Fortunate Business Review
ISSN 2777-0834

SECURING AUDIT INTEGRITY: BALANCING AI EFFICIENCY AND HUMAN JUDGMENT VIA THE CO-PILOT FRAMEWORK AND MANDATORY TRANSPARENCY STANDARDS

Didi Sundiman, Valentina Robertus, Jessy Tan, Deviani Putri Tresiawati, Sunly Rasma Antika, Steven
Faculty of Business, Universitas Universal
sundimand@gmail.com

ABSTRACT
The rapid advancement of digital technology has transformed the auditing profession, shifting traditional manual methods to proactive, real-time analyses leveraging Artificial Intelligence (AI) and Machine Learning (ML). While AI significantly enhances efficiency and accuracy (e.g., achieving a 95.7% accuracy rate in classifying over 14 million financial records), its integration introduces critical challenges, including algorithmic opacity (black-box nature) and the risk of over-reliance on automated tools, which threaten professional skepticism and accountability. This qualitative study, utilizing a Systematic Literature Review, is distinct from prior technical research, focusing instead on investigating how AI-driven auditing frameworks influence auditors' professional behavior, ethical considerations, and perceptions of reliability to secure audit integrity. The research confirms three essential propositions: First, AI must function as a 'co-pilot' to maximize efficiency gains while actively mitigating risks posed by opacity. Second, despite confirmed improvements in efficiency and accuracy, auditors' professional judgment and skepticism remain essential for safeguarding audit quality due to inherent limitations in transparency and the risk of algorithmic errors. Finally, cross-jurisdictional regulations, ethics, and cultural contexts profoundly influence AI adoption, underscoring that consistent global ethical and regulatory guidance is critical for ensuring fairness and sustainable audit quality worldwide. These findings offer timely practical insights for regulators formulating consistent ethical standards for responsible AI implementation.

Keywords:
Audit; AI; Artificial Intelligence; Accounting; LLM; Ethics.

INTRODUCTION

The rapid advancement of digital technology has profoundly transformed how organizations operate and manage data, particularly within the auditing profession. Traditional manual audit approaches are increasingly unable to cope with the volume, velocity, and complexity of financial information generated in today's business environment. The emergence of Artificial Intelligence (AI) and Machine Learning (ML) has redefined auditing methodologies, enabling auditors to shift from retrospective evaluations to proactive, real-time analyses that enhance both efficiency and audit quality (Leocádio et al., 2024b; Murikah et al., 2024). AI technologies, such as Natural Language Processing (NLP), Robotic Process Automation (RPA), and Deep Learning, allow auditors to perform full-population testing, detect anomalies, and uncover hidden risk patterns that are difficult to identify through manual methods (Elad & Mugwira, 2025). For instance, (Sayal et al., 2025) demonstrated that a combined ML framework achieved a 95.7% accuracy rate in classifying over 14 million financial records, underscoring AI's capability to improve precision and reliability in audit judgments. Leading audit firms such as Deloitte, KPMG, EY, and PwC have already embedded AI tools in audit planning, risk assessment, and transaction testing to achieve higher analytical depth and time efficiency (Han et al., 2023). However, while the adoption of AI has accelerated

efficiency and data accuracy, a practical challenge remains evident in the field namely, the readiness of auditors to adapt to AI-driven systems, the potential risk of over-reliance on automated tools, and the absence of standardized frameworks to ensure ethical and accountable use of these technologies.

From a theoretical perspective, the integration of AI into auditing has sparked debates concerning transparency, ethical conduct, and the preservation of professional skepticism. The fundamental question lies in whether automation enhances or diminishes auditors' critical judgment and independence. While certain studies affirm that AI supports auditors by increasing accuracy and consistency (Elad & Mugwira, 2025; Sayal et al., 2025), others warn that it may reduce the auditor's active involvement and analytical skepticism, potentially leading to over-reliance on algorithmic outcomes (Ariany, 2025; Kokina et al., 2025). The so-called black-box nature of AI, where algorithmic decision-making processes are opaque raises substantial concerns about explainability and accountability. This lack of transparency complicates auditors' ability to evaluate whether AI-generated results are valid and unbiased. In addition, inconsistencies persist within the literature regarding AI's influence on audit quality: some research highlights improved fraud detection and efficiency, whereas others emphasize ethical risks, skill erosion, and the widening gap between human and machine reasoning. These theoretical divergences reflect a significant inconsistency in previous studies, reinforcing the need for deeper qualitative inquiry that explores how auditors actually perceive and respond to AI integration within diverse professional and regulatory contexts.

This research is fundamentally different from prior studies, which have predominantly emphasized the technical and quantitative aspects of AI, such as algorithmic design, data analytics efficiency, and computational performance (Georgiou et al., 2024; Shivram, 2024). The key novelty of this study lies in its dedicated qualitative focus: it explicitly investigates how AI-driven auditing frameworks influence auditors' professional behavior, ethical considerations, and their perceptions of audit reliability. The urgency of this research stems from two critical gaps: first, the lack of a global consensus on how auditors should evaluate and respond to AI-generated outputs, leading to inconsistencies in audit practices across different countries; and second, the limited number of cross-jurisdictional comparative analyses that explicitly contrast auditors' perceptions of AI-based versus traditional manual audit methods. This gap is crucial because jurisdictional and cultural variations such as the differences between rule-based jurisdictions that tend to impose stricter constraints on AI and principle-based systems that encourage flexibility significantly complicate the issues of professional skepticism and ethical accountability (Ariany, 2025; Kokina et al., 2025). Therefore, this study fills a substantial void in the academic literature by providing a deep, comparative understanding of the behavioral and ethical dimensions of AI adoption in auditing.

By addressing these qualitative and contextual dimensions, this study aims to contribute both theoretically and practically to the field of auditing. Theoretically, it expands understanding of how AI interacts with human judgment and ethical responsibility within audit frameworks. Practically, it provides insights for regulators and professional bodies to formulate consistent guidelines and ethical standards for AI implementation in auditing. Therefore, this research not only responds to the identified gaps in previous studies but also offers a timely and relevant contribution to the discourse on the responsible and effective use of AI in the auditing profession

The primary objectives of this qualitative study are to examine the impact of Artificial Intelligence (AI) integration on audit quality by addressing three key assertions. First, the research aims to establish that AI must function as a 'co-pilot' to maximize efficiency gains while actively mitigating risks to skepticism and accountability stemming from algorithmic

opacity. Second, the study evaluates the balance between AI's confirmed improvements in efficiency and accuracy with the continuing, essential need for auditors' professional judgment and skepticism due to limitations in transparency and the risk of algorithmic errors. Finally, the study seeks to investigate how cross-jurisdictional regulations, ethics, and cultural contexts influence AI adoption, affirming that consistent global ethical and regulatory guidance is essential for ensuring fair and sustainable audit quality worldwide.

LITERATURE REVIEW

The Transformation of Auditing in the Age of AI

The integration of Artificial Intelligence (AI) has redefined auditing from a manual, sample-based process into a comprehensive, real-time analytical system. AI technologies such as Machine Learning (ML), Natural Language Processing (NLP), and Robotic Process Automation (RPA) enable auditors to analyze entire data populations with unprecedented speed and accuracy (Leocádio et al., 2024b; Puthukulam et al., 2021).

Large accounting firms, particularly the Big Four have been the pioneers in implementing AI for audit planning, risk assessment, and transaction analysis. (Sayal et al., 2025) found that an AI-based dual ML framework processed more than 14 million SEC filings with 95.7% accuracy in identifying low-risk submissions. This level of precision far surpasses traditional manual sampling. Similarly, studies by (Kokina et al., 2025; Shivram, 2024) explore the application of Generative AI, especially Large Language Models (LLMs), in drafting audit documentation and reports, significantly reducing audit cycle time.

Empirical evidence also demonstrates the tangible benefits of AI in auditing. AI systems have achieved up to 85% accuracy in anomaly detection and contributed to uncovering over USD 2 billion in fraudulent transactions in 2022 (Sayal et al., 2025). Moreover, AI accelerates audit risk assessment by approximately 30% and reduces the likelihood of material misstatements by up to 20% (Linder, 2025; Morgan, 2024).

However, while AI enhances technical performance, it also shifts the auditor's role. Auditors are now expected to interpret AI-generated insights, evaluate algorithmic reliability, and integrate technological findings into professional judgments. Thus, the transformation of auditing through AI is not merely a matter of automation but a comprehensive redefinition of the auditor's responsibilities, skills, and ethical obligations.

Ethical and Cultural Dimensions of AI-Based Auditing

Despite its advantages, the integration of AI introduces ethical, professional, and cultural complexities. Research by (Kokina et al., 2025; Murikah et al., 2024) describes AI as a black box, where limited algorithmic transparency obscures how decisions or risk assessments are derived. This opacity challenges auditors' ability to ensure fairness, accountability, and objectivity. Algorithmic bias, often stemming from incomplete or skewed training data can distort audit outcomes, undermining the credibility of findings.

Furthermore, overreliance on AI may gradually erode auditors' professional skepticism and critical reasoning. (Ariany, 2025) warns that automation can lead to deskilling, reducing auditors' ability to independently analyze audit evidence. This risk emphasizes the need for human oversight and continuous ethical reflection. AI should serve as a *co-pilot* rather than a replacement for human auditors, reinforcing rather than replacing professional judgment.

Cross-jurisdictional differences also play a vital role. (Georgiou et al., 2024; Shivram, 2024) show that national culture and regulatory systems significantly influence AI adoption. Rules-based jurisdictions, such as the United States, tend to implement AI cautiously due to strict compliance standards. In contrast, principles-based jurisdictions, such as the United Kingdom, adopt a more flexible approach, encouraging experimentation and innovation. These

differences illustrate that AI adoption is not uniform; it is shaped by ethical standards, cultural expectations, and regulatory priorities.

Overall, while AI presents transformative potential, its successful implementation in auditing requires balancing algorithmic power with human integrity, cultural sensitivity, and ethical governance.

Theoretical Foundation: Linking Technology, Ethics, and Professional Judgment

The theoretical basis of this study is grounded in three key frameworks, Traditional vs. Modern Audit Theory, AI Theory in Accounting and Auditing, and Professional Skepticism Theory, which together explain how technological transformation, ethical

Traditional vs. Modern Audit Theory

Traditional Audit Theory conceptualizes auditing as a retrospective verification process focused on assessing compliance and detecting misstatements through manual sampling and documentation (Leocádio et al., 2024a). While this traditional approach ensures reliability and auditor independence, it faces limitations in addressing the complexity and volume of modern, real-time financial data.

In contrast, Modern Audit Theory emphasizes that auditing should evolve alongside technological advancements. By incorporating data analytics, continuous monitoring, and real-time evaluations, modern auditing enhances both efficiency and accuracy (Leocádio et al., 2024b). This paradigm shift transforms auditing from a reactive, compliance-based process to a proactive, data-driven assurance model, positioning auditors as strategic analysts who interpret complex insights and anticipate risks.

AI Theory in Accounting and Auditing

AI Theory in Accounting and Auditing provides the conceptual foundation for understanding interactions between human auditors and intelligent systems. According to (Murikah et al., 2024), the success of AI implementation depends not only on algorithmic sophistication but also on system transparency, interpretability, and user acceptance. Similarly, (Kokina et al., 2025) emphasize the importance of ethical governance and algorithmic accountability to mitigate bias and enhance trust in AI-assisted audits. Therefore, the adoption of AI in auditing must align with ethical standards, organizational learning, and the reinforcement of professional integrity

Professional Skepticism Theory

Professional Skepticism Theory underscores the critical role of human judgment in automated auditing environments. Although AI increases analytical capacity and testing coverage, auditors must remain vigilant and critical in evaluating algorithm-generated evidence (Ariany, 2025; Kokina et al., 2025). Overreliance on automation may lead to a reduction in professional judgment and critical evaluation skills. Accordingly, professional skepticism functions as a safeguard, ensuring that AI supports rather than undermines auditors' independent reasoning.

Research Gap and focus

Existing literature has predominantly emphasized technical and quantitative aspects of AI, such as algorithmic design, data analytics efficiency, and computational performance, while giving limited attention to qualitative dimensions such as auditor perception, ethical accountability, and cross-jurisdictional implications (Georgiou et al., 2024; Shivram, 2024). Furthermore, there is currently no global consensus on how auditors should evaluate and respond to AI-generated outputs, leading to inconsistencies in audit practices across different countries. A central concern involves the potential decline in professional skepticism when auditors overly depend on algorithmic recommendations (Ariany, 2025; Kokina et al., 2025). Jurisdictional and cultural variations further complicate this issue, as legal frameworks and professional norms differ significantly across regions. While rule-based jurisdictions often

impose stricter constraints on AI adoption, principle-based systems tend to encourage flexibility and innovation (Georgiou et al., 2024). Despite growing awareness of these disparities, few studies have conducted cross-jurisdictional comparative analyses that explicitly contrast auditors' perceptions of AI-based versus traditional manual audit methods, leaving a substantial gap in the academic literature. A clear research gap emerges in understanding how AI-driven auditing frameworks influence auditors' professional behavior, ethical considerations, and perceptions of audit reliability.

Although many studies highlight AI's potential to enhance efficiency and accuracy, relatively few address how auditors' perceptions, ethical awareness, and regulatory environments influence its effectiveness. The human dimension of how auditors trust, interpret, and interact with AI remains underexplored (Georgiou et al., 2024; Murikah et al., 2024). In addition, cross-jurisdictional research on AI adoption is still limited, particularly in developing economies where digital maturity and regulatory readiness vary.

This gap is crucial because AI's success in auditing depends not only on technical capacity but also on auditors' ethical commitment, skepticism, and adaptability. Consequently, this qualitative study aims to synthesize previous literature to understand how AI integration impacts audit quality, professional skepticism, and ethical accountability in diverse regulatory and cultural settings.

This study focuses on a comparative qualitative analysis of AI-driven versus manual auditing to determine differences in framework, reliability, and quality, specifically analyzing how auditors' perceptions of AI transparency influence their professional judgment and ethics within varying cultural and jurisdictional contexts.

Framework of thinking and Propositions Development

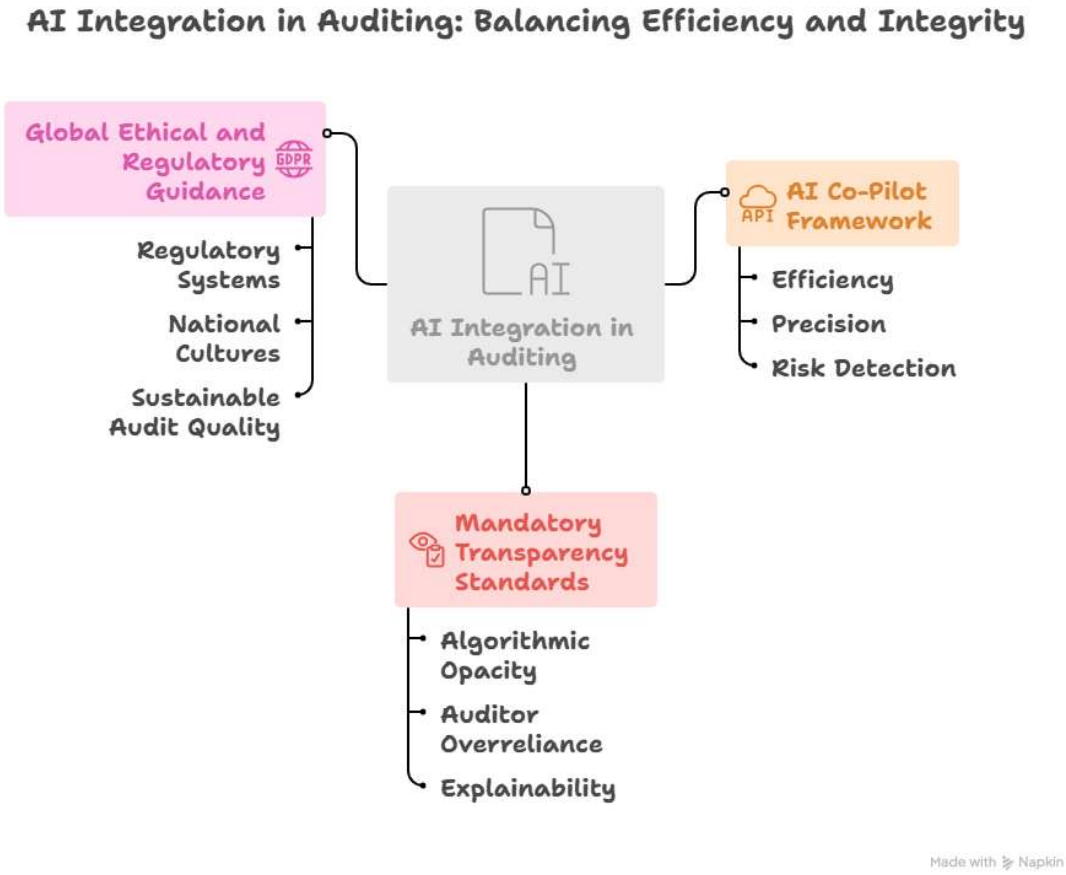
Framework of thinking

This conceptual framework centers on securing audit integrity in the digital age by establishing a vital balance between the enhanced efficiency provided by Artificial Intelligence (AI) and the essential requirement for human judgment and professional skepticism through the implementation of an AI Co-Pilot Framework and Mandatory Transparency Standards (Ariany, 2025; Fidyah et al., 2024; Kokina et al., 2025; Leocádio et al., 2024a; Puthukulam et al., 2021; Sayal et al., 2025).

The integration of AI and Machine Learning (ML) has the potential to transform auditing by enabling greater efficiency, precision, and risk detection, allowing for the automation of repetitive tasks and enabling comprehensive assurance test coverage across entire data populations, particularly through algorithms adept at detecting patterns, anomalies, and outliers in massive datasets (Binh, 2025; Fidyah et al., 2024; Kokina et al., 2025; Leocádio et al., 2024a; Murikah et al., 2024; Sayal et al., 2025; Shivram, 2024). However, these benefits are accompanied by significant risks stemming from algorithmic opacity, often described as a black-box nature, and the crucial challenge of auditor overreliance which can diminish professional skepticism (Ariany, 2025; Kokina et al., 2025; Puthukulam et al., 2021).

Consequently, AI must function as a co-pilot that supports and augments the auditor rather than replacing the human element, requiring auditors to remain responsible for interpreting AI-generated insights, validating outcomes, and maintaining ultimate accountability (Elad & Mugwira, 2025; Fidyah et al., 2024; Kokina et al., 2025). To mitigate the risks associated with opacity and bias, adopting mandatory transparency and explainability (XAI) standards is necessary, enabling auditors to understand how an AI output was calculated and thereby enhancing trust and critical assessment capabilities (Ariany, 2025; Kokina et al., 2025). Furthermore, because auditors perceptions and the subsequent adoption of AI are significantly influenced by cross-jurisdictional contextual factors, such as differing regulatory systems (e.g., rules-based versus principles-based) and national cultures (e.g., uncertainty

avoidance), there is an acute need for consistent global ethical and regulatory guidance to ensure fairness, accountability, and sustainable audit quality across the profession (Ariany, 2025; Binh, 2025; Kokina et al., 2025; Leocádio et al., 2024a).



Propositions Development

The integration of Artificial Intelligence (AI), including Machine Learning (ML) techniques, has transformed the audit framework from a sample-based retrospective approach to a proactive monitoring system with real-time risk assessment. This methodological shift substantially improves audit reliability and quality, as AI enables thorough data testing, significantly enhancing anomaly detection capabilities compared to traditional manual methods (Leocádio et al., 2024a; Shivram, 2024). For example, a combination of machine learning (ML) algorithms was able to process over 14 million financial records with up to 95.7% accuracy in identifying low-risk filings. Furthermore, AI has been shown to reduce the likelihood of material misstatements by up to 20% (Sayal et al., 2025).

However, AI innovation also presents qualitative risks that require attention. The complexity of algorithms and their black-box nature can reduce transparency and accountability, increasing the potential for over-reliance on machine output. This situation has the potential to erode professional skepticism and lead to auditor deskilling. Therefore, AI should be positioned as a co-pilot supporting auditors, requiring adjustments to the audit framework through ethical guidance, relevant regulations, and continuous professional competency development (Ariany, 2025; Kokina et al., 2025). Based on the elaboration of the research above, the following research propositions can be stated:

P1: AI must function as a co-pilot to maximize audit reliability and quality gains from efficiency while mitigating risks to skepticism and accountability caused by algorithmic opacity.

A comparative analysis of audit methods shows that traditional manual approaches tend to be labor-intensive, rely on sample testing, and are inadequate for handling the large data volumes, transaction complexity, and fraud methods evolving in the digital age. In contrast, AI-based audits offer greater operational efficiency and accuracy. AI can automate error-prone routine tasks, such as data reconciliation and preliminary report preparation, and perform thorough testing of the entire data population. This allows auditors to save time and concentrate on strategic analysis and the application of professional judgment.

While AI has clear benefits in terms of efficiency and accuracy, it also carries certain risks, including high implementation costs, dependence on optimal and high-quality data, and the potential for hallucinations or inaccurate information output from Large Language Models (LLMs). Crucially, AI cannot completely replace the professional judgment and critical skepticism of human auditors. Auditors remain essential as data evaluators to ensure AI serves as a supportive co-pilot, with human oversight required to assess ethical considerations and contextual factors vital to maintaining audit quality (Ariany, 2025; Elad & Mugwira, 2025; Puthukulam et al., 2021). Based on the elaboration of the research above, the following research propositions can be stated:

P2: AI-based audits improve efficiency and accuracy; limitations in transparency and algorithmic errors mean auditors' professional judgment and skepticism remain essential to safeguarding audit quality.

The research proposition, Cross-jurisdictional regulations, ethics, and cultural contexts influence auditors' perception and adoption of AI; consequently, consistent global ethical and regulatory guidance is essential for fairness and sustainable audit quality, is built upon the recognition that AI adoption and use in auditing are highly diverse and complex across different countries. This variability is rooted in specific contextual factors (Ariany, 2025). A central barrier identified is the regulatory lag, where current standards are often insufficient to handle the complexities of open innovations like AI and blockchain, leading to caution among auditors regarding regulatory oversight and increased legal liability risk. Moreover, the jurisdictional context, specifically the difference between rules-based and principles-based legal systems, significantly shapes how auditors respond to and accept AI usage (Ariany, 2025). Auditors' individual perceptions of AI reliability and transparency are key factors that determine their level of trust and professional skepticism. Positive perceptions of reliability and transparency are shown to significantly increase an auditor's tendency to rely on the technology. However, ethical issues such as the need for transparency, accountability, and addressing algorithmic bias where AI might perpetuate systemic prejudices found in training data are consistently highlighted as crucial considerations for the reliable use of AI in the auditing profession .

Consequently, the core assertion that consistent global ethical and regulatory guidance is essential for fairness and sustainable audit quality addresses the risks posed by this lack of uniformity. The absence of a global consensus on how auditors should evaluate AI outputs inevitably leads to potential variability in audit quality worldwide (Ariany, 2025). Furthermore, excessive reliance on AI, even when perceived as reliable, if not coupled with adequate professional skepticism, can diminish audit quality. To mitigate these issues, an updated regulatory framework is necessary to support technological innovation while simultaneously ensuring transparency, data integrity, and fair competition. This framework must prioritize ethical considerations, mandating transparency (explainability) and accountability to ensure that AI builds, rather than erodes, trust in audit procedures (Binh, 2025; Leocádio et al., 2024b). Practical implications emphasize the urgent need for clear regulatory guidelines concerning reliability standards and algorithmic transparency, alongside comprehensive training for

auditors to help them balance reliance on AI with the mandatory application of professional skepticism, thereby preserving the integrity and credibility of the audit profession globally (Ariany, 2025). Based on the elaboration of the research above, the following research propositions can be stated:

P3: Cross-jurisdictional regulations, ethics, and cultural contexts influence auditors' perception and adoption of AI; consequently, consistent global ethical and regulatory guidance is essential for fairness and sustainable audit quality.

METHOD

This research adopts a Qualitative Approach as its fundamental methodological framework. This approach was chosen due to its suitability for generating rich, in-depth, and contextual insights into complex, emerging phenomena, such as the impact of Artificial Intelligence (AI) on audit practice (Kokina et al., 2025; Labro & Pierk, 2023; Spišáková et al., 2021). Unlike quantitative methods that focus on numerical measurements and statistical generalizations, the qualitative approach in this study aims to explore the complexities, nuances, subtleties, and diverse perspectives involved (Georgiou et al., 2024; Yadav, 2022). This is particularly important for answering the research questions of how and why the transition from manual to AI-based audits affects audit frameworks and quality, questions that cannot be fully answered through numerical data alone (Yadav, 2022).

The primary objective of applying this qualitative approach in this study is to develop a robust framework to explain the transformation of audit practice. By qualitatively comparing AI-based and manual audit methods, this study does not aim to determine the superiority of one method over the other, but rather to critically identify the strengths, weaknesses, opportunities, and threats (SWOT) of each approach (Leocádio et al., 2024b). The quality of qualitative research is assessed based on criteria consistent with its paradigm, such as credibility, transparency, and meaningful coherence (Yadav, 2022). Because qualitative research is not confined to a single paradigm, there are no universal quality standards; rather, the criteria must be aligned with the theoretical and methodological frameworks guiding the research (Yadav, 2022). This approach offers a solid foundation for developing fundamental and practical insights in the audit field, which is undergoing continuous technological transformation.

The main method of data collection in this study is the Systematic Literature Review (SLR) framework. SLR is a methodological approach that involves systematically compiling, organizing, and assessing existing literature within a defined research domain. It employs explicit and structured procedures to reduce bias, enhance reliability, and synthesize findings and perspectives across multiple empirical studies (Paul et al., 2021). This methodological approach is crucial for achieving a comprehensive, in-depth, and contextually grounded understanding of the research field under examination. The purpose of an SLR is to present an objective, evidence-based overview of the current state of knowledge; it also, allows for the assessment of a field's historical development, supports critical reflection, and identifies promising opportunities for future research. The data collection stage was primarily carried out through document analysis, which serves as the main data collection method in review-based research. This process emphasizes gathering context-rich insights by conducting full-text assessments of studies to evaluate the eligibility and relevance of the articles.

Data collection was guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) protocol, which provides a structured framework and checklist for conducting and reporting systematic reviews. Following the PRISMA protocol ensures consistency and transparency, thereby strengthening the reliability and credibility of the findings. In addition, SLRs place importance on maintaining the replicability of research

methods. The PRISMA framework consists of four systematic stages: identification, screening, eligibility assessment, and inclusion (Leocádio et al., 2024b).

The main instrument applied in this study was the Article Content and Findings Extraction Form, designed as a systematic data collection tool and a key component of the Structured Literature Review (SLR) methodology (Kaur & D'Andreamatteo, 2025). This instrument is a crucial step undertaken after the article identification and screening process has been completed in accordance with the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) protocol. The PRISMA framework ensures that the process of selecting relevant articles is conducted consistently, transparently, and in a replicable manner (Leocádio et al., 2024b), thus strengthening the rigor and credibility of the study. For this research, 23 articles along with 2 websites are utilized as key data discussing the related subject matter.

Once the final set of articles has been identified, the extraction form functions as a tool to systematically collect key information from each publication. This process is consistent with SLR procedures, where relevant data are extracted and organized in a structured format, often within a spreadsheet. The extraction form builds on the classification frameworks used in earlier review studies to enable a more thorough examination of the selected literature.

More specifically, the form is designed to capture essential elements such as the research topic, study setting or context, theoretical frameworks, research methods, data analysis techniques, key findings, and proposed directions for future research (Georgiou et al., 2024). By gathering this information in a uniform manner across diverse articles, the form helps ensure that the synthesis produced is consistent with the SLR's objective of delivering a comprehensive and evidence-based overview (Wassie & Lakatos, 2024).

This study applied two analytical techniques: thematic analysis and document analysis. Thematic analysis, as outlined by Braun & Clarke (Kaur & D'Andreamatteo, 2025), is a flexible approach used to identify, analyze, and interpret recurring patterns or themes within qualitative data. It is especially valuable for synthesizing insights from a variety of data, such as academic articles, interviews, and reports (Agostino et al., 2025; Kaur & D'Andreamatteo, 2025). In contrast, document analysis focuses on the systematic review and interpretation of written or visual documents to extract meaning, context, and knowledge (Kaur & D'Andreamatteo, 2025). Within the auditing field, this often entails examining contracts, invoices, and financial statements to obtain evidence, detect irregularities, and evaluate risks (Xu et al., 2025). The primary aim of this technique is to gather factual information, identify patterns, and situate findings within their broader context (Agostino et al., 2025; Kaur & D'Andreamatteo, 2025). By combining thematic analysis with document analysis, researchers are able to conduct a more comprehensive investigation, highlight key themes, and develop a richer contextual understanding.

RESULTS AND DISCUSSION

AI as a co-pilot to maximize audit reliability and quality

The concept of AI as a co-pilot views the technology as an audit assistant designed to support, rather than replace, the human auditor (Elad & Mugwira, 2025). Auditors are expected to retain full responsibility for directing the audit, especially considering that no tool currently exists where the AI provides the answer and the auditor is simply done (Elad & Mugwira, 2025; Kokina et al., 2025). This human-AI collaboration is recognized as an imperative necessity for successfully conducting digital audits and ensures that human expertise remains paramount (Leocádio et al., 2024b).

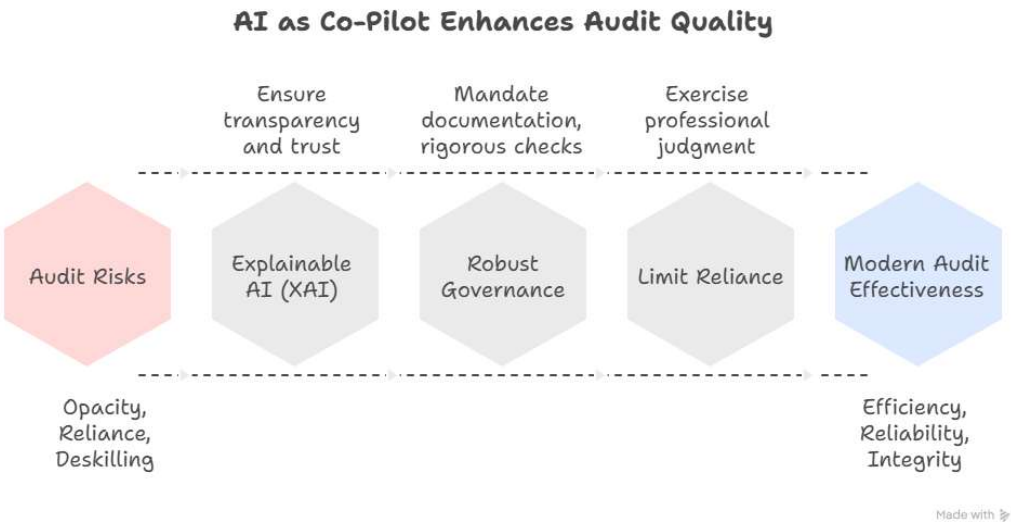
However, the pursuit of efficiency must be balanced against the central challenge of algorithmic opacity, which jeopardizes accountability. Complex AI tools, particularly those

using deep learning neural networks, are often perceived as a black box (lacking transparency regarding their decision-making process), raising concerns about accountability and the ability to challenge AI-derived audit outcomes (Ariany, 2025; Fidyah et al., 2024; Kokina et al., 2025; Murikah et al., 2024). The proposed mitigation is the emphasis on Explainable AI (XAI), robust governance, and rigorous testing to ensure transparency and trust (Ariany, 2025; Kokina et al., 2025; Murikah et al., 2024). Audit firms address this by developing tools to audit AI bias, mandating detailed documentation (where every step needs to be annotated) for new tools, and performing rigorous checks, such as parallel-testing new automation routines against the old manual way, to ensure outputs are reliable and explainable to regulators (Kokina et al., 2025). Furthermore, auditing complex models often focuses on reviewing the outputs the models generate, rather than attempting to review the black-box code itself, providing a practical method to ensure accountability (Kokina et al., 2025).

The risk of high reliance without adequate professional skepticism is recognized as a factor that can diminish audit quality and potentially erode the diligence of auditors over time (Ariany, 2025; Murikah et al., 2024). Recognizing the human tendency to over-rely on technology, firms are developing internal approaches to prevent this issue (Kokina et al., 2025). This includes requiring auditors to exercise their professional judgment in determining the degree of reliance placed on a tool and performing supplementary procedures to verify AI-generated suggestions, such as requiring screenshots of contracts evaluated by AI (Kokina et al., 2025). This co-pilot approach ensures that while AI automates repetitive or data-intensive tasks, the final critical evaluation remains firmly anchored in human expertise and professional judgment (Kokina et al., 2025; Murikah et al., 2024).

The research proposition asserts that AI must function as a co-pilot to maximize audit reliability and quality gains from efficiency while mitigating risks to skepticism and accountability caused by algorithmic opacity. Analysis of the data strongly supports this dual role leveraging technology for efficiency while actively managing its inherent risks—as the established pathway toward modern audit effectiveness. The first component of the proposition maximizing reliability and quality gains from efficiency is strongly supported by evidence regarding AI's operational benefits. AI and machine learning (ML) significantly enable greater efficiency, precision, and risk detection in financial auditing (Sayal et al., 2025). AI automates complex calculations, minimizes manual oversight, and reduces human error, substantially improving the reliability and timeliness of audits (Sayal et al., 2025). Empirical studies confirm these gains; for example, a dual-model framework combining supervised and unsupervised ML techniques achieved a 95.7% accuracy rate in classifying low-risk financial filings across over 14 million records (Sayal et al., 2025). This capacity to analyze vast datasets in real-time minimizes audit durations, enhances risk management, and allows auditors to shift their focus from maintenance-oriented tasks toward value-added strategic governance (Fidyah et al., 2024; Sayal et al., 2025).

The human role is indispensable because AI currently lacks crucial requirements for ethical decision-making, contextual understanding, and managing non-quantitative manipulations or management intentions (Ariany, 2025; Murikah et al., 2024). The ongoing evolution of AI necessitates clear ethical frameworks that reinforce objectivity, privacy, transparency, and fairness to ensure that AI builds trust rather than destroying it (Fidyah et al., 2024; Leocádio et al., 2024a; Murikah et al., 2024; Sayal et al., 2025). The continuous development of auditor competency, emphasizing the balance between trusting AI's efficiency and applying skepticism to its output, is highlighted as a critical practical implication for maintaining audit integrity (Ariany, 2025; Murikah et al., 2024).



In summary, the data provide substantial evidence demonstrating that AI is indeed being implemented as a powerful tool to enhance efficiency and reliability. Simultaneously, the profession actively acknowledges and implements safeguards such as focusing on explainability (XAI), limiting reliance, and retaining human judgment to mitigate the critical risks associated with opacity and deskilling effects. Therefore, the strategic integration of AI as a 'co-pilot' is confirmed as the necessary mechanism to balance innovation and professional integrity.

The research proposition, AI must function as a co-pilot to maximize audit reliability and quality gains from efficiency while mitigating risks to skepticism and accountability caused by algorithmic opacity, is accepted. This principle reflects the consensus in the contemporary auditing literature that emphasizes a symbiotic human-AI relationship guided by strict ethical and operational guardrails.

AI-based audits improvement of efficiency and accuracy

The research statement under scrutiny presents a fundamental view of modern auditing by observing that while the adoption of Artificial Intelligence (AI) and Machine Learning (ML) technologies successfully drives enhancements in efficiency and accuracy, these technological advantages are inherently limited by issues of transparency and algorithmic errors, confirming that the continuous application of auditors professional judgment and skepticism remains critical for maintaining audit quality. The assertion regarding improved efficiency and accuracy is strongly supported by empirical findings, demonstrating that AI is actively reshaping financial auditing by enabling greater efficiency, precision, and risk detection (Leocádio et al., 2024a; Sayal et al., 2025). AI automates complex calculations, minimizes manual oversight, and substantially reduces human error (Murikah et al., 2024; Sayal et al., 2025). For example, the analysis of U.S. Securities and Exchange Commission (SEC) financial statement data using a dual-model framework combining ML techniques achieved a remarkable 95.7% accuracy rate in classifying low-risk filings across over 14 million records (Sayal et al., 2025). This capability to analyze large data sets in real-time enhances the reliability and timeliness of audits (Fidyah et al., 2024; Puthukulam et al., 2021; Sayal et al., 2025).

These significant gains in efficiency stem directly from the transformative roles that AI and related technologies now play in audit procedures. Technologies such as Robotic Process Automation (RPA), Machine Learning, and Natural Language Processing (NLP) automate repetitive tasks, allowing auditors to shift their focus from maintenance-oriented roles to value-

added strategic governance (Murikah et al., 2024; Sayal et al., 2025). AI facilitates the transition from retrospective examination to proactive, real-time monitoring and continuous auditing, thereby improving the timeliness of insights and reducing the risk of errors going undetected (Fidyah et al., 2024; Leocádio et al., 2024a; Sayal et al., 2025). Furthermore, by facilitating full population testing (analyzing 100% of transactions) rather than relying solely on sampling, AI significantly improves the reliability of audit conclusions and enhances fraud detection capabilities, which ultimately boosts audit accuracy and responsiveness to dynamic business environments (Ariany, 2025; Fidyah et al., 2024).

However, the rapid adoption of sophisticated AI systems introduces critical limitations related to transparency, confirming the second part of the statement. The decision-making process within complex AI models, particularly deep learning networks, often operates as a black-box, meaning the algorithms lack transparency and explainability concerning how they reach their outputs (Ariany, 2025; Kokina et al., 2025; Sayal et al., 2025). This algorithmic opacity complicates audit procedures and increases scrutiny regarding audit quality (Kokina et al., 2025; Sayal et al., 2025). Auditors require systems based on Explainable AI (XAI) to understand and trust the outputs, especially when those outputs are used to justify critical professional decisions (Ariany, 2025; Kokina et al., 2025). The absence of clarity regarding the AI model's internal workings undermines accountability and the ability of auditors to challenge or verify AI-derived conclusions (Kokina et al., 2025).

Compounding the transparency challenge are specific risks associated with algorithmic errors and biases. AI models, especially Large Language Models (LLMs), are known to be prone to generating false or fabricated information, a phenomenon referred to as hallucination, which necessitates careful human oversight (Elad & Mugwira, 2025; Kokina et al., 2025). Additionally, external LLMs frequently rely on data that may be outdated, leading to potentially inaccurate or irrelevant interpretations in time-sensitive audit scenarios (Elad & Mugwira, 2025). Critically, AI systems are vulnerable to embedding existing biases present in their training data, or amplifying these biases through subjective definitions of anomalies (Ariany, 2025; Fidyah et al., 2024; Kokina et al., 2025; Murikah et al., 2024). For instance, bias can arise if the system is trained using incomplete regulatory data or unrepresentative client data, potentially skewing results and judgments (Kokina et al., 2025). These limitations confirm that AI outputs are merely suggestions that require rigorous verification.

Given the inherent risks of opacity, bias, and technical errors, the final part of the statement that auditors professional judgment and skepticism remain essential is robustly validated by the need for quality control. Professional skepticism and judgment are fundamental principles in auditing, requiring auditors to maintain a questioning mind and critically assess audit evidence, regardless of the use of technology (Ariany, 2025; Puthukulam et al., 2021). Data emphasize that relying heavily on AI without sufficient skepticism is a critical risk that can diminish audit quality and erode auditors' diligence over time (Ariany, 2025; Kokina et al., 2025; Murikah et al., 2024). Auditors must therefore retain full responsibility for the audit direction and final opinion (Elad & Mugwira, 2025). Professional judgment is vital for tasks that AI cannot handle, such as assessing management intentions, non-quantitative manipulations, and overall business context (Ariany, 2025). Audit firms actively counter the human tendency towards overreliance by implementing safeguards, such as requiring auditors to exercise professional judgment in determining reliance levels and performing supplementary checks to verify AI-generated suggestions (Kokina et al., 2025).

In essence, the digital transformation requires a symbiotic relationship where AI functions as an indispensable assistant, but the ultimate intellectual and ethical control rests with the human auditor (Binh, 2025; Elad & Mugwira, 2025; Leocádio et al., 2024b). The data demonstrate that AI delivers substantial benefits in efficiency and accuracy; however, the persistent technical limitations, opacity, bias propagation, and errors mean that human

oversight is the necessary safeguard against the potential erosion of audit integrity. Continuous learning, ethical frameworks, and adherence to professional skepticism are key practical implications for the audit profession to harness AI's power responsibly.

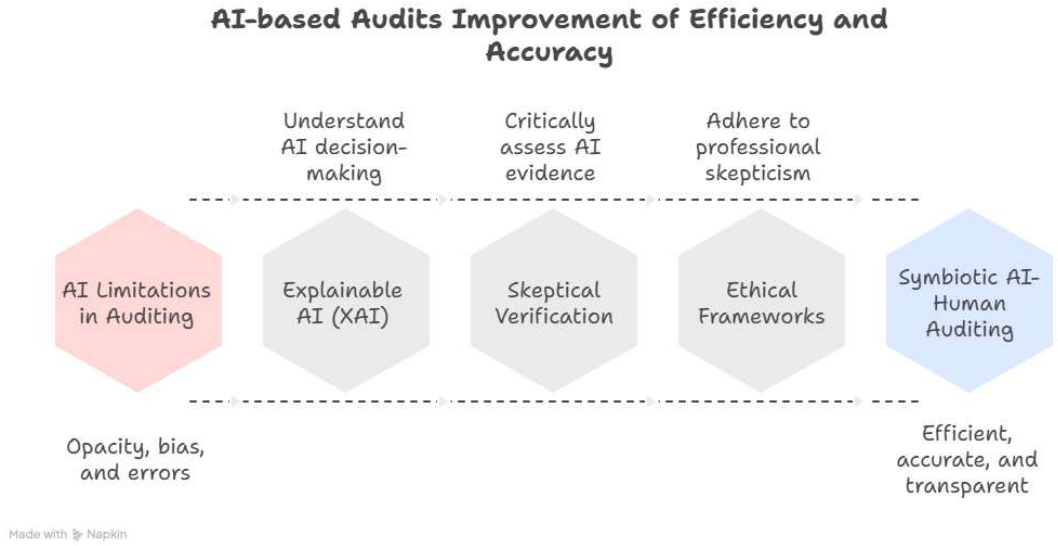


Figure 3. AI-based Audit Improvement of Efficiency and Accuracy

The research proposition that state AI-based audits improve efficiency and accuracy; limitations in transparency and algorithmic errors mean auditors' professional judgment and skepticism remain essential to safeguarding audit quality, is strongly accepted.

Cross-jurisdictional regulations, ethics, and cultural contexts perception and adoption of AI

The cross-jurisdictional variations in regulations, ethics, and cultural contexts profoundly influence how auditors perceive and adopt AI, concluding that consistent global ethical and regulatory guidance is consequently essential for ensuring fairness and sustainable audit quality. The widespread integration of Artificial Intelligence (AI) into auditing has significantly changed professional processes, driving enhancements in accuracy and efficiency (Ariany, 2025). However, this global adoption without unified oversight introduces complexity, as data suggests there is no clear global consensus on how auditors should assess and respond to AI outputs, which creates the potential for substantial variability in audit quality (Ariany, 2025).

Data emphasizes that regulatory and legal contexts across jurisdictions are major determinants of AI adoption rates. The transition toward open innovation models facilitated by AI and related technologies requires the establishment of appropriate regulatory frameworks, given that current standards may be inadequate to handle the technology's complexity (Sayal et al., 2025). Auditors face pressure from regulatory scrutiny and concerns about inspection findings when utilizing advanced analytics (Kokina et al., 2025; Shivram, 2024). This environmental factor contributes to a regulatory lag, which forces auditors to rely on considerable professional discretion in the absence of formal, unified guidelines (Ariany, 2025). A notable differentiation exists between jurisdictions with rules-based legal systems (such as Germany and Japan), which tend to be more cautious regarding technological innovation, and those with principles-based jurisdictions (like the US and Australia), which demonstrate a greater propensity to embrace AI advancements (Ariany, 2025).

Furthermore, ethical considerations consistently emerge as fundamental challenges that

restrict adoption and necessitate global frameworks. The use of AI in auditing raises critical concerns regarding data privacy, transparency, and accountability (Fidyah et al., 2024; Kokina et al., 2025; Leocádio et al., 2024a; Murikah et al., 2024; Sayal et al., 2025). Ethical principles such as equity, responsibility, transparency, and explainability are vital pillars that auditors must manage (Leocádio et al., 2024a; Murikah et al., 2024). The inherent algorithmic opacity (the black box problem) of complex AI systems complicates audit quality assurance and accountability (Binh, 2025; Elad & Mugwira, 2025; Kokina et al., 2025). Moreover, AI systems introduce the risk of algorithmic bias where embedded biases from training data or subjective definitions of anomalies can be perpetuated (Binh, 2025; Kokina et al., 2025; Murikah et al., 2024). Given that AI-based decision-making currently lacks the essential attributes for independent ethical judgment, appropriate governance and updated auditing mechanisms are required to reinforce accountability (Elad & Mugwira, 2025; Murikah et al., 2024). Ethical frameworks are considered crucial for ensuring that AI builds, rather than destroys, confidence in audit procedures (Sayal et al., 2025).

In addition to legal and ethical frameworks, national culture shapes auditors' perception and readiness for change. Studies utilizing frameworks that examine environmental factors found them significant in influencing the use of digital technologies (Wassie & Lakatos, 2024). Specifically, cultural dimensions such as uncertainty avoidance and power distance significantly impact how auditors view new technology (Ariany, 2025). Cultures characterized by high uncertainty avoidance often perceive new AI technologies as threats to established accountability mechanisms, leading to resistance (Ariany, 2025). Conversely, countries with lower uncertainty avoidance demonstrate greater openness to integrating AI to enhance operational efficiency (Ariany, 2025). This contrast confirms that the successful acceptance and adaptation of AI are contingent upon accommodating diverse cultural dimensions, alongside prevailing legal systems and regulatory frameworks (Ariany, 2025).

The consequence of these multifaceted, non-standardized influences is the emergence of significant variability in global audit quality. The absence of a clear consensus on assessing and responding to AI outputs, combined with a regulatory lag, compels auditors to rely on varying levels of professional discretion across borders (Ariany, 2025). This situation threatens to compromise core audit values, as the potential conflict between prioritizing AI-driven efficiency and maintaining necessary audit rigor (professional skepticism) is a recognized ethical risk (Murikah et al., 2024). This divergence in practices, driven by varying jurisdictional and ethical interpretations, confirms the critical need for a unified regulatory and ethical approach to maintain the integrity and consistency of the audit profession (Ariany, 2025; Murikah et al., 2024).

To counteract this variability, the research proposition's final component, the necessity of consistent global ethical and regulatory guidance is strongly supported. Updated regulatory frameworks are crucial for supporting emerging technologies while guaranteeing transparency and data integrity (Sayal et al., 2025). Regulators must establish clear guidelines that ensure AI-driven audits uphold standards of accuracy, fairness, and accountability (Fidyah et al., 2024). These guidelines should include specific provisions for reliability standards, algorithmic transparency, and monitoring mechanisms (Ariany, 2025). The data highlights the imperative for international collaborative efforts to exchange best practices and research outcomes, thereby fostering consistency (Sayal et al., 2025). For instance, countries like the EU are at the forefront of AI regulation, setting potential global standards for responsible development (Leocádio et al., 2024a). Ultimately, harmonizing standards across international borders is pivotal to balancing technological innovation with accountability and fairness, thereby safeguarding the sustainable quality of the audit process (Ariany, 2025).

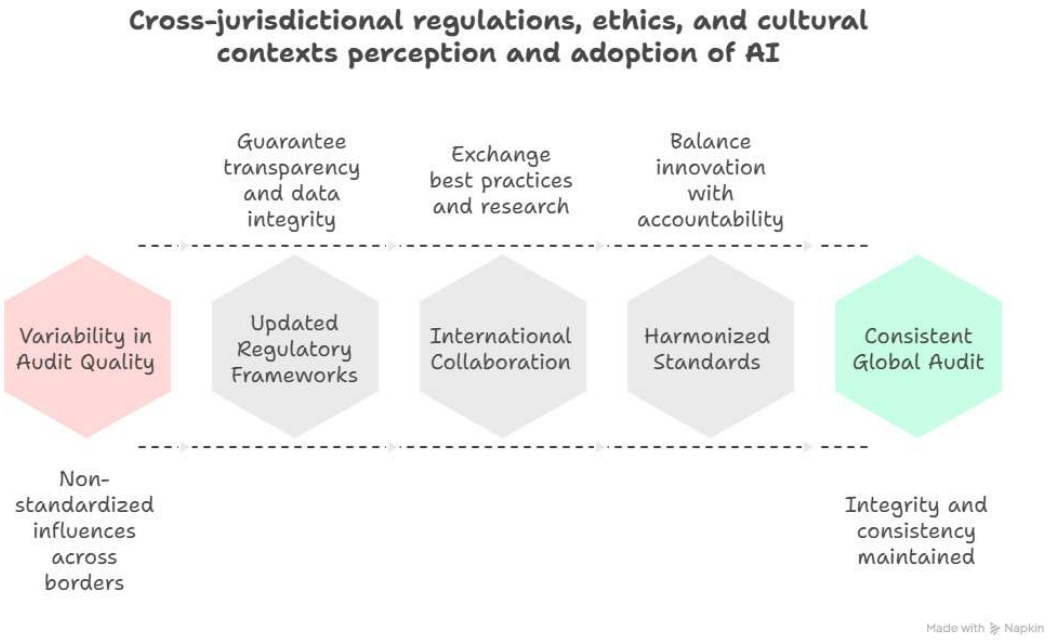


Figure 4. Cross-jurisdictional regulations, ethics, and cultural contexts perception and adoption of AI

The research proposition, Cross-jurisdictional regulations, ethics, and cultural contexts influence auditors' perception and adoption of AI; consequently, consistent global ethical and regulatory guidance is essential for fairness and sustainable audit quality, is strongly accepted.

CONCLUSION, IMPLICATION AND LIMITATION

CONCLUSION

This qualitative study, leveraging a Systematic Literature Review (SLR), establishes three key assertions regarding the integration of Artificial Intelligence (AI) into the auditing profession. Firstly, the research strongly confirms that AI must function as a 'co-pilot' to maximize efficiency and reliability gains while actively mitigating fundamental risks to professional skepticism and accountability caused by algorithmic opacity. Secondly, although AI-based audits demonstrably improve efficiency and accuracy evidenced by performance such as achieving a 95.7% accuracy rate in classifying financial records the persistent limitations in transparency, the risk of algorithmic errors (like hallucination), and the potential for embedded biases mandate that auditors' professional judgment and skepticism remain essential for safeguarding audit quality. Auditors must retain full responsibility for interpretation and final opinion, particularly concerning non-quantitative manipulations and management intentions, which AI systems cannot currently handle. Finally, the study affirms that cross-jurisdictional regulations, ethics, and cultural contexts profoundly influence the perception and adoption of AI, underscoring the critical need for consistent global ethical and regulatory guidance to ensure fairness and sustainable audit quality worldwide. This necessity arises from the observed variability in audit practices stemming from regulatory lag and differences between rules-based and principles-based legal systems.

IMPLICATION

The findings of this research offer timely and critical implications for both professional practice and regulatory bodies. Practically, there is an urgent need for regulators and professional bodies to formulate consistent guidelines and ethical standards for responsible AI implementation. These frameworks must prioritize ethical considerations, mandating transparency (explainability) and accountability to ensure AI enhances, rather than erodes, trust in audit procedures. Furthermore, the continuous development of auditor competency is a critical practical implication, requiring comprehensive training that emphasizes balancing reliance on AI's efficiency with the mandatory application of professional skepticism. Theoretically, this study contributes to the field by expanding the qualitative understanding of how AI interacts with human judgment and ethical responsibility, filling a substantial void left by prior studies that predominantly focused on technical and quantitative aspects of algorithmic design and performance.

LIMITATION

The limitations of this research are primarily methodological. This study employed a Qualitative Approach utilizing a Systematic Literature Review (SLR) and thematic analysis. While this approach is effective for generating rich, contextual insights and exploring the complexities of emerging phenomena like AI's impact on professional behavior and ethics, it relies on synthesizing existing literature rather than collecting new empirical data. Unlike quantitative studies focusing on numerical measurements or statistical generalizations, the qualitative nature of this research is aimed at developing a framework and identifying the strengths, weaknesses, opportunities, and threats (SWOT) of AI adoption, meaning the findings may have limitations in broad statistical generalizability. Additionally, the study emphasizes a comparative qualitative analysis focusing on auditors' perceptions within diverse regulatory and cultural settings, which, while addressing a key research gap, means that the findings are context-dependent and shaped by the limitations inherent in cross-jurisdictional comparative analyses.

FUTURE RESEARCH SUGGESTIONS

Future research must overcome the methodological limitations of the current Qualitative Approach utilizing a Systematic Literature Review (SLR), which inherently restrict broad statistical generalizability. This requires a crucial methodological shift toward large-scale quantitative empirical studies or mixed-methods to collect new empirical data, specifically to statistically test the established propositions. These studies should empirically validate the AI 'co-pilot' framework's practical impact on auditing, focusing on its effectiveness in maintaining professional skepticism and ensuring accountability despite the risks posed by algorithmic opacity. Furthermore, research must expand the limited understanding of the human dimension of AI adoption, investigating how auditors' trust, interpretation, and interaction with AI outputs are influenced by diverse regulatory and cultural settings. Essential comparative cross-jurisdictional analyses are needed, specifically examining how differences between rules-based and principles-based legal systems affect AI integration, particularly extending analysis to developing economies where digital maturity is highly varied. Such robust empirical findings are vital for formulating the consistent global ethical and regulatory guidance necessary for ensuring fairness and sustainable audit quality worldwide.

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