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RETHINKING ARTIFICIAL INTELLIGENCE ADOPTION IN INTERNAL AUDITING: A BIBLIOMETRIC-SYSTEMATIC LITERATURE REVIEW RESEARCH AGENDA

Sari Nuzullina Rahmadhani [1] Sambas Ade Kesuma[2*] Iskandar Muda[3]
[1]Doctoral Program in Accounting,Universitas Sumatera Utara, Medan
[2,3]Accounting Study Program, Universitas Sumatera Utara, Medan
E-mail: sarinuzullina@students.usu.ac.id[1], sambas@usu.ac.id[2*], iskandar1@usu.ac.id[3]

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Abstract

Artificial Intelligence (AI) has increasingly transformed auditing practices through automation, advanced analytics, and data-driven decision support. However, existing studies remain fragmented between technology-oriented perspectives and limited understanding of auditor behavioral responses. This study rethinks AI adoption in internal auditing by examining intellectual development, conceptual structures, thematic evolution, and future research directions. Using a bibliometric-systematic literature review (B-SLR) approach based on Scopus-indexed publications, this study applies PRISMA screening and PICo-based eligibility criteria. From 44 identified records, 9 studies were selected for final analysis. Bibliometric mapping and systematic synthesis were used to identify dominant themes, emerging conceptual patterns, and unresolved research gaps. The findings reveal four interconnected evolutionary clusters representing the progression from digital transformation and technology-enabled auditing toward AI-enabled assurance and human-AI collaboration. The study argues that AI adoption in auditing should be understood not merely as technological implementation but as a socio-organizational transformation involving trust, professional skepticism, and professional judgment.

Keywords Artificial Intelligence adoption; Internal auditing; AI-enabled assurance; Auditor behavior

INTRODUCTION

Artificial Intelligence (AI) has emerged as a transformative technology reshaping organizational decision-making, business processes, and professional services. In accounting and auditing, advances in machine learning, big data analytics, intelligent automation, and algorithm-based decision-support systems have accelerated the transition toward technology-enabled audit environments (Betti et al., 2021; Eulerich et al., 2023; Seidenstein et al., 2024). Unlike conventional computerized audit systems, AI-enabled technologies provide predictive modelling, anomaly detection, pattern recognition, and intelligent decision support capabilities that enhance audit efficiency, risk assessment, and assurance processes (Albate, 2025; Bäßler & Eulerich, 2026; Duhova et al., 2026).

However, AI adoption in internal auditing extends beyond technological implementation. Although previous studies demonstrate the operational benefits of AI, limited attention has been given to how auditors interact with AI-generated information in professional decision-making processes. The integration of AI introduces challenges related to auditor trust, reliance on algorithmic recommendations, professional skepticism, and the preservation of professional judgment. Therefore, AI adoption should be understood as both a technological and behavioral transformation involving the interaction between intelligent systems and professional expertise. Recent studies have explored the influence of AI on auditor skepticism and judgment (Puthukulam et al., 2021), factors affecting internal auditors' intention to adopt AI (Gui et al., 2025), and human-AI collaboration in internal auditing environments (Jurczuk et al., 2026). These studies

indicate a conceptual shift from viewing AI as an automation mechanism toward understanding AI as a socio-organizational capability. Despite increasing academic attention, research on AI adoption in internal auditing remains fragmented. Existing studies have examined technological innovation, audit transformation, analytical capability, and organizational digitalization; however, these perspectives have not been integrated into a comprehensive understanding of AI adoption. Several gaps remain, including limited examination of auditor behavioral responses, dominance of survey-based and conceptual approaches, and concentration of evidence within specific organizational and geographical contexts. Furthermore, previous reviews have generally focused on particular digital auditing technologies or AI applications, resulting in limited understanding of AI adoption in internal auditing as an integrated research domain.

Systematic literature reviews provide a structured approach for synthesizing fragmented knowledge, identifying conceptual developments, and developing future research directions in emerging fields (Snyder, 2019). Complementarily, bibliometric analysis enables the mapping of publication trends, citation structures, influential contributions, and conceptual relationships within a research domain (Donthu et al., 2021). Therefore, this study employs a bibliometric-systematic literature review (B-SLR) approach that integrates bibliometric mapping and systematic literature synthesis following PRISMA guidelines (Page et al., 2021). This approach aims to examine the intellectual structure, thematic evolution, and unresolved theoretical, methodological, contextual, and behavioral issues related to AI adoption in internal auditing.

Unlike previous reviews that primarily examine AI applications, audit automation, digital auditing technologies, or specific adoption factors separately, this study reconstructs AI adoption in internal auditing as an evolutionary socio-technical pathway integrating technological, organizational, and professional dimensions. Through bibliometric mapping and systematic synthesis, this study identifies how research in this domain has progressed from technology-enabled auditing capabilities toward AI-enabled assurance, human-AI collaboration, and professional adaptation.

LITERATURE REVIEW

Research on Artificial Intelligence (AI) adoption in auditing has evolved through several thematic trajectories, reflecting a transition from technology-oriented applications toward broader organizational and behavioral transformation. AI adoption has developed through interconnected perspectives involving digital audit transformation, analytical capability, intelligent decision-support systems, and professional adaptation.

The technology-enabled audit transformation trajectory emphasizes how digital technologies improve audit efficiency, information processing, automation, and organizational capabilities. Early studies demonstrated that technological advancement reshaped traditional audit procedures through improved data management, automated processes, and enhanced audit execution (Betti et al., 2021; Eulerich et al., 2023; Seidenstein et al., 2024). However, this perspective primarily focused on technological capability and operational improvement, while auditor interaction and adoption processes received limited attention.

The data-driven auditing and analytical capability trajectory highlights the role of big data analytics, audit analytics, and continuous auditing in transforming audit practices. This trajectory illustrates a shift from retrospective audit approaches toward more proactive and predictive assurance through advanced analytical capabilities (Rakipi et al., 2021; Ramadhan et al., 2023; Wang & Vasarhelyi, 2024). Nevertheless, existing studies have largely emphasized analytical capability and audit outcomes, while organizational and behavioral dimensions of adoption remain insufficiently explored.

The AI-enabled intelligent audit decision-support trajectory represents the advancement of auditing technologies beyond automation. Recent studies position AI as a strategic capability through machine learning, predictive modelling, anomaly detection, and intelligent recommendation systems. AI applications have expanded into predictive risk assessment, internal control monitoring, predictive auditing, and intelligent assurance systems (Albate, 2025; Bäßler & Eulerich, 2026; Duhova et al., 2026; Li, 2026). This trajectory indicates a transition from technology as an operational tool toward a capability influencing audit processes and organizational decision-making. The organizational and behavioral AI

adoption perspective emphasizes that successful implementation depends not only on technological capability but also on auditor trust, acceptance, professional skepticism, judgment, and human-AI collaboration. Recent studies highlight that auditor interaction with AI-generated information influences adoption intention and professional practice (Puthukulam et al., 2021; Gui et al., 2025; Jurczuk et al., 2026). Despite increasing maturity, AI adoption research remains fragmented across technological, analytical, organizational, and behavioral perspectives. Therefore, systematic examination is required to understand the development and interaction of these intellectual trajectories. Bibliometric analysis enables the mapping of publication trends, citation structures, and conceptual relationships within emerging research domains (Donthu et al., 2021). This study integrates bibliometric mapping and systematic synthesis to reconstruct AI adoption in internal auditing as an evolutionary socio-technical pathway.

Table 1.Conceptual Perspectives of Artificial Intelligence Adoption in Internal Auditing Literature

Research Theme / Stream	**Conceptual Focus Identified from Literature**	**Representative Studies Supporting the Research Stream**	**Main Findings and Contribution**	**Remaining Research Gap**
Theme 1: Digital Transformation and Technology-enabled Internal Auditing	Early literature established the foundation of AI adoption through digital transformation in auditing. This stream examines how digital technologies, audit automation, and information systems reshape internal auditing practices by improving efficiency, information management, and assurance capabilities.	Betti et al. (2021); Eulerich et al. (2023); Seidenstein et al. (2024)	Studies demonstrate that digital transformation has shifted internal auditing from procedure-oriented activities toward technology-integrated assurance processes supported by digital capabilities and data-driven practices.	Existing research remains largely focused on technological benefits and capability enhancement, while auditor adoption processes and changes in professional practices remain underexplored.
Theme 2: Audit Analytics, Continuous Auditing, and Data-driven Assuranc	This research stream focuses on the utilization of big data analytics, audit analytics, and continuous auditing approaches to enhance risk identification, monitoring capability, and data-driven assurance activities.	Rakipi et al. (2021); Ramadhan et al. (2023); Wang & Vasarhelyi (2024)	Research highlights a transition from retrospective audit approaches toward more proactive and predictive assurance practices through large-scale data analysis and continuous monitoring.	Limited attention has been given to how auditors evaluate analytical outputs, integrate analytical insights into audit procedures, and maintain professional judgment in data-driven environments.

Theme 3: AI-enabled Internal Audit Capability and Intelligent Assurance	This emerging stream represents the advancement from analytical technologies toward AI-enabled capabilities, including machine learning, predictive modelling, anomaly detection, and intelligent decision-support systems.	Albate (2025); Bäßler & Eulerich (2026); Duhova et al. (2026); Li (2026)	Eulerich (2026); Duhova et al. (2026); Li (2026)Studies indicate that AI expands internal audit capabilities through predictive risk assessment, internal control monitoring, and intelligent assurance processes. AI is increasingly conceptualized as a strategic capability rather than merely an automation mechanism.	Empirical evidence regarding organizational AI implementation, AI effectiveness in internal auditing, and its impact on audit decision quality remains limited.
Theme 4: AI Adoption, Organizational Readiness, and Human-AI Collaboration	Recent literature has shifted attention from technological capability toward AI adoption processes, including organizational readiness, auditor acceptance, trust, and interaction between	Gui et al. (2025); Jurczuk et al. (2026)	al. (2026)Research suggests that successful AI adoption depends on organizational conditions and auditors' ability to understand,	Further research is needed to explain how trust, reliance, acceptance, and human-AI collaboration develop within internal auditing environments.

	professionals and AI-enabled systems.		accept, and integrate AI-generated information into profession al practices	
Theme 5: Auditor Behavior, Decision-Making, an d Professional Judgment in AI Adoption	This stream reflects the movement toward a human-centered perspective of AI adoption, focusing on auditor trust, professional skepticism, decision-making processes, and professional judgment in AI-supported environments.	Puthukulam et al. (2021); Gui et al. (2025); Jurczuk et al. (2026)	Studies indicate that AI functions as an augmentation mechanism that enhances auditor capabilities while maintaining the importance of professional judgment, skepticism, an d accountability.	The relationship between AI recommendations, auditor judgment quality, decision-making effectivenes s, professional skepticism, and audit outcomes remains insufficiently integrated into a comprehensive conceptual framework.

Research Gap and Research Questions

Despite increasing attention to Artificial Intelligence (AI) adoption in internal auditing, existing studies remain fragmented across technological, organizational, and behavioral perspectives. The intellectual foundations, thematic evolution, and relationships among emerging research clusters remain insufficiently understood. Therefore, this study employs a bibliometric-systematic literature review (B-SLR) to reconstruct the development trajectory of AI adoption research by identifying knowledge structures, conceptual transitions, and future research opportunities. This study addresses the following research questions:

RQ1. What are the intellectual structures and knowledge foundations underlying the development of Artificial Intelligence adoption research in internal auditing?

RQ2. How has Artificial Intelligence adoption research in internal auditing evolved in terms of thematic development and conceptual transitions?

RQ3. What major research clusters characterize the development of Artificial Intelligence adoption research in internal auditing?

RQ4. What future research directions emerge from the intellectual and thematic evolution of Artificial Intelligence adoption research in internal auditing?

METHOD

Research Methodology and Study Selection Process

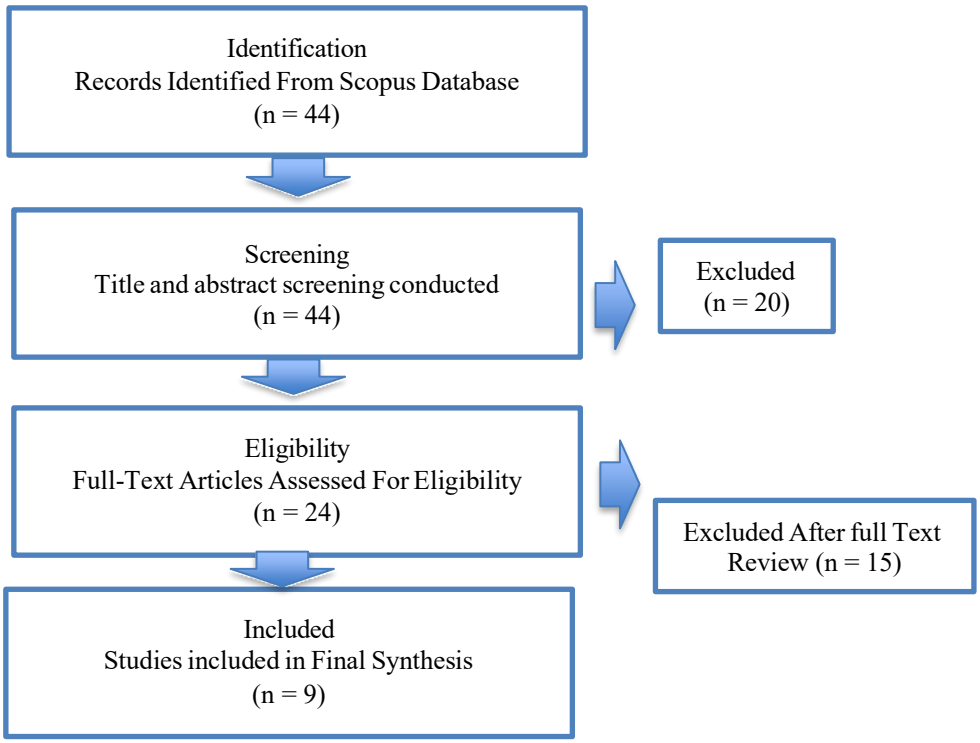
This study employs a bibliometric-systematic literature review (B-SLR) approach to examine the intellectual structure, thematic evolution, and future research directions of AI adoption in internal auditing. Scopus was selected as the primary database, and the review scope was defined using the PICo framework (Booth et al., 2016).

Table 2. Review Scope and Selection Criteria

Item	Description
Database	Scopus
Review approach	Bibliometric-systematic literature review (B-SLR)
Population (P)	Internal auditors and internal audit functions
Interest (I)	Artificial Intelligence adoption, implementation, and integration
Context (Co)	Auditing and assurance environments
Initial identified records	44 Scopus-indexed records
Full-text eligibility assessment	24 studies
Final included studies	9 studies
Screening basis	Title, abstract, and full-text assessment guided by PICo and PRISMA 2020
General inclusion focus	Studies discussing AI adoption, implementation, or integration within internal auditing or related assurance contexts
General exclusion focus	Studies lacking direct auditing relevance or not addressing adoption, implementation, or integration issues

The approach integrates bibliometric mapping (Donthu et al., 2021; Snyder, 2019) and systematic thematic synthesis following PRISMA 2020 guidelines (Page et al., 2021), with thematic analysis informed by Braun and Clarke's principles (Braun & Clarke, 2006). The selection process identified 44 Scopus-indexed records, screened through title, abstract, and full-text assessment, resulting in 9 eligible studies for final analysis. The limited number of studies reflects the emerging nature of AI adoption research within internal auditing.

Figure 1. PRISMA Flow Diagram of Study Selection



INSERT Figure 1. Review protocol used in this study (adapted from Moher et al., 2009)

Bibliometric Analysis and Systematic Thematic Synthesis

The analytical procedures integrated citation analysis, keyword co-occurrence analysis, thematic analysis, cluster interpretation, and systematic thematic synthesis to examine intellectual structures, thematic evolution, research clusters, unresolved issues, and future research directions.

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Table 3. Analytical Procedure and Research Question Alignment

Analysis Procedure	Purpose	RQ Alignment
Citation analysis	Identify intellectual structures, influential publications, and knowledge foundations	RQ1
Keyword co-occurrence and thematic analysis	Identify dominant themes, conceptual relationships, and thematic evolution	RQ2
Research cluster interpretation	Identify interconnected knowledge clusters and evolutionary pathways	RQ3
Systematic thematic synthesis	Identify unresolved issues and future research directions	RQ4

Through these procedures, this study reconstructs the development of AI adoption in internal auditing by examining intellectual foundations, thematic evolution, knowledge clusters, and future research directions. Following bibliometric analysis, systematic thematic coding was conducted to classify emerging themes and interpret selected studies. The coding results were synthesized through an evidence matrix linking individual studies with thematic categories and evolutionary clusters.

Table 4. Evidence Matrix of Included Studies

Author (Year)	Research Focus	Method	Key Contribution	Assigned Cluster
Puthukulam et al. (2021)	Artificial intelligence impact on auditor professional skepticism and judgment	Survey	Examines how AI influences auditor perceptions, professional skepticism, and judgment processes in audit decision-making	Auditor Behavior and Human-AI Collaboration
Rakipi et al. (2021)	Internal audit adoption and use of data analytics in the big data era	Survey	Identifies factors influencing internal audit analytics adoption and transition toward data-driven assurance practices	Audit Analytics and Data-driven Assurance
Eulerich et al. (2023)	Impact of audit technology on audit task outcomes	Empirical study	Demonstrates how technology-enabled audit techniques influence audit outcomes and technology-supported auditing	Digital Transformation and Technology-enabled Internal Auditing
Hu et al. (2023)	Governance mechanisms for artificial intelligence applications in auditing	Decision-making model	Develops an AI governance perspective for responsible AI implementation in auditing	AI-enabled Assurance and Intelligent Decision Support
Almaqtari et al. (2024)	Artificial intelligence adoption determinants in information audit usage	Empirical study	Highlights perceived benefits, organizational readiness, and adoption factors influencing AI integration	Digital Transformation and Technology-enabled Internal Auditing
Seidenstein et al. (2024)	Emerging technologies and innovation in audit and assurance	Survey/study	Explores how disruptive technologies reshape audit processes, assurance capabilities, and professional practices	Digital Transformation and Technology-enabled

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				Internal Auditing
Albate (2025)	Artificial intelligence applications for risk assessment in internal auditing	Conceptual/empirical analysis	Shows the role of AI-based risk assessment and predictive capability in strengthening internal audit functions	AI-enabled Assurance and Intelligent Decision Support
Gui et al. (2025)	Factors influencing internal auditors' intention to adopt AI	Survey	Identifies adoption drivers related to auditor acceptance, perceived usefulness, and readiness toward AI integration	Auditor Behavior and Human-AI Collaboration
Jurczuk et al. (2026)	Human-AI collaboration in internal auditing	Empirical study	Examines interaction between auditors and AI systems, emphasizing collaboration, expertise, and behavioral adaptation	Auditor Behavior and Human-AI Collaboration

Following the selection of nine final studies, systematic thematic coding was conducted to identify recurring concepts, research focus, methodological characteristics, and unresolved issues. The coding process followed thematic analysis principles through three stages: concept identification, theme categorization, and integration into broader research clusters (Braun & Clarke, 2006). The resulting themes were compared with bibliometric patterns, including citation structures and keyword relationships, to reconstruct the evolutionary pathway of AI adoption research in internal auditing. The findings identify emerging intellectual structures, thematic developments, and research clusters based on the reviewed studies.

RESULTS AND DISCUSSION

Analytical Results Bibliometric Analysis of Artificial Intelligence Adoption in Internal Auditing

Publication Performance and Research Development

The publication performance analysis examines the development trajectory of Artificial Intelligence (AI) adoption research in internal auditing based on 44 Scopus-indexed publications. The analysis evaluates annual publication trends and leading publication sources to identify the growth and intellectual development of this emerging research domain (Table 5). The findings indicate that AI adoption in internal auditing has experienced accelerated growth, particularly after 2023, reflecting increasing interdisciplinary interest across digital transformation, audit analytics, information systems, and assurance research.

Tabel 5 Publication Performance and Research Development of AI Adoption in Internal Auditing Research

	Year	**Publication**
Annual Publication Trend	2017	1
	2018	1
	2021	4
	2022	2
	2023	4
	2024	7
	2025	14
	2026	11
Leading Publication Sources	Journal of Emerging Technologies in Accounting	4
	Journal of Information Systems	3
	Journal of Financial Regulation and Compliance	1
	South African Journal of Information Management	1
	Eastern-European Journal of Enterprise Technologies	1

Author productivity analysis indicates that AI adoption research in internal auditing is influenced by a relatively concentrated group of scholars, suggesting that the field remains in an emerging stage where several researchers

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establish foundational knowledge related to digital transformation and AI-enabled auditing. Meanwhile, geographical distribution demonstrates that research contributions are dominated by the United States and Germany, while contributions from other countries indicate increasing global interest in this interdisciplinary research domain.

Table 6. Intellectual and Geographical Contribution in AI Adoption and Internal Auditing Research

Category	**Author**	**Publications**
Leading Authors	Eulerich M.	5
	Bonrath A.	2
	Wagener M.	2
	Rakipi R.	2
	Wood D.A.	2
	Betti N.	2
	Poncin I.	2
Country	**Number of Articles**	**Country**
United States	12	United States
Germany	6	Germany
Indonesia	4	Indonesia
Belgium	3	Belgium
China	2	China
Malaysia	2	Malaysia
United Kingdom	2	United Kingdom
Netherlands	2	Netherlands

The geographical distribution demonstrates that AI adoption in internal auditing has developed as a global research phenomenon. However, the concentration of evidence in specific regions also indicates opportunities for further research across diverse institutional contexts.

Citation and Intellectual Structure Analysis

To address RQ1, this section examines the intellectual structures and knowledge foundations underlying Artificial Intelligence (AI) adoption research in internal auditing through citation analysis. The analysis identifies influential publications, citation relationships, and foundational research contributions that have shaped the emergence and development of this research domain. Citation analysis identifies the intellectual foundations shaping research on AI adoption in internal auditing. The citation structure indicates that AI adoption research did not develop as an isolated technological topic but evolved from interconnected knowledge streams, including big data analytics, digital transformation, audit technology, and professional decision-making. These intellectual foundations illustrate how the field has gradually expanded from technology-oriented perspectives toward broader considerations of assurance capability and auditor adaptation.

Table 7. Most Influential Publications in Artificial Intelligence Adoption and Internal Auditing Research

Rank	Authors	Year	Research Focus	Citation Count
1.	Broeders et al.	2017	Big Data governance and analytical environment	78
2.	Eulerich et al.	2023	Technology impact on audit outcomes	66
3.	Rakipi et al.	2021	Internal audit use of data analytics	53
4.	Hu et al.	2023	AI governance and audit decision support	51
5.	Puthukulam et al.	2021	AI influence on auditor skepticism and judgmen	43

The citation pattern reveals an evolutionary pathway from Big Data and Analytics foundations toward technology-enabled auditing, AI-enabled assurance, and ultimately auditor behavioral adaptation. This progression demonstrates that AI adoption research in internal auditing has developed through interconnected intellectual

streams rather than a single technological trajectory. The findings provide the intellectual foundation for examining thematic evolution and emerging research clusters in the subsequent analyses.

Keyword Co-occurrence and Thematic Evolution

The keyword structure reveals three interconnected dimensions shaping AI adoption research in internal auditing. The first dimension reflects technological capability, represented by artificial intelligence, machine learning, and data analytics. The second dimension concerns audit transformation, where AI adoption is associated with internal audit processes, assurance activities, and risk management. The third dimension represents the emerging socio-organizational dimension, where research attention increasingly considers auditor trust, decision-making, and professional judgment.

Table 8. Most Frequent Keywords in AI Adoption and Internal Auditing Research

Keyword	Frequency	Conceptual Role
Internal audit	18	Primary organizational context
Artificial intelligence	14	Core technological capability
Data analytics	12	Data-driven assurance capability
Machine learning	6	Prediction and automation capability
Risk management	5	Organizational risk application

Overall, the thematic evolution demonstrates that AI adoption research in internal auditing has gradually shifted from technology-centered perspectives toward a socio-technical understanding of AI integration. This transition provides the basis for identifying broader research clusters that connect technological capability, audit transformation, and auditor behavioral adaptation in the following section. These thematic dimensions provide the conceptual basis for identifying broader research clusters in the following section.

Research Cluster Interpretation

To address RQ3, this section integrates citation structures, keyword relationships, and thematic evolution findings to identify the major research clusters shaping AI adoption in internal auditing. Rather than representing independent research streams, these clusters illustrate an evolutionary pathway through which the research domain has progressively developed from technological capability toward socio-organizational transformation. The integration of citation structure, keyword relationships, and thematic evolution reveals that AI adoption research in internal auditing has developed through interconnected knowledge clusters rather than independent research streams. These clusters represent progressive stages of knowledge development, where each stage extends previous technological and conceptual foundations toward a broader understanding of AI adoption as an organizational and professional transformation.

Table 9. Integrated Evolutionary Model of AI Adoption in Internal Auditing

Development Stage	Evolutionary Focus	Evidence from Reviewed Studies	Evolutionary Interpretation
Stage 1	Digital Transformation and Technology-enabled Internal Auditing	Eulerich et al. (2023); Almaqtari et al. (2024); Seidenstein et al. (2024)	Early research positioned AI adoption as an extension of digital transformation, where technology capabilities supported audit process improvement, information management, and technology-enabled assurance.
Stage 2	Audit Analytics and Data-driven Assurance	Rakipi et al. (2021)	Research transitioned toward analytical capability, emphasizing data utilization, audit analytics, continuous auditing, and evidence-based assurance.
Stage 3	AI-enabled Assurance and Intelligent Decision Support	Hu et al. (2023); Albate (2025)	AI adoption expanded toward intelligent assurance through predictive analytics, AI governance, risk assessment, and decision-support mechanisms.

Stage 4	Auditor Behavior and Human-AI Collaboration	Puthukulam et al. (2021); Gui et al. (2025); Jurczuk et al. (2026)	Recent research emphasizes the human dimension of AI adoption, including auditor acceptance, trust, professional judgment, competency, and collaboration with AI systems.

The first cluster represents the technological foundation of AI adoption research. Studies within this stage primarily examine how digital technologies transform internal auditing through automation, information processing improvement, and technolog The Integrated Evolutionary y-enabled audit practices. The second cluster reflects the transition from technology adoption toward analytical capability development. Research attention shifts from digital infrastructure toward the use of data analytics, continuous auditing, and evidence-based assurance mechanisms. The third cluster demonstrates the emergence of AI as a strategic audit capability. AI is no longer viewed only as an automation tool but as an intelligent system capable of supporting prediction, anomaly detection, risk assessment, and audit decision-making. The fourth cluster represents the movement toward a human-centered perspective of AI adoption. Research increasingly recognizes that AI effectiveness depends on auditor trust, professional judgment, skepticism, and the ability to collaborate with intelligent systems.

Overall, the evolutionary model demonstrates that AI adoption in internal auditing has progressed through a cumulative knowledge trajectory. The field has moved from understanding AI as a technological capability toward recognizing AI adoption as a socio-technical transformation involving organizational processes, professional expertise, and human-AI collaboration. This evolutionary perspective extends existing literature by providing an integrated view of how technological, analytical, and behavioral research streams collectively shape the development of AI adoption as an internal auditing research domain.

DISCUSSION

The intellectual structure presented in Table 7 demonstrates that AI adoption research in internal auditing has evolved from technology-oriented perspectives toward assurance enhancement and professional adaptation. Early studies emphasized digital transformation, technology-enabled auditing, and analytical capability as foundations for improving audit processes. Recent research further expands this domain through machine learning, AI-based risk assessment, predictive analytics, continuous auditing, and real-time monitoring capabilities (Duhova et al., 2026; Albate, 2025). The thematic evolution presented in Table 8 indicates a transition toward socio-technical perspectives, where AI adoption is increasingly examined through AI governance, adoption intention, auditor trust, professional judgment, and human-AI interaction (Hu et al., 2023; Gui et al., 2025; Jurczuk et al., 2026). Research Cluster Evolution and the Emergence of Human-AI Collaboration The Integrated Evolutionary Model presented in Table 9 reconstructs the development trajectory of AI adoption research in internal auditing by integrating bibliometric mapping and systematic thematic synthesis. The identified clusters demonstrate a progressive transition from technological capability toward organizational and professional transformation.

The first cluster, Digital Transformation and Technology-enabled Internal Auditing, represents the initial stage of AI adoption research, where technological readiness and digital capability established the foundation for AI-enabled audit practices (Eulerich et al., 2023; Almaqtari et al., 2024; Seidenstein et al., 2024). The second cluster, Audit Analytics and Data-driven Assurance, reflects the transition toward analytical utilization through audit analytics and data-driven approaches that strengthen evidence-based assurance (Rakipi et al., 2021). The third cluster, AI-enabled Assurance and Intelligent Decision Support, demonstrates the integration of AI capabilities into audit decision processes through predictive analytics, AI governance, risk assessment, and intelligent decision-support mechanisms (Hu et al., 2023; Albate, 2025). The fourth cluster, Auditor Behavior and Human-AI Collaboration, represents the latest stage by emphasizing auditor acceptance, trust, competency, professional judgment, and collaboration between auditors and AI systems (Puthukulam et al., 2021; Gui et al., 2025; Jurczuk et al., 2026).

FUTURE RESEARCH AGENDA AND IMPLICATIONS

Future research should further examine AI governance, explainability, transparency, reliability, and data quality management to support responsible AI implementation (Hu et al., 2023; Albate, 2025; Li, 2026). Further studies should explore auditor competency development, professional adaptation, trust, and human-AI decision-making processes, including reliance, professional skepticism, accountability, and judgment quality (Gui et al., 2025; Jurczuk et al., 2026).

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CONCLUSION

This study provides a bibliometric-systematic literature review (B-SLR) of Artificial Intelligence (AI) adoption research in internal auditing by integrating bibliometric mapping and systematic thematic synthesis. Based on Scopus-indexed publications, this study examined intellectual foundations, thematic evolution, and emerging research clusters shaping AI adoption as an evolving research domain. Through PRISMA and PICo-based screening, 44 records were evaluated, resulting in 9 studies selected for final analysis.

The findings demonstrate that AI adoption research in internal auditing has evolved through interconnected technological, analytical, organizational, and behavioral perspectives. The field has progressed from digital transformation, technology-enabled auditing, and audit analytics toward AI-enabled assurance, intelligent decision support, and human-AI collaboration. The identified research clusters further reveal four developmental stages: digital transformation and technology-enabled internal auditing, audit analytics and data-driven assurance, AI-enabled assurance and intelligent decision support, and auditor behavior and human-AI collaboration. This study contributes to the literature by reconstructing AI adoption in internal auditing as an evolutionary socio-technical research domain rather than isolated technological applications. The findings highlight that AI adoption involves the interaction between technological capability, organizational conditions, governance mechanisms, and professional expertise. Therefore, effective AI adoption requires consideration of both technological advancement and auditor-related factors, including professional judgment, skepticism, accountability, and decision-making. By integrating bibliometric mapping and systematic thematic synthesis, this study provides a comprehensive understanding of how AI adoption research has developed and establishes a conceptual foundation for future research on AI-enabled internal auditing.

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