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## BEYOND AUDIT AUTOMATION: MAPPING THE EMERGING LANDSCAPE OF ARTIFICIAL INTELLIGENCE RESEARCH IN AUDITING

Sangita Jeyaram<sup>1,2\*</sup>, Dewi Fariha Abdullah<sup>2</sup>, Renugala M. Shollunayagam<sup>3</sup>, Joann Lim<sup>4</sup>,  
Shaffika Mohd Suhaimi<sup>5</sup>

<sup>1</sup>Department of Accounting and Finance, Faculty of Business and Management, Southern University College, 81300 Skudai, Johor, Malaysia

✉ [sangita@sc.edu.my](mailto:sangita@sc.edu.my)

iD <https://orcid.org/0009-0009-3977-5528>

<sup>2</sup>Department of Accounting and Finance, Faculty of Management, Universiti Teknologi Malaysia, 81310 Skudai, Johor, Malaysia

✉ [dewifariha@utm.edu.my](mailto:dewifariha@utm.edu.my)

iD <https://orcid.org/0000-0002-7799-6972>

<sup>3</sup>Department of Marketing, Faculty of Business and Management, Southern University College, 81300 Skudai, Johor, Malaysia

✉ [renugala@sc.edu.my](mailto:renugala@sc.edu.my)

iD <https://orcid.org/0009-0006-5761-8137>

<sup>4</sup>Department of Marketing, Faculty of Business and Management, Southern University College, 81300 Skudai, Johor, Malaysia

✉ [joannlim@sc.edu.my](mailto:joannlim@sc.edu.my)

iD <https://orcid.org/0000-0002-6556-1314>

<sup>5</sup>Department of Computer Science, Faculty of Engineering & Information Technology, Southern University College, 81300 Skudai, Johor, Malaysia

✉ [shaffika@sc.edu.my](mailto:shaffika@sc.edu.my)

iD <https://orcid.org/0009-0001-5176-3855>

\*Corresponding Author

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### Abstract:

Artificial intelligence (AI) is swiftly reshaping the auditing profession by strengthening audit efficiency, elevating the ability to detect fraud, and supporting more data-driven decision-making processes. Although there is growing scholarly interest in AI applications within auditing, the existing literature remains fragmented across multiple disciplines, resulting in a limited understanding of thematic evolution, intellectual structure, as well as the patterns of international research collaboration within the field. Accordingly, this study seeks to deliver an extensive bibliometric examination of AI scholarship within auditing published between 2006 and 2025. Using a PRISMA-informed screening approach, bibliographic records were extracted from the Scopus database via a sophisticated search strategy incorporating keywords

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associated with artificial intelligence and auditing. After applying systematic inclusion and exclusion criteria, a final corpus comprising 597 journal articles was selected for analytical purposes. The study employed Scopus Analyzer, OpenRefine, and VOSviewer software to examine publication trends, citation structures, co-authorship networks, as well as patterns of keyword co-occurrence. The results indicate a pronounced exponential upsurge in research on AI auditing, particularly after 2020, reflecting the increasing adoption of digital technologies within audit practices. The United States stood out as the leading contributor in publication volume, citation influence, and the robustness of international collaborative networks, with the United Kingdom and China ranking subsequently in that order. Keyword co-occurrence analysis further demonstrated that the field has evolved beyond technical automation themes toward broader discussions involving governance, explainability, ethical accountability, generative AI, and human-AI collaboration. Highly cited studies also indicate a strong interdisciplinary orientation integrating accounting, information systems, governance, and business ethics perspectives. Overall, this study delivers a structured and comprehensive examination of the intellectual evolution and developing research trajectories of artificial intelligence within the auditing field, yielding meaningful insights for scholars, practitioners, regulators, and policymakers aiming to facilitate the responsible and efficient incorporation of AI into auditing contexts.

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**Keywords:**

Artificial Intelligence, Auditing, Bibliometric Analysis, Machine Learning



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**Introduction**

Artificial intelligence (AI) is swiftly transforming the auditing profession from a traditionally judgment-intensive and sample-based function into a data-driven, intelligent, and continuously monitored assurance environment. The emergence of machine learning, robotic process automation, generative AI, as well as large language models, has substantially strengthened auditors' capacity to handle extensive volumes of both structured and unstructured information at greater speed, with greater predictive capability, and with greater analytical precision. However, this transformation presents a critical paradox. While AI technologies promise substantial improvements in audit quality, fraud detection, operational efficiency, and continuous assurance, they simultaneously generate growing concerns regarding transparency, explainability, accountability, algorithmic bias, and the diminishing role of professional judgement (Arsyad et al., 2025; Bedué & Fritzsche, 2022; Zahmatkesh & Rezazadeh, 2017). This tension has become increasingly pronounced following the post-pandemic acceleration of digital auditing practices, during which organisations rapidly adopted AI-enabled audit tools

without corresponding advances in governance structures, ethical safeguards, or regulatory standards. Consequently, AI in auditing has evolved beyond a purely technological innovation into a strategic governance issue with profound implications for audit reliability, stakeholder trust, and the continued legitimacy of the auditing profession.

The growing strategic importance of AI is reflected in the rapid expansion of scholarly interest in AI auditing research. Although research activity remained limited during the early years of development, publication output increased substantially after 2021, indicating heightened academic and professional recognition of AI's disruptive influence on auditing processes and decision-making. Existing studies have examined a broad range of themes, including intelligent fraud detection (Hajek & Henriques, 2017), audit automation and digital transformation (Kokina & Davenport, 2017), algorithmic governance (Gorwa et al., 2020), human–AI collaboration (Grønsund & Aanestad, 2020), ethical accountability (Munoko et al., 2020) and blockchain-integrated auditing systems (Han et al., 2023). Despite this rapid growth, the literature is still dispersed across several academic domains, such as information systems, accounting, governance, computer science, as well as business ethics. Consequently, there remains an incomplete understanding of how the intellectual architecture of AI auditing studies has evolved, which countries and authors exert the greatest scholarly influence, how collaboration networks form, and which thematic developments are shaping the field's future direction. The absence of a consolidated intellectual map creates challenges for scholars and practitioners attempting to identify dominant research streams, emerging knowledge gaps, and future research priorities within this rapidly evolving domain.

Against this backdrop, the present study aims to methodically chart and assess the progression of AI within auditing scholarship through a comprehensive bibliometric analysis spanning 2006–2025. Specifically, the study seeks to achieve four research objectives (ROs): (RO1) to examine the publication growth trajectory of AI auditing research; (RO2) to identify the most influential authors and their intellectual contributions; (RO3) to analyse the thematic structure and keyword co-occurrence patterns within the field; and (RO4) to investigate the global collaboration structure through country-level co-authorship analysis. Aligned with these objectives, this study considers the following research questions (RQs):

1. How has the volume and growth trajectory of research on artificial intelligence in auditing evolved over the period 2006–2025?
2. Who are the most highly cited authors in artificial intelligence (AI) auditing research, and what are their primary thematic and disciplinary contributions?
3. What are the most frequently occurring keywords in AI auditing research, and how do their co-occurrence patterns reveal the intellectual structure and emerging thematic developments of the field?
4. Which countries are the most influential in AI auditing research in terms of publication output, citation impact, and co-authorship link strength, and how does this reflect the global collaboration structure?

To address these questions, this study employs bibliometric analysis using Scopus-indexed publications and VOSviewer to conduct a systematic investigation of the developmental trajectory of AI in auditing research. Bibliometric methods are suitable for rapidly growing multidisciplinary fields because they enable objective analysis of publication trends, citation impact, collaboration networks, and thematic development (Anica-Popa et al., 2024). The study contributes by offering an extensive twenty-year survey of research in AI auditing, emphasizing

the transition toward governance, ethics, and responsible AI, and uncovering global collaboration structures and emerging research frontiers. The paper is organised into sections covering the literature review, methodology, results, discussion, as well as conclusion.

## Literature Review

Artificial intelligence (AI) is reshaping auditing by automating routine tasks, analysing vast data sets, and enhancing fraud detection and risk assessment. Across recent studies, AI is portrayed as both a powerful enabler of higher audit quality and a source of new ethical, regulatory, and skill-related challenges (Kokina et al., 2025; Suyono et al., 2025). Research consistently indicates that AI-powered tools support automated data analysis, predictive analytics, and continuous monitoring, enabling full-population testing rather than sampling and enabling more focused work on high-risk areas (Ganapathy, 2023). Large firms already widely use “simple AI,” including techniques such as key information extraction and optical character recognition, whereas more sophisticated “complex AI” frameworks are still under active development and refinement (Ganapathy, 2023; Hasan, 2022). Applications span anomaly and fraud detection, revenue and risk analysis, and forensic accounting (Seethamraju & Hecimovic, 2023). Systematic reviews report rapid growth of such tools over the last decade in both internal and financial audits (Almufadda & Almezeini, 2021; Li & Goel, 2025b).

Evidence links AI investment to improved audit outcomes. One large empirical study finds that higher AI intensity in audit firms is associated with fewer restatements, lower fees, and gradual displacement of some human audit labour, with effects strengthening over time (Falco et al., 2021; Kassar & Jizi, 2025). Survey and field studies in different countries also report higher efficiency, accuracy, and stronger governance when AI is integrated into audit workflows, alongside better client communication and task management (Altundağ, 2024). Reviews of AI and audit quality similarly highlight enhanced real-time data analysis, fraud detection, as well as risk assessment, while stressing that optimal results require combining AI with human professional judgment (Antwi et al., 2024; Fedyk et al., 2022).

Despite these benefits, the literature emphasises substantial challenges around transparency, explainability, and algorithmic bias, raising concerns about overreliance on opaque “black box” systems and fairness in decision-making (Munoko et al., 2020; Özbaltan, 2024). Data privacy, security, and compliance with auditing standards and emerging AI regulations are recurring issues, particularly when handling large, sensitive datasets (Falco et al., 2021; Hasan, 2022). Studies also highlight gaps in auditor competency and readiness: successful AI use demands new skills in data analytics, model evaluation, and digital ethics, and may alter hiring practices and the role of auditors from traditional checkers to analytical consultants (Ivakhnenkov, 2023; Suyono et al., 2025). At the same time, AI will itself become an audit subject, requiring frameworks for AI auditability alongside auditor competencies to assess AI systems’ fairness, robustness, and legal adherence (Falco et al., 2021; Li & Goel, 2025a). Overall, the literature presents AI in auditing as a double-edged transformation: it significantly improves efficiency, coverage, and fraud detection, and can enhance audit quality and public trust, but only if paired with robust governance, explainable models, training, and coordinated efforts among firms, regulators, and professional bodies to manage ethical, regulatory, and workforce implications (Kokina et al., 2025; Suyono et al., 2025).

## Methodology

Bibliometric analysis refers to the systematic process of retrieving, organizing, and examining bibliographic information derived from scholarly publications (Alves et al., 2021; Assyakur & Rosa, 2022; Verbeek et al., 2002). In addition to standard descriptive indicators such as publication outlets, chronological patterns of research output, and prominent authorship contributions (Wu & Wu, 2017), bibliometric methodologies also incorporate more advanced analytical procedures, including co-citation analysis of documents, in order to reveal the underlying intellectual architecture of a given discipline. Conducting a rigorous literature review necessitates an iterative and methodologically sound framework that involves the careful development of search keywords, comprehensive interrogation of relevant databases, and an integrative synthesis of the collected findings. This systematic approach supports the formation of a dependable bibliographic dataset while simultaneously strengthening the credibility and robustness of the derived interpretations (Fahimnia et al., 2015).

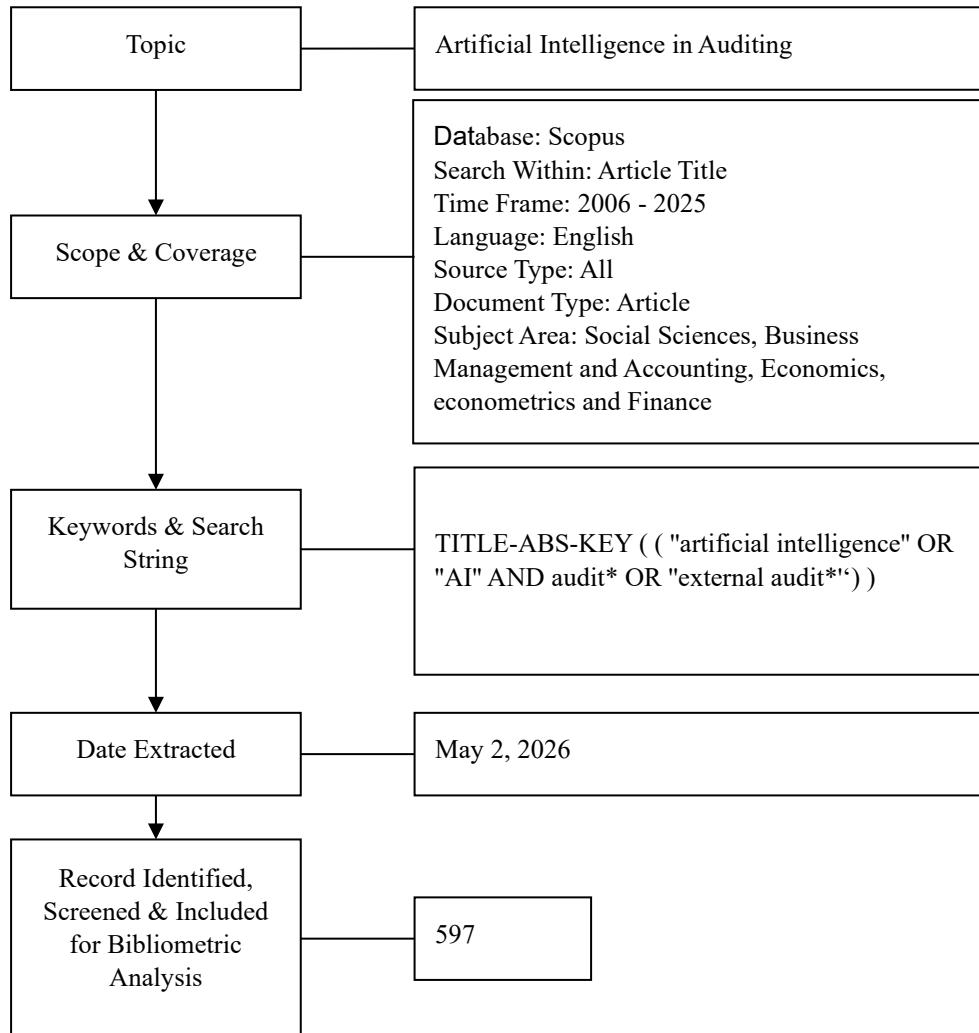
This study prioritized publications with high scholarly impact, recognizing their fundamental contribution to the development of the field's theoretical foundations. To uphold accuracy and ensure consistency of the collected data, the Scopus database was selected as the principal retrieval source (Al-Khoury et al., 2022; di Stefano et al., 2010; Khiste & Paithankar, 2017). In alignment with strict academic standards, the dataset was confined exclusively to peer-reviewed journal articles, while books and lecture notes were intentionally omitted from consideration (Gu et al., 2019). Leveraging the comprehensive scope of Elsevier's Scopus database, relevant literature published between 2006 and December 2025 was systematically identified and compiled for further analysis.

### *Data Searching Strategy*

Figure 1 presents the systematic search and screening framework implemented to identify pertinent scholarly works on artificial intelligence (AI) within the auditing domain using the Scopus database. The investigation followed a PRISMA-guided screening methodology to uphold transparency, methodological robustness, and reproducibility throughout the process of locating and selecting relevant literature. The database search was executed across the title, abstract, and keyword sections, employing a combination of AI-centric and audit-focused terminology such as "AI," "artificial intelligence," "audit\*" as well as "external audit\*". To maintain topical relevance and analytical consistency, the search was confined to journal articles published in English between 2006 and 2025. Furthermore, discipline-specific filters were imposed to limit the dataset to studies situated within Social Sciences, Business, Management and Accounting, as well as Economics, Econometrics and Finance. The data extraction process was completed on May 2, 2026, resulting in an initial dataset of 597 records for bibliometric analysis.

Following data retrieval, a systematic inclusion–exclusion screening process adapted from the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework was implemented to strengthen methodological rigor and ensure consistency across the dataset. Only studies that fulfilled all predefined criteria, namely journal articles written in English, published within the designated temporal range, and relevant to the specified subject domains, were retained for analysis. Consequently, publications outside the relevant disciplines, non-article publication formats like book chapters, conference papers, as well as reviews, and studies published prior to 2006 were excluded from the final dataset. This multi-stage filtering

procedure ensured the conceptual relevance, comparability, and quality of the bibliometric corpus, thereby strengthening the validity and robustness of the subsequent analyses conducted using VOSviewer and Scopus analytical tools.



**Figure 1: Prisma Flow Chart**

### ***Data Analysis***

VOSviewer is a broadly utilised, user-centred instrument for bibliometric investigation, created by Nees Jan van Eck and Ludo Waltman at Leiden University in the Netherlands (van Eck & Waltman, 2010, 2017). It is purpose-built to facilitate both the visual representation and quantitative examination of scholarly literature, providing sophisticated capabilities for the development of network maps, the grouping of related entities through clustering procedures, and the production of density-based visual representations. The software supports the analysis of multiple forms of bibliometric linkages, encompassing co-authorship structures, co-citation patterns, and keyword co-occurrence relationships, thereby enabling a layered and multidimensional inspection of academic knowledge domains. Its interactive environment, combined with ongoing methodological refinements and technical enhancements, permits the streamlined management and responsive exploration of extensive bibliometric datasets. In

addition, its ability to calculate bibliometric indicators, tailor visual outputs, and incorporate diverse data sources further strengthens its role as a robust and methodical tool within scholarly research.

A principal strength of VOSviewer lies in its capability to convert complex bibliometric configurations into clear and readily interpretable visual forms. The software is especially effective in analyses grounded in networks, particularly in the clustering of related items, the identification of patterns in keyword co-occurrence, and the construction of density maps. Its accessible interface accommodates both novice as well as experienced researchers in systematically identifying research trends and intellectual structures. Ongoing development ensures that the platform remains methodologically robust and adaptable across a wide range of bibliometric data structures, encompassing both authorship patterns and citation network systems.

In this investigation, bibliographic records comprising publication year, article titles, author identities, journal sources, citation frequencies, and keyword terms were retrieved in PlainText format from the Scopus database, covering the publication range from 2006 through December 2025. The resulting dataset was then processed and examined using VOSviewer version 1.6.20. Through the application of VOS mapping and clustering methodologies, bibliometric networks were generated and subsequently analysed. In contrast to conventional Multidimensional Scaling (MDS) techniques, VOSviewer locates items within a reduced-dimensional space such that the spatial separation between elements faithfully represents their level of relatedness (van Eck & Waltman, 2010). Although it shares conceptual foundations with MDS approaches (Appio et al., 2014), the VOS methodology integrates specialised normalisation procedures tailored for co-occurrence datasets, particularly the association strength measure ( $AS_{ij}$ ), defined as follows (Van Eck & Waltman, 2007);

$$AS_{ij} = \frac{C_{ij}}{w_i w_j}$$

which is defined as “the proportion of the empirically observed co-occurrence frequency between items  $i$  and  $j$  relative to the expected co-occurrence frequency, assuming statistical independence between  $i$  and  $j$ ” (Van Eck & Waltman, 2007).

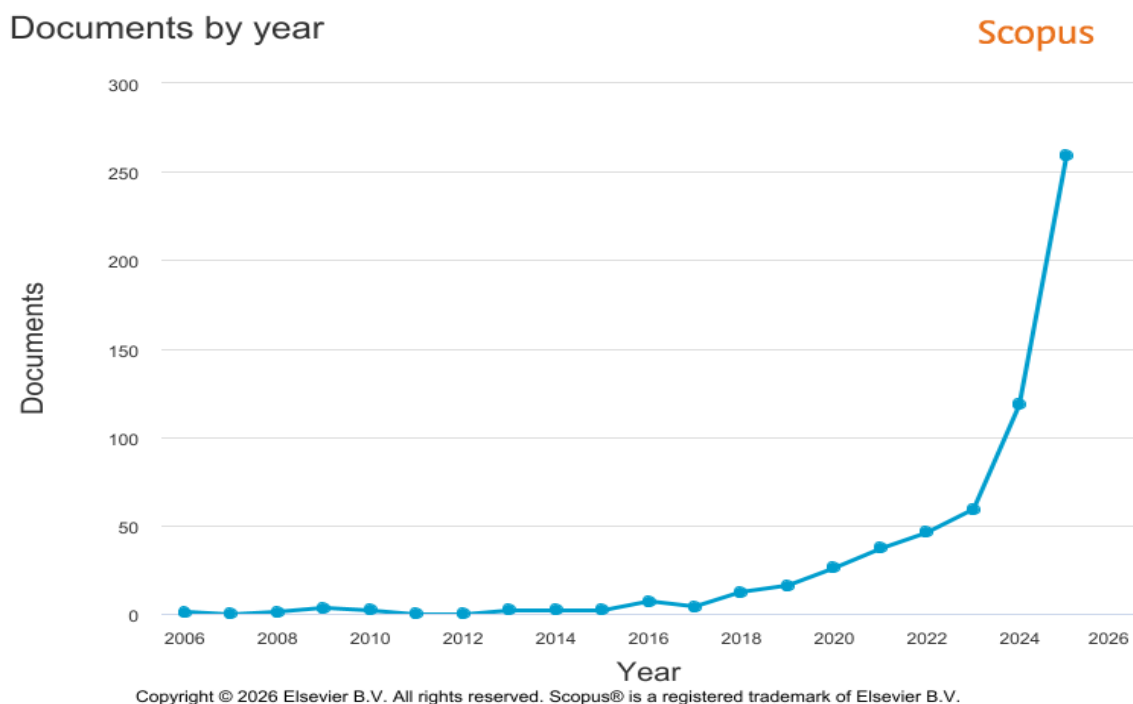
## Result and Discussion

### ***RQ1: How Has The Volume And Growth Trajectory Of Research On Artificial Intelligence In Auditing Evolved Over The Period 2006–2025?***

Figure 2 and Table 1 illustrate that scholarly work on AI within the field of auditing has followed a highly uneven yet exponential growth trajectory between 2006 and 2025. The early period (2006–2017) reflects a fragmented and exploratory research stage, with publication output remaining consistently low. This pattern suggests that AI adoption in auditing was initially constrained by limited technological maturity, insufficient data infrastructure, and uncertainty about the practical applicability of AI in assurance processes. During this period, auditing practices remained heavily dependent on conventional sampling techniques and rule-based procedures, while AI technologies, including machine learning as well as natural language processing, were still emerging within accounting research. The low publication

volume, therefore, indicates that AI in auditing had not yet achieved conceptual legitimacy as a mainstream research domain. Nevertheless, the modest increase observed from 2018 onwards reflects growing awareness among researchers and practitioners of the transformative capabilities of digital technologies in enhancing audit analytics as well as informing decision-making processes. This trend aligns with the increasing discussion on technological disruption and audit transformation highlighted by Kokina et al. (2025)

A significant inflection point becomes evident after 2021, with publication growth accelerating sharply and culminating in 2025, which alone contributed 43.38% of total publications. This dramatic surge reflects a paradigm shift from exploratory discourse toward implementation-oriented and governance-focused AI research in auditing. Several structural factors explain this expansion. First, rapid advancements in generative AI, deep learning, and automation technologies significantly enhanced the feasibility of AI-assisted auditing, particularly in fraud detection, anomaly identification, predictive analytics, and continuous auditing systems. Second, regulatory expectations for improved audit quality, transparency, and real-time assurance increased pressure on audit firms to integrate advanced technologies into practice. Third, post-pandemic digitalisation accelerated remote auditing and technology-enabled assurance processes. Recent studies further reinforce this transition, emphasising both the advantages and the complexities that accompany the incorporation of AI within auditing contexts (Kokina et al., 2025; Koreff et al., 2023; Tanbour et al., 2025). Taken together, these studies suggest that the use of AI in auditing has developed into a strategically important and rapidly expanding research field.



**Figure 2: Growth Trajectory Of Research On Artificial Intelligence In Auditing (2006–2025)**

**Table 1: Annual Publication Trends in Artificial Intelligence in Auditing (2006–2025)**

Year	Number of publications	Percentage (%)
2025	259	43.38
2024	118	19.77
2023	59	9.88
2022	46	7.71
2021	37	6.20
2020	26	4.36
2019	16	2.68
2018	12	2.01
2017	4	0.67
2016	7	1.17
2015	2	0.34
2014	2	0.34
2013	2	0.34
2010	2	0.34
2009	3	0.50
2008	1	0.17
2006	1	0.17

***RQ2: Who Are The Most Highly Cited Authors In Artificial Intelligence (AI) Auditing Research, And What Are Their Primary Thematic And Disciplinary Contributions?***

Table 2 identifies the most highly cited authors as well as publications that have played a central role in forming the intellectual groundwork of research on AI auditing. The citation structure reveals that the field is strongly interdisciplinary, integrating perspectives from accounting, information systems, ethics, governance, and human–computer interaction. Among the most influential contributions, Buçinca et al. (2021) recorded the highest citation count (695), highlighting the growing concern surrounding human overreliance on AI-assisted decision-making. Their work significantly contributes to the behavioural and cognitive dimensions of AI auditing by emphasising the need for human judgement and cognitive intervention in automated environments. Similarly, Gorwa et al. (2020) expanded the discourse beyond technical implementation by examining algorithmic governance, political accountability, and automation risks, indicating that AI auditing research increasingly intersects with broader debates on digital governance and platform regulation. Within the accounting discipline specifically, Kokina & Davenport (2017) remain foundational contributors, as their study conceptualised how automation technologies are reshaping audit processes, audit efficiency, and professional roles. Their work is widely recognised as one of the earliest studies to establish AI as a transformative force in auditing research.

The thematic evolution of highly cited studies also demonstrates a strong shift toward ethical, governance, and technological integration concerns. Munoko et al. (2020) made a substantial contribution by critically examining the ethical dimensions surrounding the integration of AI in auditing, particularly transparency, accountability, bias, and professional responsibility. Likewise, Manita et al. (2020) underscore the broader consequences of digital transformation

for external audit functions as well as corporate governance structures, reinforcing the argument that AI adoption extends beyond operational efficiency toward institutional and regulatory change. More recent influential studies, such as Han et al. (2023), further demonstrate the growing integration of AI with complementary technological frameworks, including blockchain, signalling a movement toward integrated digital assurance ecosystems. Technical contributions by Hajek & Henriques (2017) further advanced AI auditing applications through machine-learning-based fraud-detection models, while Fedyk et al. (2022) empirically evaluated whether AI genuinely improves audit quality and audit processes. Collectively, the citation landscape suggests that AI auditing research has evolved from exploratory technological discussions toward a mature, multidisciplinary domain focused on explainability, ethics, governance, and human–AI collaboration.

**Table 2: Most Cited Author**

No	Authors	Title	Year	Source title	Cited by
1	Buçinca et al. (2021)	To Trust or to Think: Cognitive Forcing Functions Can Reduce Overreliance on AI in AI-assisted Decision-making	2021	Proceedings of the ACM on Human-Computer Interaction	695
2	Gorwa et al. (2020)	Algorithmic content moderation: Technical and political challenges in the automation of platform governance	2020	Big Data and Society	684
3	Kokina & Davenport (2017)	The emergence of artificial intelligence: How automation is changing auditing	2017	Journal of Emerging Technologies in Accounting	419
4	Munoko et al. (2020)	The Ethical Implications of Using Artificial Intelligence in Auditing	2020	Journal of Business Ethics	417
5	Han et al. (2023)	Accounting and auditing with blockchain technology and artificial Intelligence: A literature review	2023	International Journal of Accounting Information Systems	413
6	Manita et al. (2020)	The digital transformation of external audit and its impact on corporate governance	2020	Technological Forecasting and Social Change	354
7	Wang et al. (2018)	Blockchain-Powered Parallel Healthcare Systems Based on the ACP Approach	2018	IEEE Transactions on Computational Social Systems	316

8	Grønsund & Aanestad (2020)	Augmenting the algorithm: Emerging human-in-the-loop work configurations	2020	Journal of Strategic Information Systems	311
9	Hajek & Henriques (2017)	Mining corporate annual reports for intelligent detection of financial statement fraud – A comparative study of machine learning methods	2017	Knowledge-Based Systems	280
10	Fedyk et al. (2022)	Is artificial intelligence improving the audit process?	2022	Review of Accounting Studies	238

***RQ3: What Are The Most Frequently Occurring Keywords In AI Auditing Research, And How Do Their Co-Occurrence Patterns Reveal The Intellectual Structure And Emerging Thematic Developments Of The Field?***

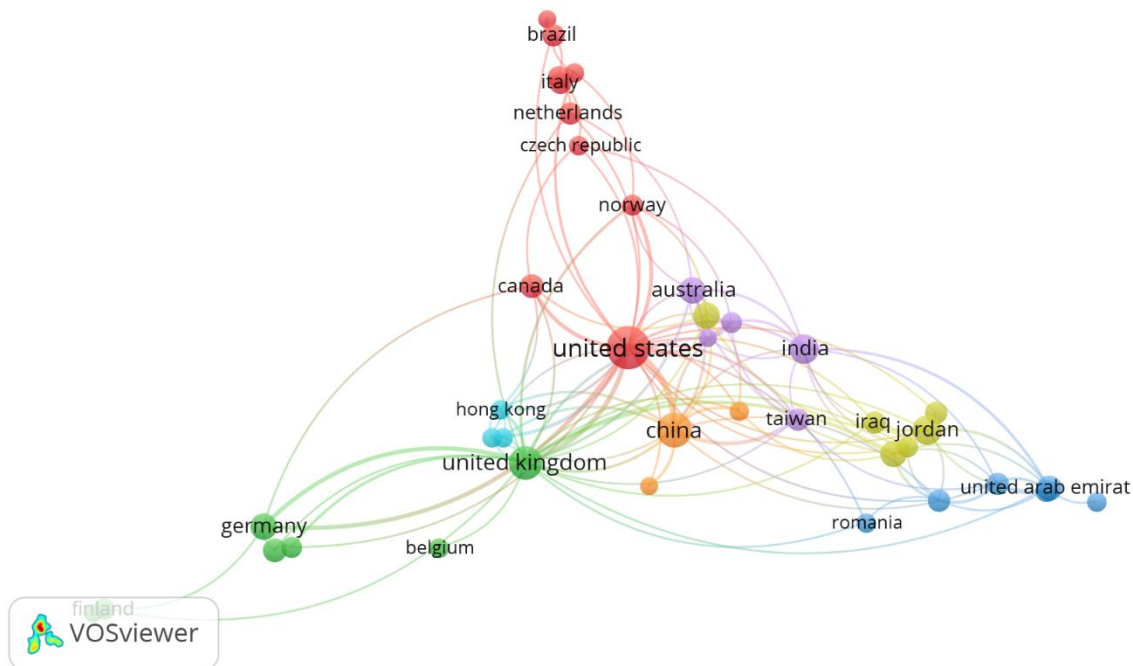
Figure 3 presents a highly centralised and densely connected keyword co-occurrence network, indicating that artificial intelligence (AI) auditing research has developed around a cohesive and technology-driven intellectual structure. The dominant positioning of artificial intelligence at the centre of the network (330 occurrences; Total Link Strength (TLS) = 655), strongly linked with auditing, audit quality, external audit, blockchain, robotic process automation, and neural networks, suggests that AI has become the principal integrating mechanism within modern auditing research. The strong interconnectivity among these keywords indicates that scholars increasingly view AI not as an isolated innovation but as part of a broader digital transformation ecosystem influencing assurance processes, fraud detection, risk assessment, and audit automation. The close clustering between AI, blockchain, cybersecurity, fintech, and Internet of Things further demonstrates that the field is evolving toward integrated intelligent auditing environments capable of supporting continuous auditing and predictive analytics. This pattern supports earlier findings by Kokina & Davenport (2017), who argued that automation technologies are fundamentally reshaping audit practices, while Han et al. (2023) additionally emphasized the growing integration and convergence of AI as well as blockchain technologies within accounting and auditing systems. The prominence of keywords such as financial fraud, regulatory compliance, and audit process additionally reflects growing practical demand for AI-enabled assurance mechanisms that improve efficiency, accuracy, and real-time monitoring capabilities.

At the same time, Figure 3 reveals the emergence of a secondary thematic cluster centred on governance, ethics, and responsible AI deployment, as reflected in keywords such as algorithmic governance, responsible AI, accountability, fairness, bias, AI regulation, and platform regulation. The strong relational links among these terms indicate that the field is moving beyond technological implementation toward concerns regarding transparency, explainability, ethical accountability, and regulatory oversight. This development reflects increasing recognition that AI-assisted auditing systems may introduce risks related to algorithmic bias, unreliable decision-making, and reduced professional judgment if governance mechanisms remain insufficient. The appearance of newer terms such as ChatGPT, multimodality, and indirect AI use further suggests that recent advancements in generative AI and large language models are swiftly reshaping the research landscape. These results align



economies indicates that AI auditing research is increasingly dependent on cross-border interdisciplinary collaboration involving accounting, computer science, and governance research domains. This result is consistent with earlier research that emphasizes the worldwide shift toward digital transformation within auditing, along with the growing incorporation of artificial intelligence-based technologies into assurance practices (Fedyk et al., 2022; Manita et al., 2020). Furthermore, the concentration of influential countries within the network suggests that research leadership is closely associated with access to technological capabilities, high-impact publication platforms, and institutional research capacity.

At the same time, Figure 3 demonstrates the gradual expansion of AI auditing research beyond traditional Western research centres through the increasing participation of emerging economies, including Jordan, India, Iraq, the United Arab Emirates, as well as Malaysia. Although these countries exhibit comparatively lower citation counts and weaker network centrality, their visible co-authorship connections with dominant countries indicate growing integration into the global research ecosystem through collaborative partnerships rather than independent research dominance. The clustering of Middle Eastern and Asian countries around larger knowledge hubs suggests that international collaboration serves as an important mechanism for knowledge transfer, technological diffusion, and research capacity development. Interestingly, nations including Belgium, Finland, as well as the Czech Republic exhibit comparatively modest publication outputs while still maintaining meaningful collaborative linkages, suggesting specialised or niche research contributions. This pattern reflects a core-periphery collaboration structure in which developed economies continue to dominate knowledge production while emerging economies increasingly contribute through strategic partnerships and regional collaboration networks. Similar observations were reported by Grønsund & Aanestad (2020), who emphasised the growing importance of human-technology collaboration structures in digital transformation research, and by Gorwa et al. (2020), who noted that AI governance and regulatory discussions are becoming increasingly internationalised due to the global implications of algorithmic systems. Overall, the network suggests that AI auditing research is evolving toward a more globally interconnected yet asymmetrical collaboration landscape.



**Figure 4: Country-Level Co-Authorship Network**

## Conclusion

This research conducted a systematic investigation into the progression of AI scholarship within the auditing domain by employing a bibliometric examination of publications indexed in Scopus spanning the period from 2006 through 2025. The analysis was conducted to investigate publication growth trends, identify influential authors and intellectual contributions, explore thematic developments through keyword co-occurrence analysis, and evaluate the field's global collaboration structure. The results present an extensive overview of the progression of AI auditing research, illustrating its transformation from a nascent technological subject into a swiftly growing and inherently multidisciplinary field of study.

The findings indicate that studies on AI in auditing have grown substantially, particularly after 2021, indicating increasing academic and professional attention toward AI-driven audit transformation. The sharp rise in publication output reflects the growing adoption of machine learning, automation, blockchain, generative AI, and advanced analytics within auditing environments. The analysis also reveals that the intellectual foundation of the field is strongly interdisciplinary, integrating perspectives from accounting, information systems, governance, ethics, and human-computer interaction. Highly cited studies largely focus on audit automation, fraud detection, algorithmic governance, ethical accountability, and human-AI collaboration, suggesting that the field has gradually shifted from purely technological discussions toward broader governance and regulatory concerns.

Keyword co-occurrence analysis additionally substantiates that research on AI auditing is progressively centred on intelligent audit ecosystems involving continuous auditing, predictive analytics, cybersecurity, blockchain integration, and regulatory compliance. At the same time, emerging themes related to responsible AI, explainability, bias, transparency, and

accountability indicate growing concern regarding the ethical and institutional implications of AI-assisted auditing systems. This development suggests that future research is likely to place greater emphasis on balancing technological innovation with governance and professional judgement. In addition, the country-level collaboration analysis reveals that the United Kingdom, the United States, and China continue to be the leading contributors when measured by citation impact, publication output, as well as international collaboration strength. Nevertheless, emerging economies are gradually becoming more visible within the global research network through collaborative partnerships and cross-border knowledge exchange.

This study adds to the body of existing literature by presenting a unified intellectual mapping of AI auditing research over a twenty-year period. The findings provide a clearer understanding of the major research streams, influential contributors, thematic evolution, as well as patterns of international scholarly collaboration that have influenced and shaped the field. The study also contributes methodologically by demonstrating the usefulness of bibliometric techniques and visualisation tools in examining rapidly growing and multidisciplinary research domains. From a practical perspective, the findings may assist researchers, audit firms, regulators, and professional bodies in identifying emerging research priorities, technological developments, and governance challenges linked to the integration of AI within auditing practice. The increasing prominence of ethical and regulatory considerations further underscores the necessity of designing artificial intelligence systems that are transparent, interpretable, as well as accountable, capable of supporting audit quality and public trust.

Despite these contributions, it is necessary to recognize several limitations. The analysis was conducted solely using the Scopus database and was restricted to English-language journal articles, which may have resulted in the omission of pertinent studies indexed in other databases or disseminated through alternative scholarly formats such as conference proceedings and academic books. Furthermore, bibliometric analysis is largely centered on publication and citation structures, and as such, it may not adequately reflect the contextual richness or the practical implications embedded within individual studies. Future research could broaden this scope by integrating multiple databases, undertaking comparative regional examinations, applying longitudinal thematic modelling, or employing qualitative content analysis, thereby enabling a more profound understanding of the evolving role of artificial intelligence in auditing. Further investigation into generative AI, auditor competencies, regulatory frameworks, and AI governance mechanisms may also strengthen understanding of future challenges and opportunities within the profession.

Overall, the findings indicate that artificial intelligence has become a transformative force within auditing research and practice. The rapid expansion of scholarly output, combined with increasing emphasis on governance, ethics, and interdisciplinary collaboration, suggests that AI auditing research will continue to evolve as a strategically important area within accounting and assurance studies. Bibliometric analysis provides valuable insight into these developments by systematically revealing the emerging trends, intellectual structure, as well as future research directions of the field.

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