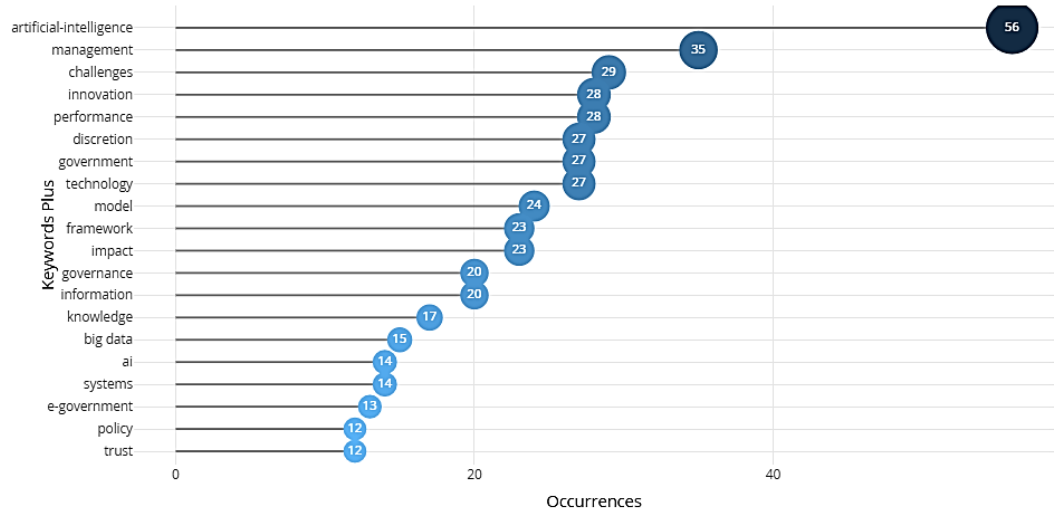
Graph 5. Most Global Cited Documents



Source: Created by the authors via Biblioshiny.

Graph 5 shows the academic articles that received the most global citations. This graph visualizes which studies have the highest impact and how many times they have been cited. The most cited article on the subject is "Artificial Intelligence and the Public Sector - Applications and Challenges," by Bernd W. Wirtz, Jan C. Weyerer, and Carolin Geyer, originally published in the International Journal of Public Administration in 2018.

Graph 6. Most Frequent Words



Source: Created by the authors via Biblioshiny.

Graph 6 shows the most frequently occurring keywords (Keywords Plus) in scientific publications and the number of times these words are used (Occurrences). This type of analysis is very useful for identifying the key themes that articles focus on. According to the graph above, artificial intelligence (56 times) is at the top of the list. Management (35 times) is the most frequently discussed concept alongside AI. This likely focused on topics like "AI in management" or "AI-driven decision-making." Words like "Challenge," "Performance," "Governance," and "Trust" reveal the impacts of these technologies and the challenges they face in practice. Keywords like "Model," "Framework," and "Impact" also indicate the widespread use of theoretical and analytical approaches.

6. Conclusion and Recommendations

Digital technologies have increased the efficiency, transparency, and effectiveness of public and state administration, which has also resulted in new leadership styles, service delivery and decision-making procedures, and ultimately, new definitions of citizenship (Gil-Garcia et al. 2018). It is claimed that a new bureaucratic management typology is being formed along with the advent of smart technologies and artificial intelligence which will bridge the human component to computational algorithms and machine-readable electronic files and forms. This new bureaucratic model will overcome and/or address some of the limitations of traditional bureaucracy, as well as tackle some greater complexity challenges while affording further protection to citizen rights (Vogl et.al., 2019). Although the adoption of AI for public administration has enormous potential, it could also raise ethical and institutional challenges such as algorithmic bias, protection of data,

traces of accountability, and transparency. Because the public sector has a responsibility to adhere to normative values including democratic legitimacy, equality and trust, AI must also be designed in a manner consistent with these values. In order for AI to be adopted fairly and equitably by public administration, regulatory frameworks must be developed and there should be increased digital literacy together with continuous interactions among policymakers, technology experts, and civil society groups. The technical capabilities of AI alone cannot be defined without considering how the use of AI will change the way the state relates to society and thus alter the governance framework.

In this study, I have conducted a comprehensive bibliometric analysis of peer-reviewed literature relating to artificial intelligence in the area of public administration using a dataset of 344 scientific articles from the Web of Science database indexed from 1992 to 2025. Utilizing a multi-theoretical framework involving several theories, including National Innovation Systems Theory, Center-Periphery Theory, Resource Dependence Theory, and Technological Capacity/Digital Government frameworks, along with the application of multiple bibliometric performance and science mapping methods, I have created a robust empirical depiction of the intellectual structure of AI research in public administration; it includes the major contributors to this body of research; its thematic clusters; and its geographic distribution.

The empirical patterns discovered through this research have a firm theoretical basis in the multi framework that was used at the outset. The national innovation systems perspective is most immediately able to explain why research output is concentrated geographically and institutionally, well-developed national innovation ecosystems are evidenced by strong university-industry-government collaborations and strong funding for research. Path dependency, as theorized by Edquist (1997) and Malerba (2002), accounts for the way that the existing hierarchy of research productivity will reproduce itself over time; leading institutions attract well-resourced researchers who generate outputs that are frequently cited, which then supports the continued prestige of those institutions.

The Center-periphery Theory can be a useful reference to the observations of this study as it shows that only looking at research quality to explain the under-representation of peripheral and semi-peripheral countries at the higher citation level of the dataset does not offer an adequate explanation. Wallerstein's (1974) world-systems theory, including scholars such as Kreimer (2006) and Gaillard (1994) who applied it to the sociology of science, indicates that global knowledge production has the same structural inequalities. The rules for citation, journal prestige, language, and institutional affiliation favour scholars located in the centre. The WoS database is an instrument of the global knowledge production architecture and serves to amplify select forms of knowledge while rendering other forms of knowledge invisible. This needs to be taken into consideration when interpreting bibliometric results, including those of the present study.

In this respect, resource dependency theory provides a perspective on how and why specific inter-institutional and cross-national patterns of cooperation have developed. The majority of co-authorship collaborative efforts originating from one or more well-resourced institutions in the United States and Western Europe can be seen through the lens of the strategic steps taken to acquire available resources (e.g., data access, computational infrastructure, funding, and prestige) create an attractive partner with which to cooperatively undertake joint research. The resulting network topology is structured in a way that reinforces the existing hierarchy, rather than democratizing access to academic capital. Finally, differences in technological capabilities as well as digital government frameworks across countries help explain why certain countries are able to produce higher levels and more institutionally-based practical research than their counterparts: states that are more digitally mature according to quantitative indices such as the United Nations' E-Government Survey are better placed to generate – and to be able to utilize – applied AI research within the realm of public administration.

This study's findings have important implications for policymakers, public administrators, and scholars. The most significant implication for policymakers is that they will need to address the systemic gap between leadership in AI research and governing AI practically. There is little doubt that the US and China are currently leading countries by publication output in AI, as well as shaping global normative frameworks for AI governance (i.e. OECD AI Principles, EU AI Act). Countries in the peripheral and semi-peripheral tiers will not only fall behind in productivity in AI research but will be governed by frameworks created without consideration of their specific institutions, cultures, and economic conditions. Addressing this gap will require that countries invest over time in more than technology infrastructure. They must create sustained investments in other types of infrastructure such as: person-resources, partnership networks, and country (or type) specific innovation centres as preconditions to truly being leaders in this type of research.

Based on the analysis of literature, the challenges to using AI by public administrators lie primarily in their institutional and normative character rather than their technical nature. The central cluster of conceptualizations using the terms governance, accountability, trust, and performance alike support the idea that the public value of AI in the public sector depends on the governing institutional frameworks within which it is applied. Effective use of AI requires not only the appropriate data infrastructure and algorithmic capabilities but also robust accountability mechanisms, transparent procurement processes, inclusive stakeholder engagement, and clear lines of democratic oversight. Thus, public administrators who have access to the academic literature are well-positioned to create governance frameworks that are grounded both in terms of the technical aspects as well as the normative aspects of AI deployment.

The 12 articles in this dataset represent a small but significant contribution to the rapidly growing field of international AI & Public Administration, with a particular emphasis on their impact on Pubic Administration research throughout

Turkey. There are a number of different institutions represented in the list of contributing authors, such as Ankara Yıldırım Beyazıt University, Boğaziçi University, and Istanbul University, as well as a number of others, indicating that there is a distributed capacity for conducting research on the subject at many different universities; however, this research is not very well coordinated or connected to the international networks. There is a significant potential to create a more robust and impactful body of scholarship in AI & Public Administration research by strategically investing in international research consortia, developing opportunities for international exchange between researchers, and developing targeted journal publication support so that Turkey can become more embedded into the global research community focused on AI & Public Administration.

The limitations of this research project need to be recognized. The use of only the Web of Science database was driven largely by its superior quality and applicability for social science bibliometrics. A consequence of this limitation is that a considerable amount of relevant research contained in other databases, such as Scopus, Google Scholar, and region-based repositories, was not included in this study's data pool. Research published in languages other than English is likewise underrepresented; while this limitation is true for any research project, it is especially problematic for this study because of the center-periphery relationships discussed earlier. Future research would be improved by using multiple databases to explore, for example, how Web of Science and Scopus differ regarding the extent to which they cover the same topic areas as well as the efforts made to include non-English-language research produced in underrepresented regions in this study.

Additionally, bibliometric analysis has a natural bias towards the past; it analyzes the body of work that has already published and been referenced (cited in subsequent works), not looking at items that are currently being published or other critical areas with knowledge gaps in the field. AI technology and AI governance are moving at a very rapid pace, thus the thematically structured nature of the field in 2025 may have a significantly different appearance than in this dataset, which contains only data through January 2025. Longitudinal bibliometric studies of the field could be performed on a regular basis and provide a more real-time understanding of how this field has evolved and will evolve over time.

Third, while keyword co-occurrence analyses and thematic mapping analysis provide important insights about the conceptual structure of a given field's literature, they lack comprehensively capturing the substance (theoretical contribution, methodological quality and practical relevance) of individual articles to enable fine-grained assessments. Systematic qualitative reviews or mixed-methods studies integrating bibliometric breadth with content analyses conducted in depth would provide a more complete account of a given field’s literature.

According to the results of this research study, areas for future investigation include: assessing the governance & accountability aspects of AI as they relate to public sector administration with a focus on normative discussions about the need

for government to be transparent about algorithms (algorithmic transparency) and democratic legitimacy (democratic legitimacy); national-level comparative analyses of national AI policies, levels of digital maturity in governments around the world, and the amount of scientific research being conducted; thematic studies regarding where AI is being utilized within the contexts of predictive policing, social services, tax authority, smart cities, etc.; and the intersection of AI, public value, and equity through the consideration of existing evidence of differential outcomes across populations defined by race, socio-economic status, geographical location, and other constructs of social inequality that are created when utilizing AI.

The rise of artificial intelligence as a transformative force of public administration, thus, presents an unprecedented level of challenge to contemporary governance. The current body of literature is growing rapidly in response to the increasing number of scholars exploring, both technically and politically, the questions revolving around algorithms: How do we design, deploy, and hold accountable these algorithmic systems in our democratic society? Who will have access to the data necessary for AI systems to function and under what conditions? What will the institutional capacities and governance frameworks necessary for ensuring that AI fulfills rather than subverts the public's interests?

This study does not answer these questions, but instead provides the empirical basis for academic discussions in order to have the questions answered. This research shows the intellectual landscape of the field by mapping its leaders, prolific institutions, main topics, geographic measures, and temporal measures, and will give researchers, students, policymakers, and public administrators access to a resource they can use to prepare themselves for future research collaborations on one of the most important emergent fields of study in the 21st Century. The results demonstrate to the world that artificial intelligence and public administration have converged as two topics of study, and the type and quality (and variety) of the knowledge produced through research at this intersection will affect the way the governance of democracies throughout the world takes shape.

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