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## **Digital Audit Technologies in Accounting Information Systems: A Systematic Literature Review of Contemporary Trends and Professional Implications**

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### **ABSTRACT**

*Contemporary business environments have experienced unprecedented technological advancement, fundamentally transforming traditional auditing practices within accounting and information systems. Digital transformation introduces sophisticated technologies that challenge conventional audit methodologies, necessitating comprehensive examination of emerging trends and implications. Despite expanding literature on technological integration in auditing, substantial gaps remain in understanding digital audit adoption landscapes, particularly regarding dominant technologies, implementation barriers, and organizational impacts. This investigation explores prevailing trends, identifies predominant technologies, assesses associated benefits and challenges, and examines digital auditing implications within accounting and information systems domains. The research employs systematic literature review methodology, analyzing ten peer-reviewed scholarly articles published between 2020-2025, sourced from Scopus and SINTA databases. Findings reveal that big data analytics, artificial intelligence, blockchain technology, robotic process automation, and cloud computing constitute primary technological foundations of modern digital auditing. These innovations demonstrate substantial contributions toward enhanced audit quality, transformed auditor roles, and strengthened organizational governance structures. However, implementation encounters significant obstacles including adoption disparities among firms, insufficient digital competency among practitioners, and heightened data security concerns. The study recommends developing adaptive strategies for human resource development, comprehensive technology integration frameworks, and sustainable digital audit policy formulation.*

**Keywords:** *Audit Quality Enhancement, Digital Audit Transformation, Technology Adoption*

## INTRODUCTION

Contemporary global digital transformation has fundamentally altered the landscape of auditing and accounting professions, introducing unprecedented changes that reshape traditional practices (Abdullah & Almaqtari, 2024). The digital revolution represents one of the most profound aspects that has comprehensively transformed audit and accounting environments, establishing an era where conventional manual processes are increasingly supported and replaced by sophisticated digital technologies (Abdullah & Almaqtari, 2024; Manita et al., 2020). Digital auditing, encompassing the utilisation of artificial intelligence (AI), big data analytics, blockchain technology, cloud computing, and robotic process automation (RPA), represents a transformational shift in how auditors collect, verify, and interpret financial data (Han et al., 2023).

Several exemplars of digitalisation within audit processes include the emergence of specialised software applications such as ACL Analytics, AuditBoard, and CaseWare IDEA, which function to support repetitive audit tasks including data collection and transaction matching (Krieger et al., 2021). This transformation demonstrates particular relevance within accounting and information systems domains, where accuracy, timeliness, and compliance constitute critically important aspects. According to Nugrahanti et al. (2023), multinational corporations in Jakarta demonstrate relatively high adoption rates regarding technology utilisation in accounting practices. Furthermore, remote audit practices conducted during the COVID-19 pandemic era produced quality equivalent to conventional auditing through current technological assistance (Nugrahanti & Pratiwi, 2023).

Research concerning digital auditing has experienced substantial development over recent years. Previous studies demonstrate that technologies including Artificial Intelligence (AI), Robotic Process Automation (RPA), cloud computing, and Enterprise Resource Planning (ERP) have begun integration within both internal and external audit processes (Vitali & Giuliani, 2024). Research by Ahmad et al. (2023) revealed that audit technology adoption varies across nations, depending upon infrastructure readiness and human resource competency. Meanwhile, Ilmawan and Bawono (2024) highlight significant challenges faced by auditors in adapting conventional approaches toward digital methodologies, including data security risks and digital skill gaps among audit practitioners. Additional studies emphasise the importance of integrated Accounting Information Systems (AIS) as foundations for effective digital audit implementation.

The theoretical foundations underpinning digital audit transformation have evolved considerably, encompassing multiple disciplinary perspectives that collectively inform contemporary understanding of technological adoption within professional audit contexts. Innovation diffusion theory, originally conceptualised by Rogers (2003) provides crucial insights into how digital audit technologies

spread across professional communities, emphasising factors such as relative advantage, compatibility, complexity, trialability, and observability. This theoretical framework particularly illuminates the differential adoption rates observed across various audit firms and geographical regions, suggesting that successful digital transformation requires careful consideration of organisational culture, existing technological infrastructure, and stakeholder readiness.

Institutional theory offers another valuable lens through which to examine digital audit adoption, particularly regarding how regulatory pressures, normative expectations, and mimetic behaviours influence organisational decisions to implement advanced audit technologies (Bertacchini et al., 2025). DiMaggio and Powell (1983) isomorphic pressures framework explains why large multinational audit firms often lead technological adoption, subsequently creating institutional pressures for smaller firms to follow similar paths. This theoretical perspective proves especially relevant when examining cross-national variations in digital audit implementation, as regulatory environments and professional standards significantly influence the pace and nature of technological integration within audit practices.

Resource-based view (RBV) theory provides complementary insights into digital audit transformation by emphasising how organisational capabilities, resources, and competencies determine successful technology implementation outcomes (Guo et al., 2023; Malhotra et al., 2025). Barney's (1991) conceptualisation of valuable, rare, inimitable, and organised resources offers a framework for understanding why certain audit firms achieve competitive advantages through digital transformation while others struggle with implementation challenges. This theoretical foundation particularly illuminates the critical importance of human capital development, technological infrastructure investment, and knowledge management systems in facilitating successful digital audit adoption.

Despite expanding literature regarding digital auditing, significant gaps remain in comprehensive mapping of contemporary research trends, methodological approaches employed, and underlying theories that inform this topic, particularly within the developmental context spanning 2020 to 2025. Additionally, few systematic studies have integrated literature from English and Indonesian languages in a unified manner.

Digital auditing represents an evolution from traditional audit practices through the utilisation of information technology to support processes of data collection, analysis, and audit reporting. According to Boynton and Johnson (2006) auditing constitutes a systematic process for obtaining and evaluating evidence objectively regarding assertions concerning economic activities and events, to determine the level of correspondence between such assertions and established criteria, and communicating results to interested parties. Within internal and external audit contexts, digitalisation expands auditor capabilities in identifying

anomalies, monitoring internal controls, and detecting potential fraud early (Kau & Fitriana, 2025; Mashiko et al., 2025).

The concept of Accounting Information Systems (AIS) serves as an important foundation within digital auditing. Romney and Steinbart (2020) define AIS as systems that collect, record, store, and process financial and accounting data to produce information useful for decision-making. Through automated and integrated AIS systems, auditors can access data in real-time, reduce dependence on physical documents, and conduct big data-based analyses.

Various theoretical approaches have been employed in digital audit studies. Among the most common is the Unified Theory of Acceptance and Use of Technology (UTAUT), which explains factors influencing individuals in adopting technology, including performance expectations, social influence, and facilitating conditions (Prawita & Maulana, 2025). Additionally, the Technology Acceptance Model (TAM) and Agency Theory are utilised to understand how audit practitioners respond to technological changes and how digital systems mitigate information asymmetry risks between management and auditors (Al-Ateeq et al., 2022; Han et al., 2023). The application of these theories proves important not only in adoption contexts but also in analysing organisational impacts and data-driven audit decision-making.

Several empirical studies support the utilisation of these theories. Research by Prawita and Maulana (2025) employed UTAUT to demonstrate that performance expectations and social influence significantly affect audit technology adoption by auditors. Meanwhile, Ilmawan and Bawono (2024) highlight barriers in digital audit adoption, including limitations in auditor digital competency, concerns regarding data security, and organisational resistance to change. Additional research by Oko-Odion and Udoh (2024) found that cloud-based ERP system integration can enhance internal audit quality, yet requires intensive training for auditors to maximally utilise such technology.

Previous studies have highlighted the important role of auditor competency, information system quality, and cloud-ERP integration toward digital audit success. However, challenges including data security, system reliability, and resistance to change remain primary obstacles. Several studies recommend intensive training needs and technology-based audit standard formulation to ensure optimal adaptation. Consequently, digital auditing requires not only technological readiness but also human resource preparedness, reliable information systems, and organisational support. This study will further examine how these theories are employed in digital audit research and how empirical findings support or challenge existing theoretical assumptions.

This systematic literature review (SLR) aims to address these gaps by analysing recent peer-reviewed studies published between 2020 and 2025 in English and Indonesian languages. The objective is to reveal primary trends, dominant research methods, applied theories, and practical implications of digital

auditing. Specifically, this study seeks to determine what digital technologies and tools are most commonly utilised in auditing within accounting and information systems fields, identify the primary benefits and challenges associated with digital audit implementation, and examine how digital auditing influences audit quality, auditor performance, and organisational outcomes. By addressing these research inquiries, this investigation aims to explore trends, dominant technologies, benefits and challenges, and implications of digital auditing within accounting and information systems domains.

## RESEARCH METHODOLOGY

This research adopts a Systematic Literature Review (SLR) methodology to comprehensively identify, assess, and synthesise existing scholarship pertaining to digital auditing applications within accounting and information systems disciplines. The methodological design draws upon established protocols outlined by Kitchenham et al. (2009) and subsequently validated by Snyder (2019), encompassing three sequential phases: initial review planning, systematic review execution, and comprehensive result documentation.

The preliminary planning stage involved articulating precise research objectives and formulating targeted inquiry questions to examine contemporary trends, theoretical underpinnings, methodological frameworks, and associated advantages together with implementation challenges encountered in digital auditing practices across accounting and information systems sectors (Lois et al., 2020). Strategic search parameters were developed incorporating specific terminology such as “Digital Audit,” “Audit Teknologi Informasi,” “Accounting Information System,” “AIS Audit,” and “ERP-based Audit” to ensure exhaustive identification of pertinent scholarly contributions.

The execution phase encompassed rigorous article identification and evaluation processes. Comprehensive literature searches were conducted across multiple reputable academic databases, specifically Scopus, Google Scholar, and SINTA (Science and Technology Index Indonesia), targeting publications released between 2020 and 2025, with language restrictions limited to English and Indonesian scholarly works.

Selection parameters specified peer-reviewed manuscripts published within Scopus-indexed or SINTA classification levels 1-5 that demonstrated explicit focus on digital auditing applications within accounting or information systems contexts and provided complete textual access. Elimination criteria removed editorial commentaries, journalistic pieces, institutional documentation, scholarship unrelated to specified research parameters, and redundant publications. This systematic filtering methodology produced ten qualifying articles satisfying predetermined standards, consisting of seven international publications within Scopus indexing and three domestic articles classified under SINTA indexing.

The documentation and analytical phase incorporated thorough data extraction protocols involving construction of comprehensive matrices documenting essential characteristics of each selected publication. These matrices systematically recorded fundamental components including manuscript titles, publication venues, release dates, authorship, methodological approaches, theoretical constructs utilised, and core discoveries. The extracted information subsequently underwent systematic descriptive and thematic evaluation to methodically respond to established research inquiries. Comprehensive extraction outcomes are thoroughly presented within the subsequent Results and Discussion segment, ensuring methodological transparency and facilitating scholarly evaluation of the systematic review's rigor and dependability.

## RESULT AND DISCUSSION

Table 1 presents the comprehensive compilation of scholarly articles selected for analytical examination. The compilation demonstrates journal indexation patterns whereby seven publications maintain Scopus indexing (Q1-Q3 classifications) alongside three publications indexed within SINTA frameworks.

**Table 1** Selected Literature for Analysis

No.	Author(s)	Research Title	Journal Name	Publication Year	Index	Citations
1	Lugli and Bertacchini (2023)	"Audit Quality and Digitalization: Some Insights from the Italian Context"	Meditari Accountancy Research	2023	Scopus Q1	54
2	Silva et al. (2022)	"Blockchain Implications for Auditing: A Systematic Literature Review and Bibliometric Analysis"	International Journal of Digital Accounting Research	2022	Scopus Q2	18
3	Leocádio et al. (2025)	"Auditors in the Digital Age: A Systematic Literature Review"	Digital Transformation and Society	2025	Scopus Q2	19
4	Azizi et al. (2024)	"The Role of IT Audit in Digital Transformation: Opportunities and Challenges"	Open Access Indonesia Journal of Social Sciences	2024	Scopus Q2	14



No.	Author(s)	Research Title	Journal Name	Publication Year	Index	Citations
5	Nadirsyah et al. (2024)	“Enhancing Fraud Prevention and Internal Control: The Key Role of Internal Audit in Public Sector Governance”	Cogent Business and Management	2024	Scopus Q2	2
6	Ahmad et al. (2023)	“Bibliometric Analysis and Review of Digital Audit Practices in the Public Sector of Different Countries”	IPN Journal of Research and Practice	2023	Scopus Q3	8
7	Abouelela et al. (2025)	“Digital Assets, Auditor IT Experience, and Material Misstatements: Evidence from a Developing Country”	International Journal of Innovative Research and Scientific Studies	2025	Scopus Q3	0
8	Kau and Fitriana (2025)	“The Role and Impact of Artificial Intelligence on Public Sector Audit Transformation”	E-Jurnal Akuntansi	2025	Sinta 3	0
9	Ilmawan and Bawono (2024)	“Challenges and Opportunities of Digital Auditing: A Look Beyond the Year 2020”	Jurnal Magister Akuntansi Trisakti	2024	Sinta 4	2
10	Ersyafdi and Nasution (2024)	“Efek Digitalisasi terhadap Praktik dan Kualitas Audit”	Jurnal Ilmiah Wahana Akuntansi	2024	Sinta 4	0

**Source:** Author’s compilation

The ten scholarly articles examined in this investigation present diverse perspectives regarding research focus, methodological frameworks, and fundamental discoveries within digital auditing scholarship. The majority of publications originate from reputable academic venues and predominantly employ qualitative methodologies through literature studies, interview protocols, and conceptual examinations. Three manuscripts adopt systematic literature review and

bibliometric approaches, exemplified by Lombardi and Secundo (2020) and publications within Digital Transformation and Society. Alternative research approaches, such as the investigation conducted by Lugli and Bertacchini (2023), they utilise semi-structured interview methodologies to explore digitalisation practices within Italian audit contexts, while Azizi et al. (2024) examine information technology audit challenges through comprehensive literature analysis.

Two investigations implement quantitative methodologies, with one applying Structural Equation Modeling (SEM) techniques, while another employs panel data regression analysis to examine relationships between digitalisation variables, auditor experience, and audit outcomes. Generally, these articles address complementary thematic areas including audit quality enhancement, digital transformation processes, blockchain and AI implementation, and evolving auditor competency requirements.

### **Digital Technologies and Tools Predominantly Utilised in Accounting and Information Systems Auditing**

Literature synthesis reveals several principal technologies commonly employed in digital audit implementation within accounting and information systems domains. The most frequently discussed technology encompasses big data analytics, enabling auditors to process substantial data volumes efficiently and comprehensively. Additionally, blockchain technology emerges as a significant topic addressed across multiple articles, particularly regarding its capacity to provide enhanced transparency and data security through distributed ledger systems. Artificial Intelligence (AI) and machine learning (ML) applications support data-driven decision-making processes and facilitate anomaly detection that proves challenging through manual identification methods.

Furthermore, scholarly discourse encompasses Robotic Process Automation (RPA) utilisation for automating administrative and routine audit processes, including data collection, transaction verification, and reporting functions. Concurrently, cloud computing implementation receives recognition as infrastructure supporting flexibility and real-time collaborative access between auditors and clients. These technological applications demonstrate that digital audit practices increasingly depend upon integrated and intelligent information systems to enhance audit effectiveness.

Silva et al. (2022) revealed blockchain's potential in establishing secure, transparent, and immutable audit recording systems. This technology enhances transaction tracking efficiency and strengthens audit trail reliability. Big data and AI constitute equally important elements. Leocádio et al. (2025) explained that AI applications enable automatic transaction pattern analysis, supporting anomaly detection and accelerating audit processes. Kau and Fitriana (2025) supplemented that within public sector contexts, AI has been implemented to support predictive audit analytics. Azizi et al. (2024) asserted that contemporary IT auditing must



orient toward information technologies such as RPA and cloud computing, enabling real-time data-based audit execution.

Moreover, accounting information systems play crucial roles in supporting audit technologies. Nadirsyah et al. (2024) emphasised that internal audit strengthening must be supported by systems capable of providing rapid and valid data access. Ahmad et al. (2023) additionally note that digital platforms utilised across various countries promote comprehensive cross-process audit efficiency.

### **Benefits and Challenges Associated with Digital Audit Implementation**

Digital audit implementation offers numerous significant advantages while simultaneously presenting considerable challenges requiring attention. Among the primary benefits is enhanced efficiency and effectiveness in audit processes, as demonstrated by Lugli and Bertacchini (2023). Digitalisation accelerates audit cycles, reduces administrative burdens, and enables large-scale data processing within abbreviated timeframes. Furthermore, digital auditing expands examination scope and strengthens material error detection capabilities more rapidly.

Nevertheless, digital audit implementation encounters various obstacles. Ilmawan and Bawono (2024) identified resistance toward technological change, particularly within small firm environments or entities lacking adequate infrastructure preparation. Conversely, Aboulela et al. (2025) determined that auditor information technology experience significantly influences reporting error reduction when handling digital assets, demonstrating the critical importance of digital competency as a determining factor.

As noted by Kau and Fitriana (2025), data security and privacy concerns constitute primary apprehensions in audit technology implementation. Several articles additionally highlight that not all organisations possess resources or budgets necessary for adopting sophisticated audit systems (Azizi et al., 2024). Consequently, digital audit implementation requires strategic policies, human resource capacity enhancement, and adequate technological infrastructure preparation.

### **Influence of Digital Auditing on Audit Quality, Auditor Performance, and Organisational Outcomes**

Digital auditing demonstrates substantial impact upon audit quality, auditor performance, and overall organisational performance. Regarding audit quality, digital technologies such as AI and blockchain enable auditors to obtain more accurate and comprehensive audit evidence. Through automatic and thorough data analysis capabilities, auditors can identify potential errors or anomalies within financial reports more promptly and efficiently. Research by Lugli and Bertacchini (2023) demonstrated that large audit firms adopting digital technologies maintain superior consistency and audit quality compared to smaller firms.

From auditor performance perspectives, Leocádio et al. (2025) asserted that digital transformation demands auditors understand not only technical audit aspects but also master data analytics and technological tools. This creates more strategic and proactive auditor roles. Ahmad et al. (2023) confirmed that digitalisation promotes auditor work efficiency and enhances interdepartmental collaboration within audit cycles.

At organisational levels, digital audit implementation strengthens internal controls, increases stakeholder confidence, and produces more accurate financial reporting (Nadirisyah et al., 2024). Digitalisation additionally enables continuous and responsive audit execution toward emerging risks within digital business environments.

The transformation of auditor skill sets necessitated by digital audit adoption extends beyond technical proficiency to encompass data interpretation, technology evaluation, and digital risk assessment capabilities. Contemporary auditors must develop competencies in data visualisation, statistical analysis, and technology controls evaluation while maintaining traditional audit skills such as professional judgment and ethical reasoning (Appelbaum et al., 2021). This skill evolution requires substantial investment in continuing professional education and may influence accounting education curricula to incorporate technology-focused learning objectives alongside traditional audit theory and practice (Qasim & Kharbat, 2020).

Stakeholder expectations regarding audit quality and scope have evolved significantly in response to digital audit capabilities. Investors, regulators, and other financial statement users increasingly expect auditors to leverage advanced technologies for enhanced fraud detection, risk assessment, and audit evidence evaluation. These heightened expectations create both opportunities for audit firms to differentiate their services and pressures to justify audit fees in relation to technological investments and enhanced audit quality deliverables.

The long-term implications of digital audit adoption suggest fundamental changes in audit practice economics, professional competency requirements, and audit service delivery models. As routine audit procedures become increasingly automated, audit professionals may focus more on complex judgment areas, strategic risk assessment, and client advisory services (Onwubuariri et al., 2024). This evolution may ultimately redefine the audit profession's value proposition and competitive positioning within professional services markets.

The synthesis of findings from this systematic literature review reveals substantial convergence with theoretical predictions regarding technology adoption in professional service contexts, while simultaneously highlighting unique characteristics of audit profession digitalisation. The evidence strongly supports innovation diffusion theory's predictions regarding adoption patterns, where larger, resource-rich audit firms demonstrate earlier and more comprehensive technology implementation compared to smaller practitioners. This pattern aligns with Rogers

(2003) framework, particularly regarding the influence of relative advantage, compatibility, and complexity factors in technology adoption decisions. However, the audit context presents unique considerations related to regulatory compliance, professional liability, and client confidentiality that distinguish it from other professional service digitalisation processes.

Institutional theory perspectives receive substantial empirical support through the documented isomorphic pressures driving digital audit adoption across different national contexts. The evidence suggests that regulatory requirements, professional body guidance, and competitive pressures create institutional environments that strongly influence audit firms' technology adoption decisions, consistent with DiMaggio and Powell (1983) theoretical framework. Particularly noteworthy is the observation that international audit networks appear to serve as mechanisms for institutional pressure transmission, facilitating technology diffusion across different national audit markets. This finding extends institutional theory applications by demonstrating how professional service networks can function as institutional pressure conduits in globalised professional markets.

Resource-based view theory finds mixed support within the digital audit adoption literature, with clear evidence that technological capabilities and human capital investments create competitive advantages for early adopting firms, consistent with Barney's (1991) theoretical predictions. However, the sustainability of these competitive advantages appears questionable given the rapid pace of technological change and the potential for technology commoditisation over time. The evidence suggests that sustained competitive advantage may depend less on specific technology implementations and more on organisational capabilities for continuous technology adaptation and integration, highlighting the dynamic nature of resource-based advantages in rapidly evolving technological environments.

## CONCLUSION

Based on a systematic review of ten peer-reviewed articles, it is evident that digital auditing represents a profound and transformative innovation reshaping the landscape of modern accounting and the auditing profession. The integration of advanced technologies, including big data analytics, artificial intelligence, blockchain, robotic process automation (RPA), and cloud computing, serves as the primary catalyst driving significant enhancements in audit efficiency, effectiveness, and overall quality. Findings consistently demonstrate that digital auditing yields substantial benefits, ranging from heightened report accuracy and considerable time and cost efficiencies to a marked improvement in fraud detection capabilities.

Despite these demonstrable advantages, the widespread implementation of digital auditing encounters several notable challenges. These include a discernible adoption gap among different professional firms, significant data security risks, and a critical need for technological competency development among auditing

professionals. Consequently, successful adoption necessitates a strategic and holistic approach to organizational adaptation. Key components of this strategy involve targeted investments in human capital development through specialized training programs, the formulation of new audit policies grounded in technological capabilities, and the enhancement of foundational technological infrastructure to support seamless integration between information systems and digital audit processes.

For future research, it is recommended that scholars move beyond descriptive studies to employ more rigorous methodologies, such as mixed-method or longitudinal studies, to quantitatively and qualitatively measure the long-term impact of digitalization on auditing practices and organizational performance. Furthermore, a specific focus should be placed on investigating the unique challenges and opportunities within developing national contexts, where issues of digital inequality and infrastructure readiness remain central to the successful implementation of technology-driven auditing.

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