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Mapping Global Publication Trends Studies on Artificial Intelligence: A Systematic Literature Review

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ABSTRACT

This study aims to map the development of research and scholarly publications on Artificial Intelligence (AI) Governance, with a particular focus on policy, ethics, and regulatory frameworks. The review seeks to identify major research trends, the evolution of key themes, and the interconnections among topics within the global AI governance literature. A Systematic Literature Review (SLR) approach was employed following the PRISMA protocol to select relevant articles from the Scopus database. A total of 2,815 articles were identified and analyzed using VOSviewer and CiteSpace to examine keyword relationships, publication trends, and thematic structures that illustrate the intellectual landscape of AI governance research during the period 2019–2025. The findings reveal five major thematic clusters in AI governance studies: AI policy and regulation, digital governance and public administration, algorithmic transparency and trust, AI adoption and industry transformation, and ethics and accountability. Among these, AI policy and regulation emerges as the most dominant theme, indicating that policy and regulatory issues remain central to global AI governance discourse. In addition, the relationships among clusters highlight strong linkages between ethics, public trust, and digital transformation in shaping responsible AI governance systems. This study contributes both conceptually and methodologically to AI governance research by providing a comprehensive mapping of global scholarly trends and thematic structures. However, the study is limited by its reliance on a single database (Scopus). Future research is therefore encouraged to incorporate additional databases such as Web of Science and EBSCO to expand the scope of analysis.

INTRODUCTION

Research on Artificial Intelligence (AI) Governance has developed rapidly in recent years and has attracted significant attention from academics and policymakers worldwide. The widespread application of AI across various sectors including industry, energy, and public administration has created an urgent need for ethical, adaptive, and public interest oriented governance systems (Fang et al., 2026; Radanliev et al., 2026). AI governance is no longer regarded merely as a technological issue in contemporary research; rather, it has emerged as a social and institutional challenge that requires cross-sectoral collaboration and interdisciplinary approaches (Nzembayie & Urbano, 2026). At the same time, emerging paradoxes such as the energy consumption associated with AI development highlight the complex, cross-disciplinary implications of AI technologies (Vivoda et al., 2026). Consequently, AI governance has evolved into a strategic field of study that plays a critical role in steering technological innovation toward responsible and equitable governance frameworks.

Previous studies indicate that AI governance extends beyond policy formulation and regulatory design to encompass complex social, ethical, and institutional dimensions. Research has demonstrated that leadership networks play a crucial role in fostering responsible AI innovation within the public sector, suggesting that effective governance depends on collaboration among diverse stakeholders and the presence of flexible, adaptive organizational structures (Fang et al., 2026). Public trust has also been identified as a key determinant of successful AI governance, underscoring the importance of developing secure and transparent AI systems, as well as mechanisms for risk mitigation and trust signaling (Radanliev et al., 2026). Moreover, generative AI has been shown to possess institutional significance by reshaping work patterns and decision making processes, particularly within the creative economy, while simultaneously raising new challenges related to accountability and regulation (Nzembayie & Urbano, 2026). In addition, the environmental sustainability implications of AI usage have become an important consideration, emphasizing that AI governance should not focus solely on technological efficiency but also on broader ecological impacts (Vivoda et al., 2026). Collectively, these findings demonstrate that AI governance is a multidimensional issue that requires a careful balance between innovation, ethics, and sustainability, as well as adaptive, cross sectoral policy approaches in response to rapidly evolving technological dynamics.

Although existing studies have explored the dynamics of AI governance from perspectives such as public policy,

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ethics, and technological application, much of the prior research remains fragmented and limited to specific case studies or individual sectors (Fang et al., 2026; Radanliev et al., 2026; Vivoda et al., 2026). Furthermore, relatively few studies have employed a comprehensive Systematic Literature Review (SLR) approach to map the evolution of research themes, identify publication trends, and examine interconnections among topics within the field of AI governance. There is also a notable lack of studies integrating bibliometric analysis based on Scopus data using tools such as VOSviewer and CiteSpace to visualize and systematically structure the intellectual landscape of AI governance research. To address this gap, the present study conducts a systematic review of more than 1,400 relevant scholarly articles to develop a more holistic understanding of the direction, structure, and trends of global AI governance research. The SLR approach employed in this study provides strong methodological rigor for identifying research patterns, conceptual linkages, and underexplored areas, thereby contributing to the development of ethical, transparent, and accountable AI policy frameworks.

Accordingly, this study focuses on answering the following primary research question**:** How has research on Artificial Intelligence (AI) Governance evolved globally in terms of policy, ethics, and regulatory frameworks during the period 2019–2025? To address this question, the study adopts a qualitative research design using **a** Systematic Literature Review (SLR) approach guided by the **PRISMA** protocol for article selection and analysis. A total of 2,815 articles sourced from the **Scopus** database were analyzed using VOSviewer and CiteSpace to map keyword relationships, publication trends, and thematic structures. Through this approach, the study aims to make both conceptual and methodological contributions to AI governance scholarship, particularly by elucidating how policy, ethics, algorithmic transparency, and public accountability interact in shaping responsible AI governance systems. Furthermore, this research is expected to serve as an academic reference for policymakers and scholars in designing more inclusive, ethical, and public-oriented AI governance strategies.

LITERATURE REVIEW

The rapid development of Artificial Intelligence (AI) over the past decade has generated an urgent need for governance systems capable of ensuring the ethical, safe, and equitable application of this technology. AI Governance has increasingly evolved into a framework that regulates the entire lifecycle of AI technologies from development and deployment to evaluation within society thereby positioning AI governance as a strategic concept encompassing policy formulation, ethical principles, and regulatory mechanisms that oversee the full AI lifecycle (Radanliev et al., 2026). Unlike traditional technology governance, AI governance does not focus solely on legal compliance but also emphasizes responsibility, transparency, and trust in algorithm-assisted decision-making processes (Fang et al., 2026). In this regard, AI governance functions as a normative instrument that seeks to balance technological innovation with the protection of social values and human rights in the digital era.

Furthermore, the discourse on AI governance has become increasingly complex by involving a wide range of cross sectoral actors and institutions. Governments, industry stakeholders, research institutions, and the broader public now actively participate in shaping AI related policies and ethical frameworks (Nzembayie & Urbano, 2026). This cross actor collaboration reflects a paradigm shift from control-based governance toward participatory governance and policy co creation. In practice, this approach highlights the importance of multistakeholder governance**,** whereby responsibility for AI development and deployment is collectively shared to ensure fairness, accountability, and social legitimacy. This perspective underscores that AI governance is not merely a technical domain but also a political, economic, and social arena in which multiple interests interact to shape the trajectory of technological development.

Moreover, issues of sustainability and social responsibility have become integral components of contemporary AI governance discourse. The emergence of the AI energy paradox the discrepancy between technological efficiency and high energy consumption demonstrates that AI governance must address environmental impacts and sustainability as part of global ethical considerations (Vivoda et al., 2026). Ethical leadership and adaptive policymaking are therefore critical factors in fostering AI innovation that prioritizes societal well being (Fang et al., 2026). Consequently, AI governance today extends beyond regulating technology to integrating moral, social, and ecological values into global policy frameworks in order to ensure responsible and sustainable AI development.

Recent studies on Artificial Intelligence Governance have expanded rapidly and encompass a broad range of interconnected issues, including public policy, ethics, and algorithmic transparency. Contemporary research indicates that AI policy and regulation constitute the most dominant themes in the global literature, focusing on how states and international institutions design governance mechanisms to safeguard security, privacy, and citizens' rights. Leadership capacity and adaptive policy frameworks play a central role in guiding AI innovation in alignment with public ethical values, while risk management approaches and auditing systems are essential for mitigating algorithmic risks (Fang et al., 2026; Radanliev et al., 2026). These findings suggest that AI governance has transcended purely technical concerns and has become a political and social issue that necessitates the active involvement of governments, industry, and society in decision making processes.

Beyond policy and regulation, recent research has placed substantial emphasis on the ethical and accountability dimensions of AI. Inadequately supervised AI systems may produce bias, discrimination, and social injustice (Chkarka & Fatmi, 2026). As a result, scholars increasingly stress the importance of global ethical standards to ensure that AI

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development respects and upholds fundamental human values (Nzembayie & Urbano, 2026). Other studies demonstrate that ethical responsibility should not rest solely with technology developers but must also be embedded within public policy frameworks and corporate governance structures. These findings reinforce the view that ethics is not a supplementary aspect of AI governance but rather a core element in building public trust and securing the social legitimacy of AI technologies.

In another context, several studies highlight the interrelationship between digital governance, public administration, and industrial transformation in the AI era. Governments in many countries have begun adopting AI to enhance public service delivery; however, challenges persist, including limited transparency, data security risks, and weak bureaucratic accountability (Fang et al., 2026). Similarly, AI implementation in the energy sector reveals paradoxical outcomes, as efficiency gains may simultaneously increase overall resource consumption (Vivoda et al., 2026). These dynamics illustrate that AI governance cannot be separated from environmental sustainability principles and social responsibility, which are now central to global discussions on responsible AI.

Meanwhile, algorithmic transparency and public trust have emerged as major focal points in recent scholarship. Trust in AI systems can be fostered through open and transparent governance arrangements with clearly defined accountability mechanisms when failures occur. Alternative approaches further emphasize the role of explainable AI and independent auditing in strengthening trust and oversight (Fang et al., 2026; Nzembayie & Urbano, 2026; Radanliev et al., 2026). Collectively, these studies demonstrate that AI governance constitutes a complex and multidimensional research field, encompassing policy, ethics, social, economic, and environmental dimensions that jointly contribute to the formation of a more responsible and sustainable technological ecosystem.

This study is specifically conducted to map the development of scholarly publications focusing on Artificial Intelligence (AI) Governance, with particular emphasis on policy, ethics, and regulatory frameworks. Using a Systematic Literature Review (SLR) approach, the study aims to comprehensively portray the intellectual landscape of AI governance research in the global literature during the period 2018-2025. The mapping process examines research and publication trends, document distribution by year and region, author collaboration networks, and keyword interrelationships that shape the core thematic structure of AI governance studies. By employing VOSviewer and CiteSpace, the study visualizes evolving thematic relationships, including emerging, dominant, and shifting research topics within the field.

The primary contribution of this research lies in its empirical and conceptual advancement of understanding how policy, ethics, algorithmic transparency, and public accountability interact in shaping responsible AI governance frameworks. Additionally, this study is expected to serve as a foundation for developing a conceptual framework for AI governance that is relevant across both global and local contexts, while also opening avenues for future research agendas in technology policy and digital ethics. Accordingly, this study functions not only as a systematic mapping of the literature but also as a strategic effort to strengthen policy direction and scholarly inquiry supporting transparent, inclusive, and public-oriented AI implementation.

METHOD

This study employs a qualitative content analysis method using a Systematic Literature Review (SLR) approach to address the primary research question: *how has research on Artificial Intelligence (AI) Governance developed in the context of policy, ethics, and regulatory frameworks in reputable international journals indexed in Scopus during the period 2018-2025?* The SLR approach was selected because of its strength in systematically and rigorously synthesizing existing scholarly findings, thereby enabling a comprehensive depiction of patterns, trends, and the overall direction of global research development. To deepen the analysis, this study also formulates several subsidiary research questions, including: (1) What are the trends in AI governance publications based on year, authorship, and geographic distribution? (2) How are authors and research themes distributed across topical clusters related to AI policy, ethics, and regulation during the study period? and (3) What trends and thematic shifts can be identified in global AI governance research over the past seven years?

This methodological approach serves two primary objectives. First, it aims to map the research landscape by illustrating thematic relationships and patterns of collaboration among scholars in the field of AI governance. Second, it seeks to identify research gaps or underexplored areas within the existing academic literature. Through this approach, the study functions not only as a systematic review of prior research but also as a conceptual foundation for understanding the evolving policy and ethical directions of AI development at the global level.

The research process was conducted in accordance with the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta Analyses) protocol, which comprises three main stages: *identification*, *screening*, and *inclusion* of articles sourced from the Scopus database. During the *identification* stage, data collection was carried out by searching for articles using the keywords “AI Governance,” “Ethics,” “Policy,” “Regulation,” “Accountability,” and “Digital Transformation” through an official Scopus Premium account. The initial search yielded 2,815 articles, of which 1,183 duplicate records were identified and removed, leaving 1,002 articles for further screening. The *screening* stage involved assessing topical relevance, data completeness, and full-text availability, as well as excluding 193 non-English articles. As a result, 809 reports were identified for retrieval; however, 121 articles could not be accessed or did not

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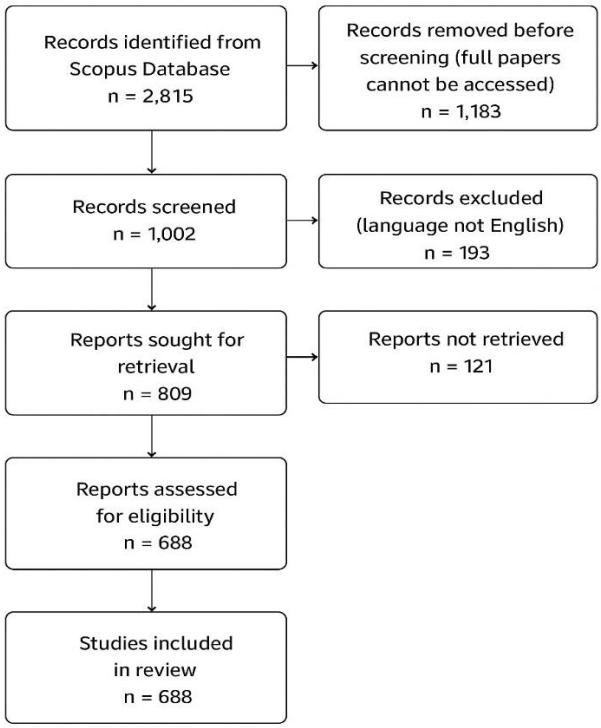
meet the technical inclusion criteria. In the final stage *assessment for eligibility* a thorough evaluation of article relevance and quality was conducted, resulting in 688 articles that were validated and deemed eligible for analysis. These selected articles subsequently formed the basis for mapping publication trends, author networks, and thematic clusters related to Artificial Intelligence Governance at the global level.

Diagram 1. Tahapan Pengumpulan Artikel (PRISMA Flowchart)



RESULT

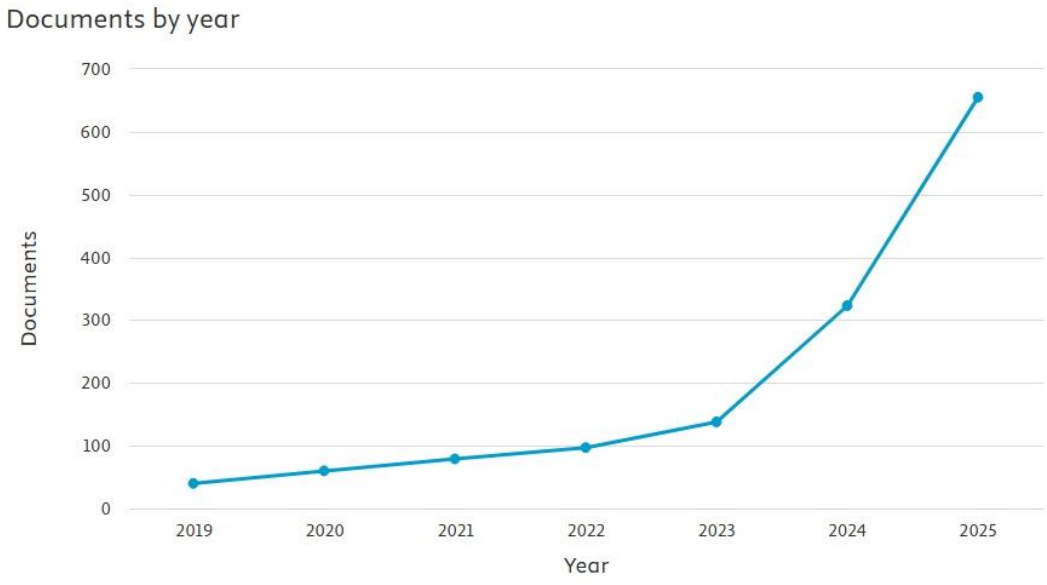


Figure 1. Publication Trends in Artificial Intelligence (AI) Governance, 2019–2025

Figure 1 shows that publications related to Artificial Intelligence (AI) Governance experienced a highly significant increase from 2019 to 2025. At the beginning of the period, the number of publications was relatively low, with approximately 40 documents in 2019. This figure increased steadily in subsequent years, reaching around 60 publications in 2020 and nearly 80 publications in 2021. The upward trend continued into 2022, with approximately

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100 articles, indicating a consistent growth in scholarly interest in AI governance studies. The most pronounced increase occurred after 2023. The number of publications rose from approximately 140 documents in 2023 to more than double that amount in 2024, reaching around 320 publications. This sharp rise highlights the growing global focus on AI related policy, regulation, and ethical issues amid the rapid acceleration of digital transformation. The peak of publication output was observed in 2025, with approximately 660 documents, making it the year with the highest scholarly output across the entire observation period. Overall, the figure illustrates an exponential growth trend in AI governance research between 2019 and 2025. This trend reflects increasing academic, governmental, and industrial attention to the urgent need for regulatory frameworks and governance mechanisms that ensure the ethical, transparent, and accountable deployment of artificial intelligence.

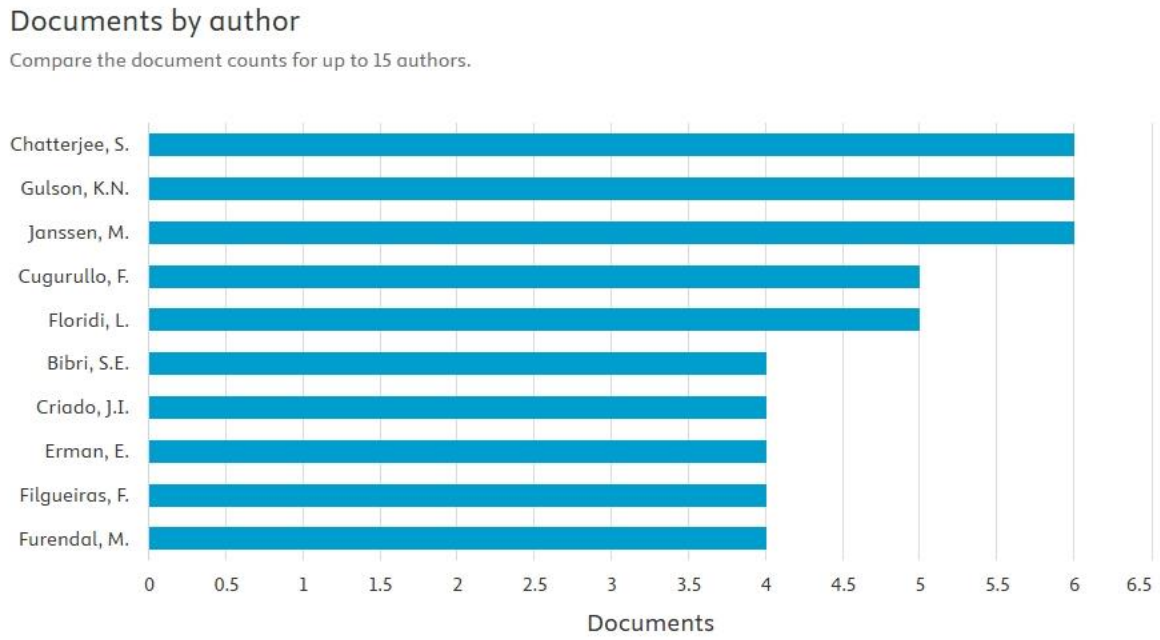

Figure 2. Authors in Artificial Intelligence (AI) Governance Studies

Figure 2 presents the ten most productive authors in the field of Artificial Intelligence (AI) Governance. Chatterjee, S., Gulson, K.N., and Janssen, M. emerge as the most prolific contributors, each producing six publications during the period of analysis. Their work demonstrates consistent engagement in AI governance discourse, particularly on issues related to policy, regulation, and the social implications of artificial intelligence. Following them, Cugurullo, F. and Floridi, L. each contributed five publications, positioning them as influential scholars whose research frequently addresses ethical considerations, philosophical foundations, and the broader societal impacts of AI technologies. Meanwhile, Bibri, S.E., Criado, J.I., Erman, E., Filgueiras, F., and Furendal, M. each produced four publications, reflecting steady scholarly productivity in areas related to digital governance, AI-driven public administration, and social transformation resulting from the adoption of artificial intelligence. These findings indicate that research on AI governance is shaped by a group of key authors who consistently contribute to the advancement of the field. The presence of these scholars strengthens the global literature on AI governance, both in normative dimensions such as ethics and algorithmic transparency and in practical domains, including regulation, policy implementation, and digital governance practices.

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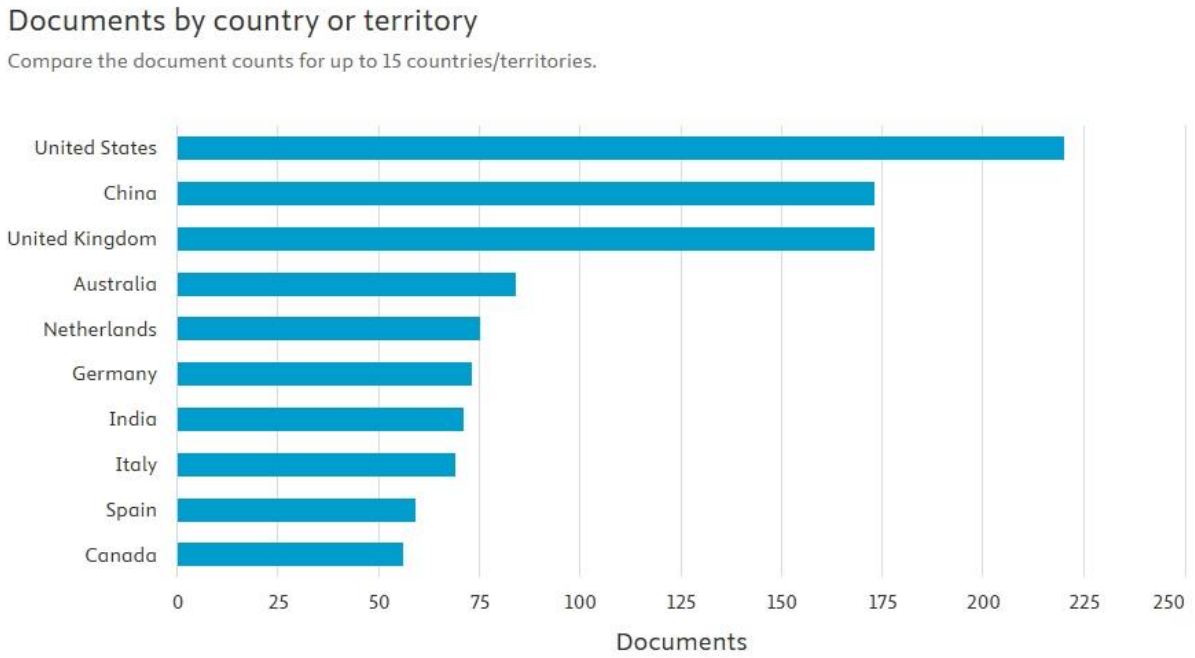

Figure 3. Distribution of Publications on Artificial Intelligence (AI) Governance by Country

Figure 3 illustrates the distribution of publications on Artificial Intelligence (AI) Governance by country or territory. The United States occupies the leading position as the country with the highest number of publications, contributing approximately 230 documents, underscoring its dominance in the development of AI governance and policy related research. Following closely, China and the United Kingdom each produced around 170 publications, highlighting their significant roles in global research on AI ethics, regulation, and social implications. Australia represents a mid-tier contributor with approximately 80 publications, followed by the Netherlands and Germany, each contributing around 70 publications. Countries such as India and Italy also demonstrate relatively stable engagement in AI governance research, with publication outputs approaching 70 documents. Meanwhile, Spain and Canada show lower levels of contribution, with approximately 60 publications each, yet they continue to participate consistently in the development of AI governance literature. This distribution pattern indicates that knowledge production in AI governance remains largely dominated by countries with strong research capacity and advanced technological infrastructure particularly the United States, China, and the United Kingdom. Nevertheless, the involvement of countries across different regions of the world demonstrates that AI governance has become a globally significant research concern, attracting growing attention across diverse social, economic, and policy contexts.

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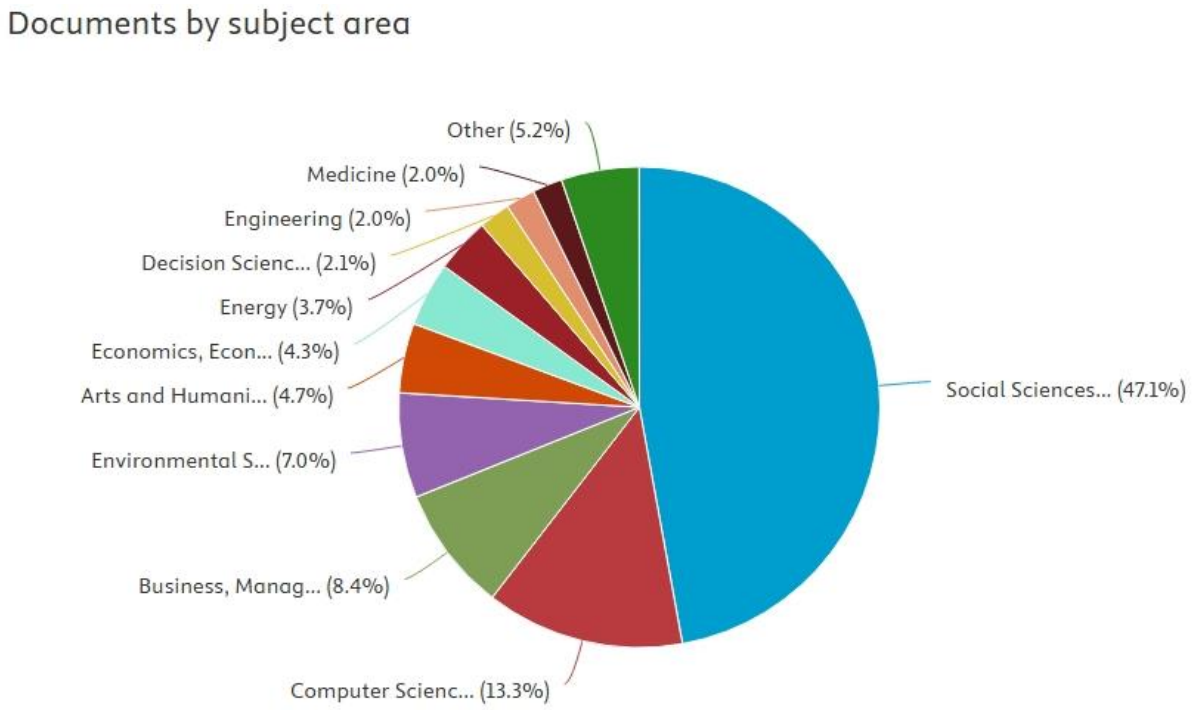

Figure 4. Distribution of Publications on Artificial Intelligence (AI) Governance by Subject Area

Figure 4 illustrates the distribution of publications related to Artificial Intelligence (AI) Governance across subject areas as indexed in the Scopus database. Computer Science represents the largest share of publications, confirming that AI governance research is strongly grounded in technical perspectives related to algorithm development, data security, and intelligent systems. Social Sciences also contribute substantially, reflecting growing scholarly attention to policy, ethics, regulation, and the social implications of AI deployment. The dominance of these two disciplines indicates that AI governance has evolved as a multidisciplinary field that closely integrates technical and social dimensions. Other subject areas including Engineering, Business, Management and Accounting, and Decision Sciences also show notable contributions, each emphasizing different aspects such as technological implementation, organizational governance, risk analysis, and digital transformation across sectors. Meanwhile, contributions from Law, Economics, Environmental Science, and Arts and Humanities fall within the moderate to smaller range but remain important in enriching the discourse on AI ethics, social justice, sustainability, and the cultural impacts of automation and intelligent technologies. These findings underscore that research on AI governance is not dominated by a single discipline but instead develops across multiple fields, incorporating technical, social, economic, and ethical perspectives. This pattern reflects the complexity of AI governance as a research domain and highlights the need for interdisciplinary approaches to effectively understand and formulate responsible, transparent, and public oriented policies for AI development and implementation.

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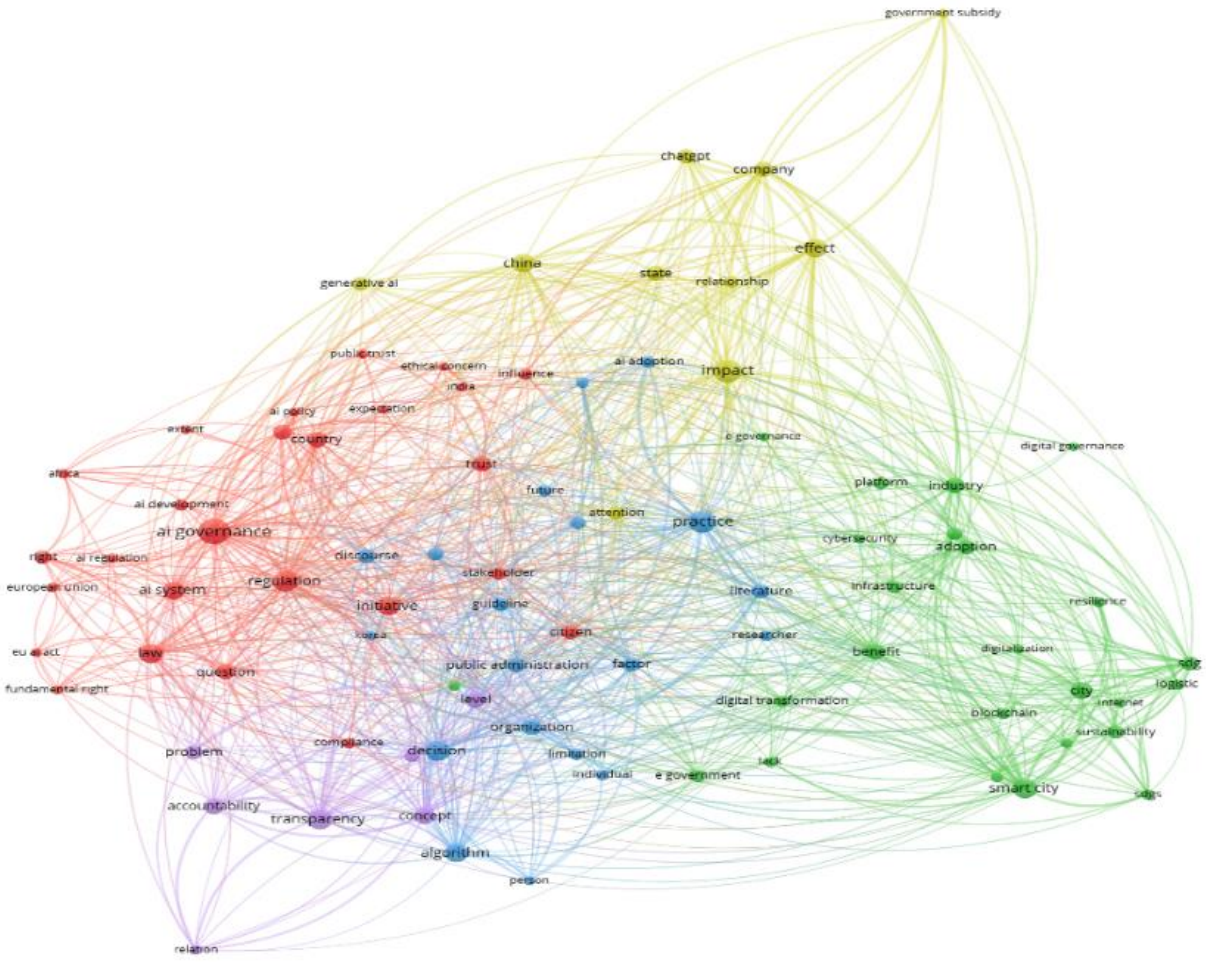

Figure 5. Topic Clusters in Artificial Intelligence (AI) Governance Studies

Table 1. cluster-based themes

Cluster	Item	Total
Cluster 1	ai policy, regulation, ai system, initiative, law, question, country, stakeholder, citizen, trust, ai policy, ai development, ai regulation, compliance, fundamental right, eu ai act, European union, right, Africa, extent, public trust, ethical concern, india, influence, expectation, right, AI governance	26
Cluster 2	digital government, public administration, e governance, Smart city, city, benefit, sdg, logistic, internet, sustainability, sdgs, resilience, digitalization, blockchain, adoption, industry, platform, cybersecurity, infrastructure, benefit, e government	21
Cluster 3	Algorithm, trust, organization, public administration, ai adoption, future, discourse, guideline, literature, researcher, factor, limitation, individual, person, korea, Practice, decision	17
Cluster 4	ai adoption, industry transformation, Impact, effect, relationship, generative ai, chatgpt, company, attention, government subsidy	10
Cluster 5	accountability, ethics, problem, concept, relation, Transparency	6

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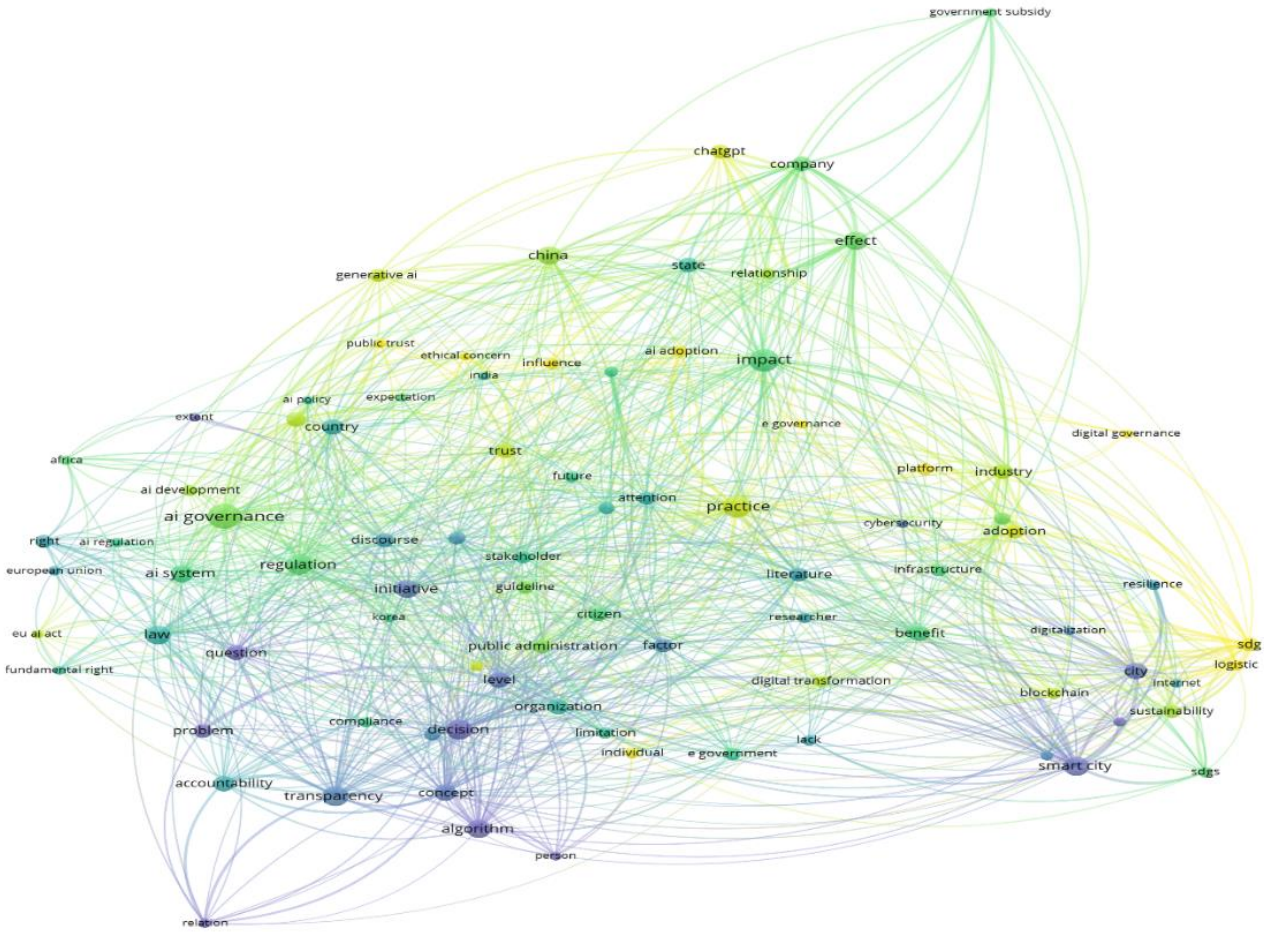

Figure 6. Temporal Trends of Topics in Artificial Intelligence (AI) Governance Studies

Figure 6 illustrates the temporal evolution of topics in studies on Artificial Intelligence (AI) Governance, visualized through a color gradient ranging from blue to yellow. This color transition represents shifts in research focus from earlier topics to more recent and emerging themes in response to rapid digital technological development. Blue colored nodes indicate concepts that appeared earlier in the literature, such as *AI governance*, *regulation*, *algorithm*, *transparency*, and *accountability* fundamental issues that have served as the foundation of AI governance discourse since its early stages. Over time, the visualization shifts toward green and yellow tones, signaling the emergence of more contemporary research topics. Concepts such as *digital governance*, *AI adoption*, *infrastructure*, *platform*, *industry*, *benefit*, and *public trust* have become increasingly prominent in publications over recent years. Furthermore, newer topics including *generative AI*, *cybersecurity*, *digital transformation*, *sustainability*, and the *Sustainable Development Goals (SDGs)* have emerged as focal points, reflecting the growing intersection of AI with global social, economic, and environmental challenges. This visualization demonstrates that AI governance research has expanded beyond a narrow emphasis on technical regulation to become a multidimensional field encompassing ethics, public trust, industrial transformation, and sustainable development. The observed trend indicates that research themes continue to evolve in line with technological dynamics and societal needs, thereby opening avenues for future studies to further explore the integration of AI into public policy, digital governance frameworks, and the ethical and sustainability implications of AI deployment.

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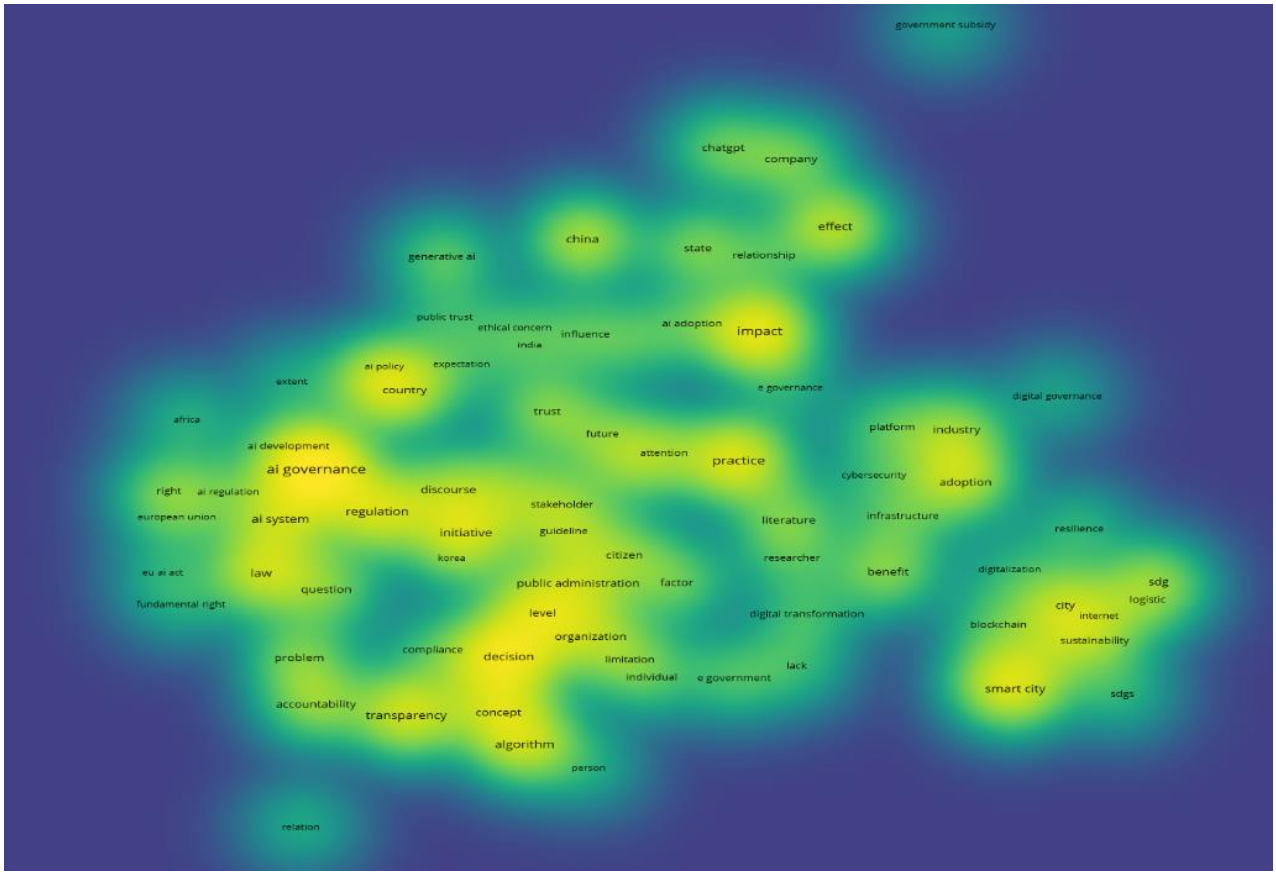

Figure 7. Topic Mapping in Artificial Intelligence (AI) Governance Studies

Figure 7 presents a density based topic mapping of studies on Artificial Intelligence (AI) Governance, illustrating the frequency and dominance of specific concepts within the literature. Brighter or yellow colored areas indicate topics with higher discussion density, while blue colored areas represent less frequently discussed topics. The visualization reveals that several core concepts such as *AI governance*, *regulation*, *algorithm*, *transparency*, and *decision* are the most frequently occurring keywords and form the central focus of contemporary research. These themes occupy the core of academic discourse because they are directly related to regulatory challenges, accountability, and control over the development and deployment of AI technologies. Other topics, including *AI system*, *public administration*, *initiative*, *discourse*, *stakeholder*, *impact*, and *practice*, display moderate density, indicating that these issues are frequently examined in discussions on AI implementation and its implications for public governance and decision making processes. In addition, brightly colored areas on the right side of the map highlight the growing prominence of discussions related to *digital governance*, *AI adoption*, *platforms*, *cybersecurity*, *infrastructure*, *benefit*, and *digital transformation*, suggesting that the literature increasingly focuses on how AI technologies are reshaping industrial sectors and public administration. Furthermore, topics such as *sustainability*, *smart city*, *SDGs*, and *blockchain* reflect an expansion of AI governance research toward sustainable development, smart city ecosystems, and supporting digital technologies. The emergence of terms such as *China*, *company*, *state*, *relationship*, and *public trust* indicates that geopolitical, economic, and societal trust dimensions have also become integral components of AI governance debates. Overall, the density patterns in the map demonstrate that AI governance occupies a central position within the scholarly discourse, with a strong dominance of topics related to regulation, transparency, and accountability. This finding underscores that contemporary literature increasingly emphasizes the importance of robust governance frameworks to ensure the ethical, responsible, and public oriented development of artificial intelligence.

DISCUSSION

Studies on Artificial Intelligence (AI) Governance have attracted increasing attention in recent years from a wide range of academic disciplines, including public policy, computer science, ethics, law, economics, management, environmental studies, and the social sciences and humanities. The diversity of disciplines involved indicates that AI governance cannot be examined solely from a technological perspective; rather, it requires multidisciplinary approaches to address issues such as system accountability, fairness, transparency, and sustainability (Radanliev et al., 2026). Bibliometric analysis using CiteSpace and VOSviewer reveals that AI governance research during the period 2018-2025 is structured around five major thematic clusters: (1) *AI policy and regulation*, (2) *digital governance and public*

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administration, (3) *algorithmic transparency and trust*, (4) *AI adoption and industry transformation*, and (5) *ethics and accountability*. Although each cluster reflects a distinct research orientation, all are interconnected through a shared emphasis on responsible technology governance.

The first cluster, AI policy and regulation**,** primarily focuses on how governments and international institutions design policy frameworks to regulate the ethical and safe use of AI. AI policies are expected to balance the promotion of innovation with the protection of society, while remaining responsive to emerging challenges arising from automation and algorithm-based decision-making (Fang et al., 2026; Kapsalis et al., 2024). These findings align with earlier studies on technology governance and digital policy, which emphasize the importance of flexible regulatory frameworks capable of adapting to rapid technological change (Bruneault & Laflamme, 2021; Cath, 2018). This cluster also highlights that developed countries tend to lead in establishing ethical standards and regulatory frameworks for AI, whereas developing countries remain largely in the stages of adoption and global policy harmonization.

The second cluster, digital governance and public administration, illustrates the growing use of AI in bureaucratic systems and public service delivery across many countries. While AI technologies have the potential to enhance administrative efficiency, they also introduce new challenges related to privacy, transparency, and oversight (Nzembayie & Urbano, 2026). These findings reinforce earlier literature suggesting that the digitalization of government requires stronger mechanisms of control and accountability. Consequently, this cluster underscores the importance of collaboration among governments, the private sector, and civil society in establishing inclusive and transparent AI governance frameworks.

The third cluster, algorithmic transparency and trust, centers on strategies for building public trust in AI systems. Trust is widely regarded as a cornerstone of effective AI governance and can be fostered through transparent system design, independent audits, and algorithmic explainability (Radanliev et al., 2026). This perspective highlights that for AI technologies to gain social acceptance, humans must be able to understand how algorithms function. Such understanding forms a critical foundation for trust and the broader adoption of AI systems (Dagdag, 2021; Mahendra et al., 2025). At the global level, algorithmic transparency is therefore essential to ensure that AI is used to support rather than replace human decision making processes.

The fourth cluster, AI adoption and industry transformation, examines how AI reshapes industrial practices, business models, and labor dynamics. Although AI can significantly enhance efficiency and productivity, it also gives rise to the so-called *AI paradox*, whereby productivity gains are accompanied by increased energy consumption and the emergence of new forms of social inequality (Fang et al., 2026; Vivoda et al., 2026). This cluster expands the meaning of AI governance by emphasizing that AI adoption should not only generate economic benefits but also remain environmentally sustainable and socially inclusive (Kist, 2024). As such, it strengthens the connection between AI governance and the Sustainable Development Goals (SDGs)**,** which have become a key reference point in global technology policy.

The fifth cluster, ethics and accountability, highlights ethical challenges in AI development and deployment, including algorithmic bias, data inequality, and the moral responsibility of AI developers and institutions (Chkarka & Fatmi, 2026). Research within this cluster emphasizes that AI governance must be grounded in moral values and social justice, advocating approaches such as *agentic risk signaling* to enhance transparency and accountability in complex AI systems (Radanliev, 2024). These findings are consistent with prior research stressing the necessity of clear ethical frameworks and responsible innovation in AI development (Liebig et al., 2024). Accordingly, the ethics and accountability cluster plays a crucial role in shaping global norms that align AI development with broader human interests.

Overall, the findings of this study demonstrate that AI governance research is increasingly moving toward a more multidisciplinary and integrative direction, combining policy, ethical, social, and environmental dimensions within a comprehensive governance framework. Previous studies have noted that AI governance extends beyond regulation alone to include the development of responsible innovation ecosystems (Cath, 2018). In this regard, the present study contributes to strengthening the conceptual and empirical foundations for understanding future global policy directions in the field of Artificial Intelligence Governance**.**

CONCLUSION

Studies on Artificial Intelligence (AI) Governance demonstrate that this field has become a major area of scholarly attention across a wide range of disciplines, including public policy, computer science, law, ethics, economics, management, environmental studies, and the social sciences and humanities. This disciplinary diversity indicates that AI governance is not merely a technological issue, but a multidimensional phenomenon that requires cross-disciplinary approaches. Based on the results of a Systematic Literature Review (SLR) of 688 Scopus indexed articles published during the period 2019-2025, five major thematic clusters were identified: *AI policy and regulation*, *digital governance and public administration*, *algorithmic transparency and trust*, *AI adoption and industry transformation*, and *ethics and accountability*. Among these, the *policy and regulation* cluster emerged as the most dominant theme, underscoring that policy related issues and regulatory frameworks are at the center of global efforts to manage both the risks and opportunities associated with AI. Meanwhile, the ethics and transparency clusters highlight the importance of public

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trust, accountability, and fairness in the deployment of algorithm based technologies. Overall, these findings address the primary research question by showing that the global development of AI governance research is moving toward more inclusive, ethical, and public oriented technology governance, characterized by strong interconnections among policy, ethics, and digital transformation as the foundation of responsible AI governance.

This study makes both conceptual and methodological contributions to the advancement of AI governance research, particularly by integrating policy, ethics, and regulatory dimensions into a single comprehensive analytical framework. Through a Systematic Literature Review (SLR) approach supported by bibliometric analysis using VOSviewer, the study successfully maps research trends, thematic structures, and the evolving direction of global AI governance scholarship from 2019 to 2025. From a practical perspective, the findings provide valuable insights for policymakers, researchers, and technology developers in designing AI governance strategies that are more ethical, transparent, and aligned with the public interest. Nevertheless, this study is limited by its reliance on a single database Scopus which may not fully capture the breadth of global AI governance literature. Future research is therefore encouraged to expand data sources by incorporating databases such as Web of Science and EBSCO, as well as to conduct comparative analyses across regions or industry sectors. Through such efforts, future studies on AI governance are expected to generate deeper and more applicable insights into the ethical, policy, and sustainability challenges associated with the deployment of artificial intelligence across diverse social and institutional contexts.

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