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LITERATURE REVIEW: LEVERAGING ARTIFICIAL INTELLIGENCE IN AUDITING FOR DETECTING FRAUD

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Abstract

This article examines the role of Artificial Intelligence in auditing with a specific focus on fraud detection, drawing on findings from a systematic literature review and bibliometric analysis. The study highlights how the rapid growth of digital data has made traditional sampling methods less effective, increasing the need for AI-based tools capable of analyzing full populations of transactions. The literature shows that machine learning models such as CART, neural networks, and ensemble techniques significantly improve anomaly detection accuracy while reducing audit processing time. Using the PRISMA framework, the analysis identifies publication trends, dominant authors, key institutions, and frequently occurring keywords related to AI and fraud detection. The results reveal that AI enhances audit quality by identifying patterns that are difficult for manual procedures to capture, but its effectiveness depends on cybersecurity readiness, auditor digital competence, and overall organizational support. Although AI improves efficiency, human judgment remains essential for interpreting results and assessing qualitative factors that algorithms cannot evaluate. The study concludes that AI will continue to play an important role in fraud detection, provided that organizations strengthen their digital infrastructure, ensure proper training, and integrate technology with sound governance practices.

Keywords: ***Artificial Intelligence, Fraud Detection, Auditing, Machine Learning***

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INTRODUCTION

The rapid advancement of digital technologies has fundamentally transformed the landscape of financial auditing, with Artificial Intelligence (AI) emerging as a powerful tool for enhancing fraud detection capabilities. Traditional audit methodologies, which rely heavily on manual examination and sampling techniques, are increasingly challenged by the growing volume and complexity of financial transactions in today's digital economy. This shift has created an urgent need for more sophisticated approaches that can process vast datasets with speed and accuracy while identifying patterns indicative of fraudulent activities.

AI technologies have demonstrated remarkable potential in addressing these challenges. Organizations implementing AI-based audit systems have reported substantial improvements in

operational efficiency, including up to 50% reduction in processing time and significantly enhanced fraud detection capabilities (Hidayat & Lindrianasari, 2025). Machine learning algorithms, a subset of AI, have proven particularly effective in learning from historical data to identify patterns that signal financial misstatements or fraudulent behavior, with some studies showing accuracy rates of 91-92% in detecting corporate fraud (Suci Nurlayli Alimatu et al., 2023). These capabilities represent a significant leap forward from conventional methods, enabling what is known as "full population auditing" the examination of every transaction rather than relying on sampling approaches that inherently carry sampling risk.

Despite these promising developments, the integration of AI into auditing practices presents both opportunities and challenges that warrant systematic investigation. While AI excels at automating routine tasks and processing large-scale data analysis, questions remain about the complementary roles of AI systems and human auditors, particularly regarding professional judgment, ethical considerations, and the interpretation of organizational culture (Fadilla et al., 2025; Kerr et al., 2025). Implementation barriers such as organizational resistance, insufficient digital competencies, inadequate technological infrastructure, and concerns about algorithm transparency continue to impede widespread adoption.

The academic interest in AI-enabled fraud detection has grown considerably in recent years, reflecting both technological advancements and the increasing sophistication of fraudulent schemes. However, the existing body of research remains fragmented across multiple disciplines, including computer science, accounting, and information systems. This fragmentation creates challenges for researchers and practitioners seeking to understand the current state of knowledge, identify research gaps, and develop comprehensive frameworks for AI implementation in auditing contexts.

This systematic literature review aims to address these challenges by providing a comprehensive synthesis of existing research on the application of AI in auditing for fraud detection. Through a rigorous bibliometric analysis combined with systematic review methodology, this study seeks to answer three fundamental research questions: (1) Does the exploration of the relationship between AI and audit fraud detection still hold significance for future academic research? (2) How is current research allocated regarding AI and audit fraud detection? (3) What are the theoretical and practical implications from the perspective of future research? By addressing these questions, this review contributes to a deeper understanding of the field's intellectual structure, identifies emerging trends, and provides guidance for future research directions.

The remainder of this paper is organized as follows: the next section presents a comprehensive literature review covering AI technologies in auditing, machine learning for fraud detection, and the complementary relationship between AI and human auditors. The methodology section details the systematic literature review approach and bibliometric analysis techniques employed. Subsequently, the results and discussion section presents findings related to publication trends, geographical distribution, and keyword co-occurrence patterns. Finally, the conclusion synthesizes key insights and outlines implications for both academic research and practical implementation.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Artificial Intelligence in Auditing

Artificial Intelligence (AI) encompasses computational systems capable of performing tasks requiring human intelligence, including pattern recognition, learning from experience, and adaptive decision-making. In auditing, AI technologies enable processing and analyzing vast datasets with unprecedented speed and accuracy, transforming auditors from manual examiners into strategic advisors (Kerr et al., 2025). AI implementation in financial auditing has resulted in substantial improvements in audit quality, with organizations reporting up to 50% reduction in processing time and enhanced fraud detection capabilities (Hidayat & Lindrianasari, 2025). The technology

facilitates real-time analysis of accounting records, allowing auditors to identify anomalies and irregularities that might remain undetected through conventional sampling methods (Chen & Wu, 2022).

In Indonesia, research demonstrates that AI technologies such as e-Audit, AI-based audit technology, and big data analytics have positive and significant effects on fraud detection. These tools enable auditors to process millions of data rows rapidly, connecting various data sources and revealing anomalies through interactive visualization (Fadilla et al., 2025). However, AI cannot fully replace human auditors, as certain processes require professional judgment, particularly in assessing data completeness, evaluating internal controls, and determining asset valuations (Fadilla et al., 2025; Suci Nurlayli Alimatu Sholiqah et al., 2023).

Machine Learning for Fraud Detection

Machine learning algorithms learn from historical data to identify patterns indicative of financial misstatements or fraudulent activitiez (Chen & Wu, 2022). These selflearning systems continuously improve detection accuracy, adapting to evolving fraud schemes without constant manual reprogramming (Chen & Wu, 2022). Supervised learning algorithms such as decision trees, random forests, and neural networks establish relationships between financial indicators and fraud outcomes, enabling classification of new transactions based on learned patterns. Ensemble learning methods combining multiple algorithms achieve more robust predictions, with the Stacking algorithm demonstrating highest detection performance (Chen & Wu, 2022). Indonesian research shows AI technologies achieve 91-92% accuracy in detecting corporate fraud, significantly outperforming traditional methods (Suci Nurlayli Alimatu et al., 2023). This stems from AI's ability to integrate big data, data mining, artificial neural networks, and fuzzy logic calculations. Unsupervised learning approaches identify unusual patterns without prelabeled fraud examples, valuable for detecting novel fraud schemes (Dash et al., 2025). AI systems possess real-time characteristics that enable automatic monitoring and early fraud detection by analyzing large data volumes and detecting anomalies (Fadilla et al., 2025).

Full Population Auditing and AI

Traditional audit methodologies rely on sampling techniques, introducing sampling risk. AIenabled full population auditing examines every transaction, eliminating sampling risk and providing more exhaustive coverage. Machine learning models fol low a twostage process: first learning existing accounting rules and normal patterns from historical data, then applying this knowledge to examine all current transactions (Chen et al., 2022). This enables comprehensive risk assessments by automatically flagging potentially fraudulent activities requiring manual review under traditional approaches. Integrating big data technology substantially enhances audit effectiveness, enabling auditors to identify unusual transaction patterns and detect hidden fraud through comprehensive data analysis (Fadilla et al., 2025). However, model quality depends heavily on training data quality, as models trained on data containing undetected fraud may perpetuate rather than detect irregularities (Chen et al., 2022).

Digital Technologies and Fraud Prevention

Robotic Process Automation (RPA) automates routine tasks such as data entry, account reconciliations, and report generation, with organizations reporting up to 70% processing time reductions (Kerr et al., 2025). Blockchain technology enhances transparency, data integrity, and audit traceability, strengthening fraud prevention systems (Fadilla et al., 2025; Guerrero et al., 2025). Cybersecurity maturity significantly influences the relationship between digital transformation and fraud risk (Abu-Dabaseh et al., 2025). Organizations with mature cybersecurity frameworks including multifactor authentication, encryption, and continuous monitoring are better positioned to leverage AI for fraud prevention while protecting against cyberenabled fraud. Implementation challenges include organizational resistance to change, insufficient digital

competencies, inadequate technological infrastructure, and high initial costs (Fadilla et al., 2025). Successful AI adoption requires not only technological infrastructure but also continuous professional education, robust governance frameworks, and strategic change management (Kerr et al., 2025).

The Complementary Role of Auditors and AI

AI cannot completely replace human auditors, as certain processes inherently require human judgment. Auditors remain essential for understanding accounting standards, evaluating internal controls, assessing organizational integrity, and providing objective opinions considering both quantitative evidence and qualitative context (Fadilla et al., 2025). The relationship between AI and auditors should be complementary: AI automates routine tasks and flags potential issues, enabling auditors to focus expertise on complex judgments, strategic analysis, and relationship management (Fadilla et al., 2025). Auditor intuition and professional skepticism remain crucial for interpreting organizational culture, management tone, and ethical climatequalitative assessments beyond AI's current capabilities. This synergy between auditor capabilities and appropriate technology significantly improves internal control systems and fraud detection, transforming auditors from transactional examiners to strategic advisors while preserving essential human elements of professional judgment and ethical reasoning (Kerr et al., 2025)

RESEARCH METHOD

This study adopts a Systematic Literature Review (SLR) combined with a bibliometric approach to quantitatively evaluate scholarly works and identify significant patterns, trends, and key entities within the selected research domain. By applying frameworks such as PRISMA, this method ensures a structured, transparent, and replicable process of reviewing literature, allowing for a clear understanding of the topic under study. The inclusion criteria for this research were as follows: (1) articles published up to January 31, 2025, (2) publications written in English, and (3) studies focusing on the theme of Artificial Intelligence (AI) and audit fraud. The bibliometric analysis was conducted using VOSviewer, which visualized bibliographic data such as citation networks, author collaborations, and cooccurring keywords. This process revealed the intellectual structure and dynamic development of the research field. Understanding the historical evolution and future direction of this area is valuable for interdisciplinary studies, providing deeper insights into the progression of related research themes. Bibliometric analysis also serves strategic functions in academic publishing, such as evaluating journals or mapping research productivity across disciplines.

The initial phase of this examination involved selecting keywords through a topdown approach that narrows broad research trajectories into specific areas of focus. After reviewing previous literature and observing the limited number of studies exploring the relationship between AI and fraud detection, this study adopted “Artificial Intelligence” and “Audit Fraud” as the primary keywords, applied consistently in the title, abstract, and keyword sections. Furthermore, the Scopus database was utilized as a key resource for literature collection, identification of field experts, and monitoring of ongoing research trends. The integration of bibliometric analysis and systematic review thus provides a comprehensive and holistic understanding of the research landscape. Prisma Diagram The following is a diagram of the prism used in this study, illustrated in Figure 1 below:

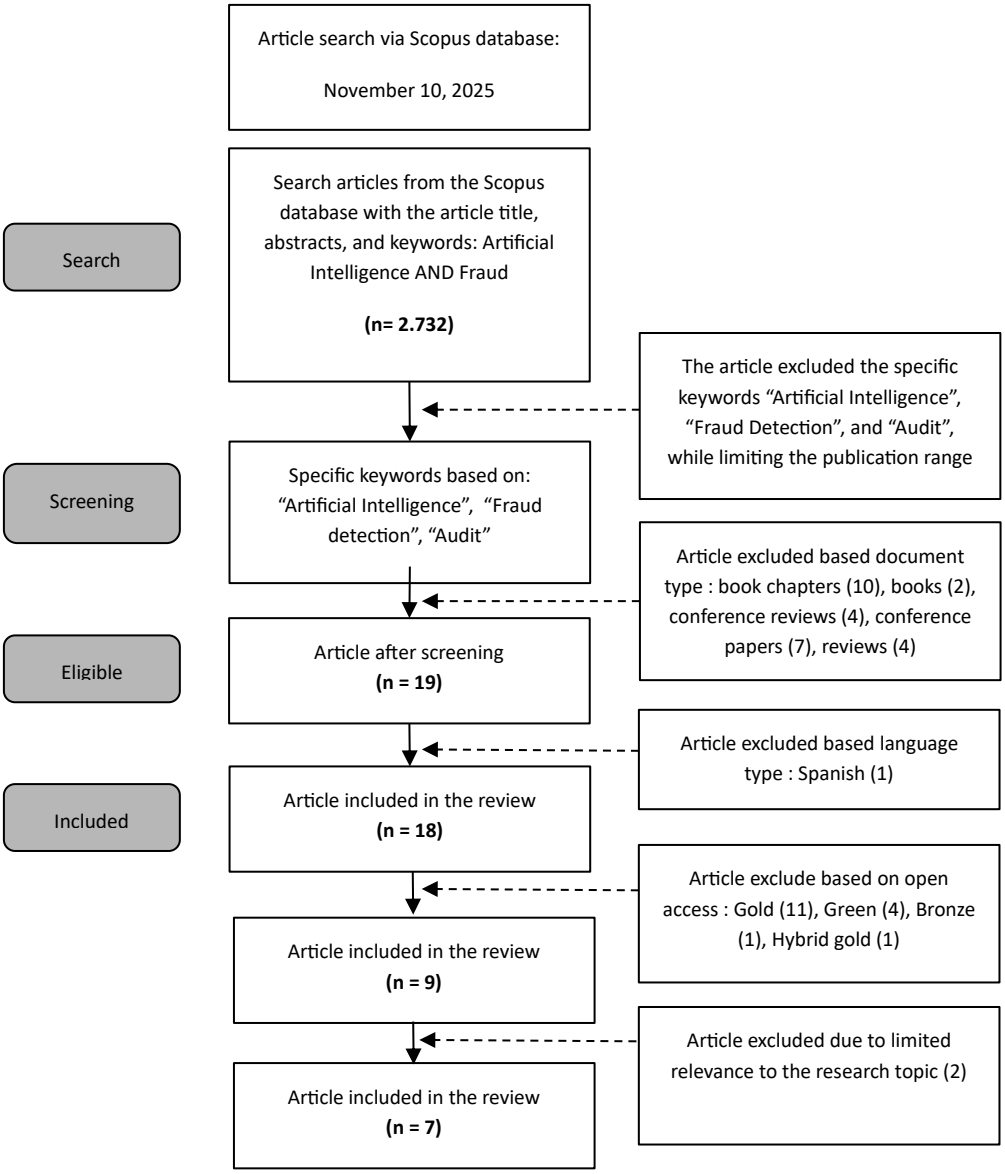


Figure 1. Systematic Literature Review Information Flow Using PRISMA

According to the search outcomes retrieved on November 10, 2025, from the Scopus database utilizing the article title, abstract, and keywords: "Artificial Intelligence" AND "Fraud", the total number of articles obtained across various academic disciplines, spanning from the earliest publication year to the most recent in 2025, was 2,732 documents (refer to Table 1). Following these findings, a screening process was conducted to filter documents according to their classification. Articles were eliminated based on document type, including book chapters (10), books (2), conference reviews (4), conference papers (10), reviews (4), publication range to 2015–2025 (2,685), non-English publication (1) and based on open access : Gold (11), Green (4), Bronze (1), Hybrid gold (1). Additionally, two articles were removed due to limited conceptual alignment with the research focus, resulting in a total exclusion of 47 documents. The screening results, categorized by document types, yielded 7 eligible articles.

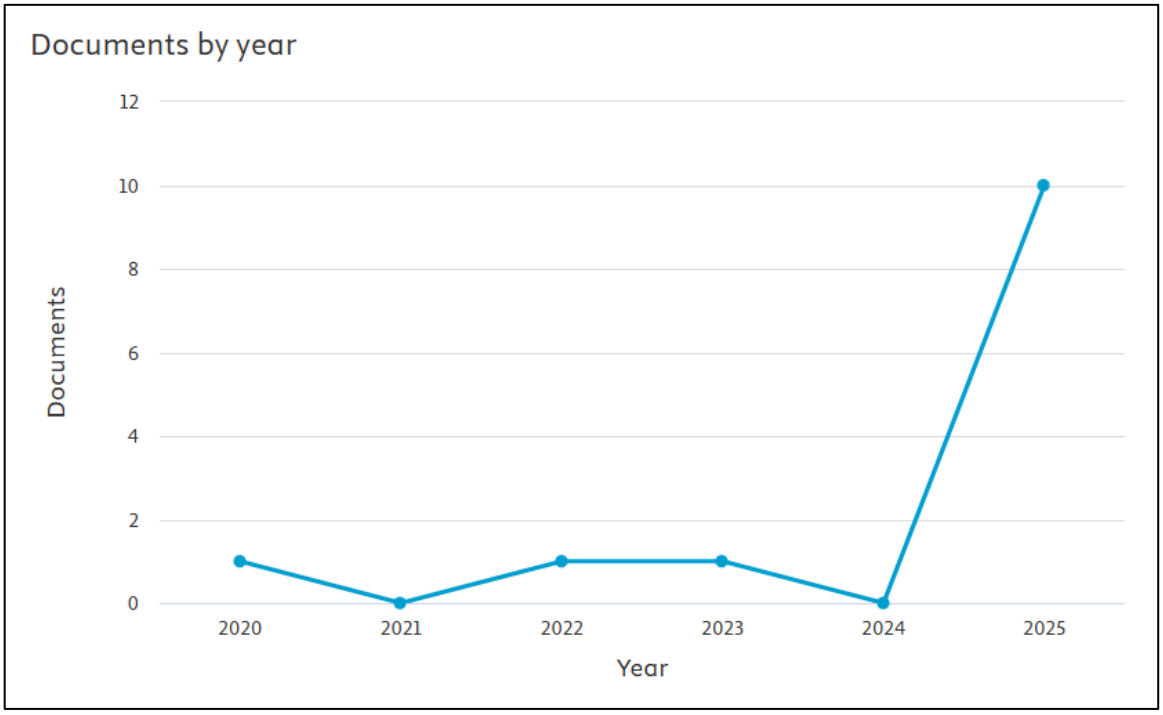
This document is then further analyzed in this study to answer RQ1: Does the exploration of the relationship between Artificial Intelligence and Audit Fraud Detection still hold significance for future academic research? RQ2: How is current research allocated regarding Artificial Intelligence and Audit Fraud Detection? RQ3: What are the theoretical and practical implications from the perspective of future research?

RESULTS AND DISCUSSIONS

The results of this study focus on findings from 7 articles in the Scopus database on Artificial Intelligence and Audit Fraud Detection. This data is sourced from identifying the number of articles published, publicationa throughout the years, and journal sources. This study will also highlight the most influential elements in between Artificial Intelligence and Audit Fraud Detection, including the authors, affiliations, and the countries, involved.

RQ1: Does the exploration of the relationship between Artificial Intelligence and Audit Fraud Detection still hold significance for future academic research?

Based on data retrieved from the Scopus database, research on the relationship between Artificial Intelligence (AI) and Audit Fraud Detection has shown a significant upward trend from 2020 to 2025, with a sharp rise in publications in 2025, indicating sustained academic relevance. Studies such as (Dash et al., 2025) and (Hidayat & Lindrianasari, 2025) emphasize that AI enhances audit efficiency and fraud detection accuracy through machine learning and automated data analysis, while (Chen & Wu, 2022) highlight the integration of AI and big data in adaptive financial monitoring. Furthermore, (Guerrero et al., 2025b) demonstrate that combining AI with Robotic Process Automation (RPA) strengthens decisionmaking and internal control. Despite these advancements, challenges related to algorithm transparency, ethics, and auditor readiness remain, underscoring that AI–based fraud detection continues to be a vital and evolving area for future academic research.The result of SEM-PLS statistical testing can be seen in the table below.



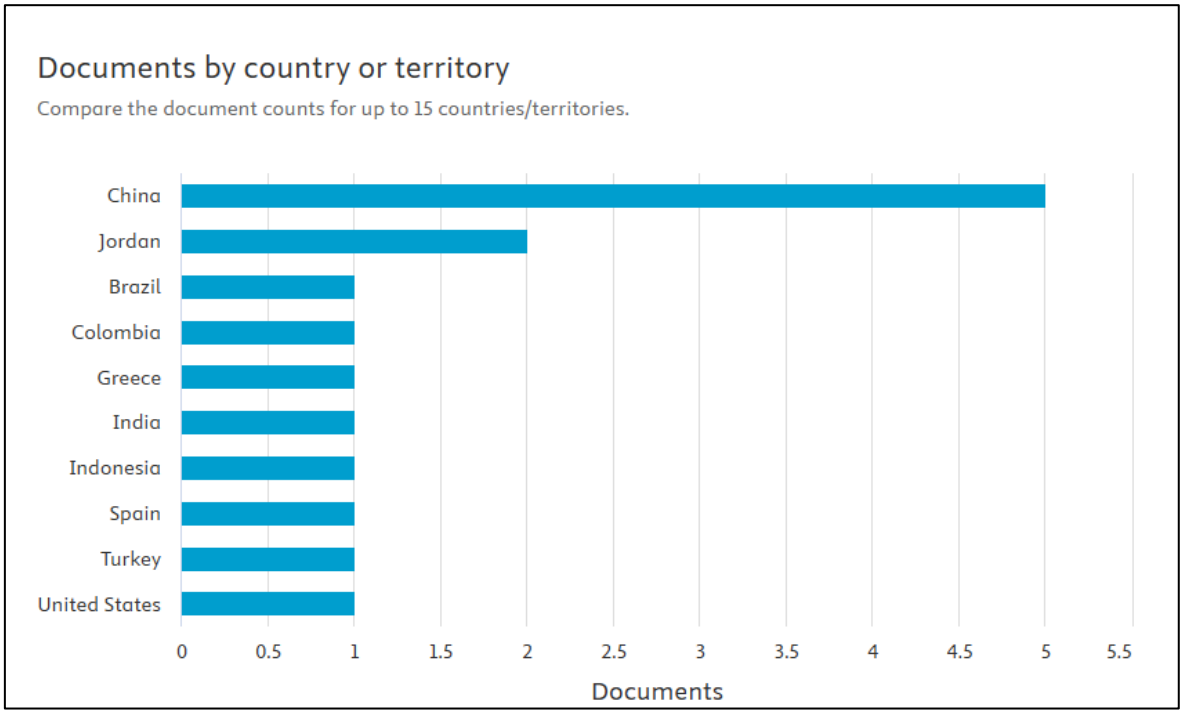
Source: Scopus Database

Figure 2. Number of Artificial Intelligence and Audit Fraud Detection Publication

RQ2: How is current research allocated regarding Artificial Intelligence and Audit Fraud Detection?

The analysis of the distribution of Artificial Intelligence and Audit Fraud Detection research was executed by categorizing the articles according to classifications such as nation, region, affiliation, source, and author, with a constraint of solely the top 10 articles in each classification. Acumen regarding the allocation of scholarship pertinent to AI and audit fraud detection will be advantageous for scholars and practitioners in elucidating the forthcoming research agenda, particularly in the sustainable advancement of AIbased auditing and fraud detection practices.

First, the allocation of scholarly inquiry pertinent to Artificial Intelligence and Audit Fraud Detection categorized by nation or geographical area is dominated by China with 5 articles, followed by Jordan with 2 articles, and Brazil, Colombia, Greece, India, Indonesia, Spain, Turkey, and the United States with 1 article each (see Figure 3).

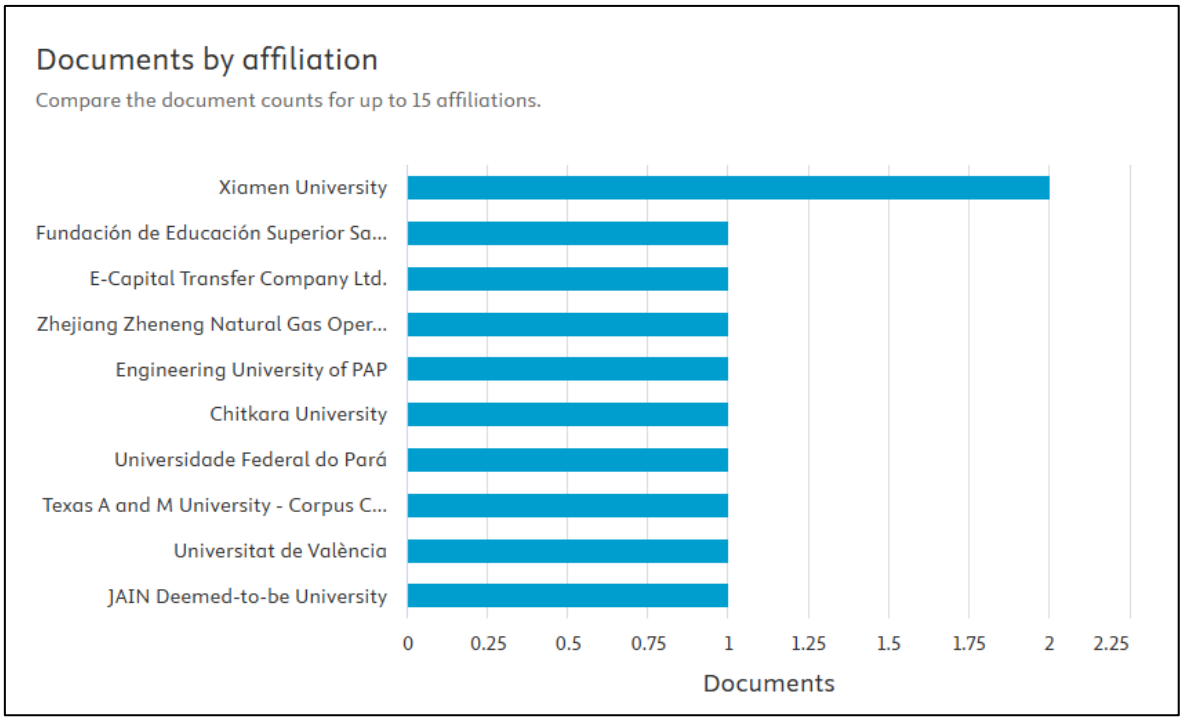


Source: Scopus Database

Figure 3. Number of Articles by Country or Territory (Top 10 Countries)

These findings further reinforce the idea that the exploration of Artificial Intelligence and Audit Fraud Detection has gained increasing attention among various institutional affiliations across different countries. The development of AIbased auditing practices and fraud detection mechanisms has become a key academic focus, reflecting global collaboration and interest among universities and research institutions.

Second, the allocation of scholarship pertinent to Artificial Intelligence and Audit Fraud Detection predicated on institutional affiliations is predominantly characterized by Xiamen University (China) with 2 articles. Other notable contributors include Fundación de Educación Superior San José (Colombia) with 1 article, E-Capital Transfer Company Ltd. (United States) with 1 article, Zhejiang Zheneng Natural Gas Operation Company (China) with 1 article, Engineering University of PAP (Turkey) with 1 article, Chitkara University (India) with 1 article, Universidade Federal do Pará (Brazil) with 1 article, Texas A&M University Corpus Christi (United States) with 1 article, Universitat de València (Spain) with 1 article, and JAIN Deemedtobe University (India) with 1 article (see Figure 4).

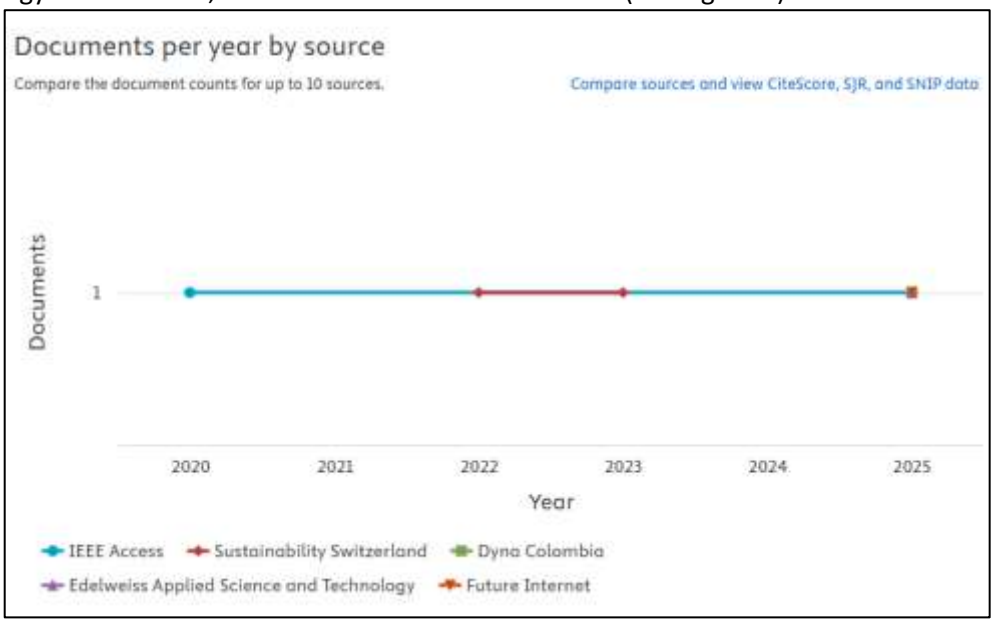


Source: Scopus Database

Figure 4. Number of Articles by Affiliation

Publications predicated on affiliations elucidate that scholarly attention toward Artificial Intelligence and Audit Fraud Detection is not limited to academic institutions but also extends to diverse research sources across international journals. This indicates the topic's interdisciplinary relevance and growing presence within various scientific and technological outlets.

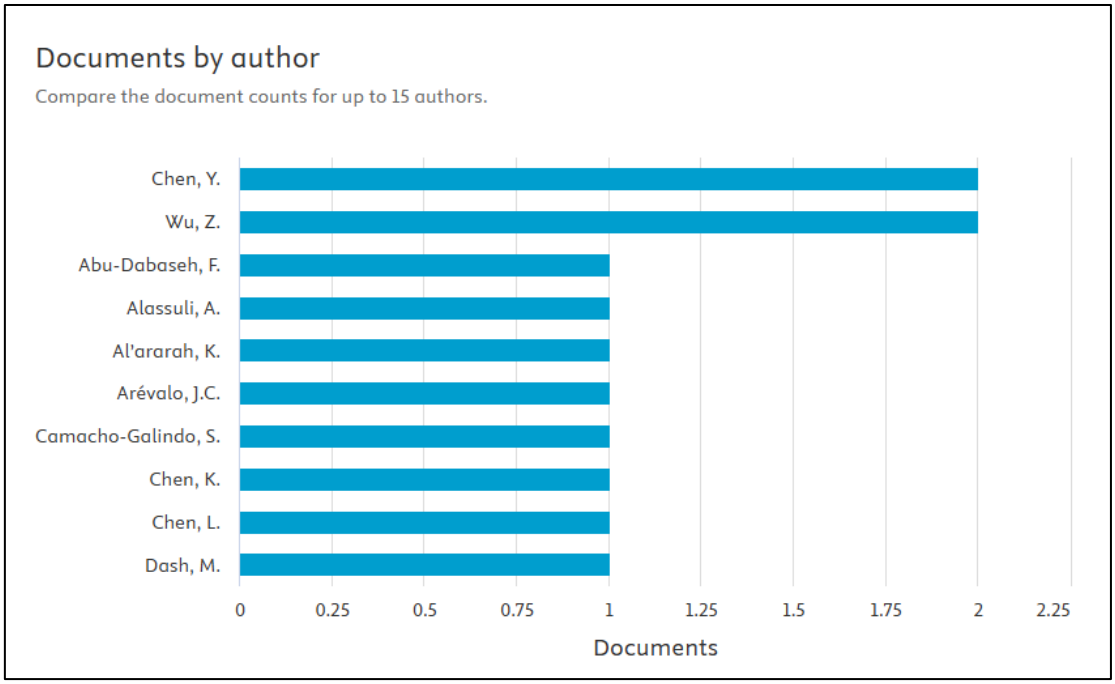
Third, the allocation of inquiries about Artificial Intelligence and Audit Fraud Detection based on the source is predominantly characterized by IEEE Access with 1 article, Sustainability (Switzerland) with 1 article, Dyna (Colombia) with 1 article, Edelweiss Applied Science and Technology with 1 article, and Future Internet with 1 article (see Figure 5).



Source: Scopus Database

Figure 5. Number of Articles by Sources (Top 10 Sources)

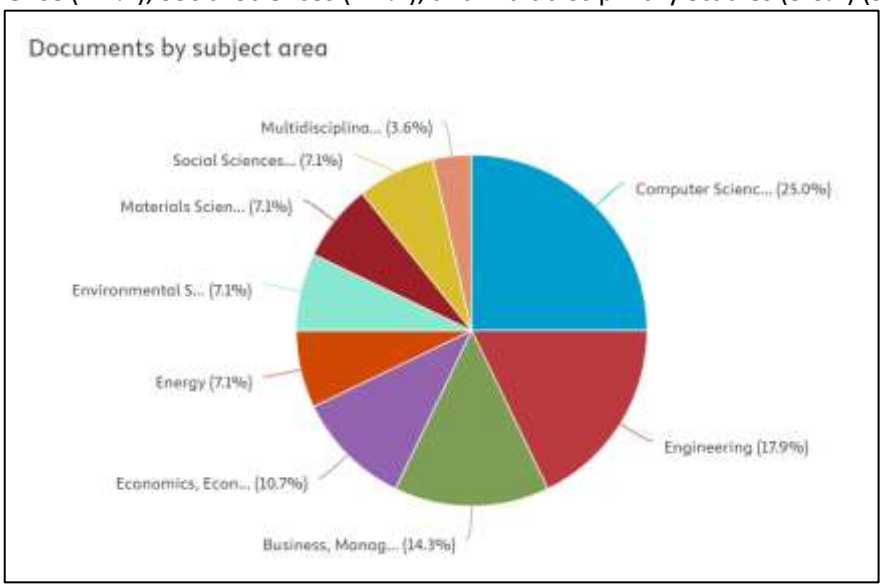
Fourth, the distribution of research related to Artificial Intelligence and Audit Fraud Detection based on authors reveals no clear dominance. Among the top 10 authors, 2 of them (Chen, Y. and Wu, Z.) have each written 2 articles, while the remaining authors AbuDabaseh, F.; Alassuli, A.; Al'ararah, K.; Arévalo, J.C.; CamachoGalindo, S.; Chen, K.; Chen, L.; and Dash, M. have each contributed 1 article (see Figure 6).



Source: Scopus Database

Figure 6. Count of Publications by Author (Top 10 Authors)

Fifth, the distribution of research related to Artificial Intelligence and Audit Fraud Detection based on subject areas indicates that the topic spans multiple academic disciplines. The majority of studies are concentrated in Computer Science (25.0%), followed by Engineering (17.9%), and Business, Management, and Accounting (14.3%). Other contributing disciplines include Economics, Econometrics, and Finance (10.7%), as well as Energy (7.1%), Environmental Science (7.1%), Materials Science (7.1%), Social Sciences (7.1%), and Multidisciplinary Studies (3.6%) (see Figure 6).



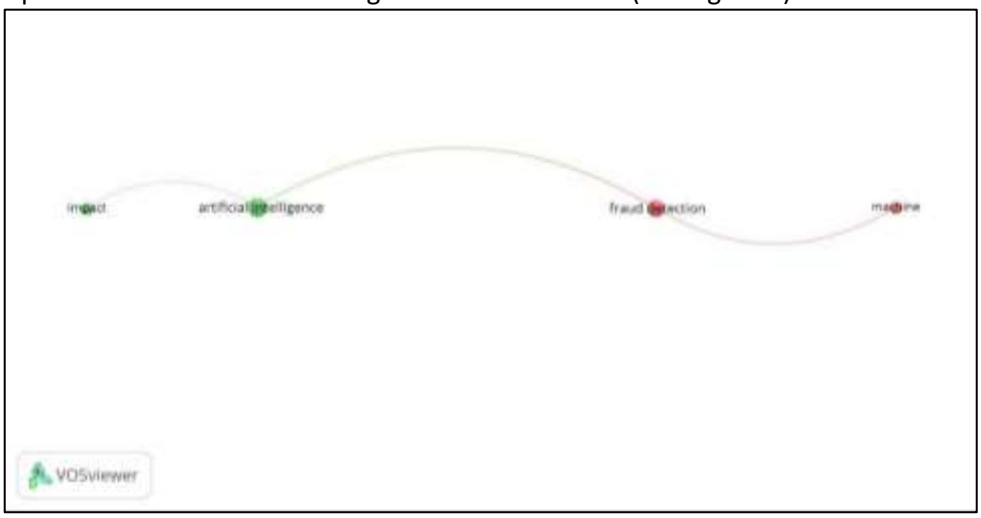
Source: Scopus Database

Figure 7. Count of Publications by Subject Area

RQ3: What are the theoretical and practical implications from the perspective of future research?

The examination was undertaken on the selected manuscripts amassed from the Scopus repository. VOSviewer was employed to illustrate that the results may possess theoretical and pragmatic ramifications for forthcoming inquiries into the integration of Artificial Intelligence (AI) in fraud detection and auditing. The results of the metadata analysis using VOSviewer will help researchers and practitioners better understand the assumptions and findings related to AIdriven auditing systems. The bibliometric analysis results using VOSviewer can show which variables have been extensively researched by previous scholars and which variables remain underexplored, serving as a foundation for future studies. From a practitioner's perspective, the literature analysis results using VOSviewer will assist auditors, data scientists, and financial institutions in implementing AIbased fraud detection practices sustainably in the future and enhancing audit quality across organizations worldwide.

From Figure 8, the occurrences of dominant keywords include artificial intelligence, fraud detection, machine, and impact, indicating that future research directions are primarily focused on the utilization of machine learning techniques to improve the accuracy and efficiency of fraud detection systems. This demonstrates a growing trend toward the adoption of AIdriven auditing tools and predictive models in detecting fraudulent activities (see Figure 8).



Source: Output VOSviewer software

Figure 8. Cooccurrence Framework and Representation of Key Terms

Table 1. Keywords by Authors

Rank	Keyword	Total Link Strenght
1	Fraud Detection	14
2	Artificial Intelligence	13
3	Machine Learning	18
4	Detection Method	6
5	Risk Management	1

Source : Output VOSviewer software

From Table 1, the keywords that appear in the analysis are fraud detection (14), artificial intelligence (13), machine learning (18), detection method (6), and risk management (1). Among

these, machine learning has the highest total link strength (18), followed by fraud detection (14) and artificial intelligence (13). This shows that these three topics are the main focus of the studies included in the dataset. The other keywords, detection method and risk management, appear less often and have lower link strengths, meaning they play a supporting role in the overall research pattern.

Based on these results, most previous studies concentrate on technologybased approaches for identifying fraud, especially those that use artificial intelligence and machine learning. However, topics related to detection methods and risk management are not explored as deeply. This indicates that future research should pay more attention to these areas. Strengthening the connection between advanced detection technologies and broader risk management practices can help create a more complete understanding of how fraud can be detected and prevented effectively.

Research Results

The following table summarizes the results of a review of five previous studies that were selected through a systematic process based on the PRISMA flow diagram:

PRISMA DIAGRAM RESULTS

No.	Author /Year	Research Objective	Type of Research	Data Collection Method	Population and Sample	Results
1.	Chen & Wu (2022)	To develop machine learning-based full population auditing method for detecting accounting anomalies	Quantitative	Secondary data from enterprise financial records	14,681 travel expense samples (2020) for training; 10,738 samples (2021) for testing from Chinese state-owned enterprise	CART model achieved 98.45% consistency. Precision and recall >99% for 9 major categories. Successfully detected abnormal treatments and unclear accounting rules

2.	Kerr et al. (2025)	To examine AI impact on management accounting and assess relationship with economic/social variables	Review and Quantitative Analysis	Systematic review of literature on AI history and applications; quantitative analysis using the Global AI Index (GAI), GDP per capita, and the Social Progress Index (SPI)	69 countries with complete AI Index, GDP, and SPI data	Strong positive correlation between AI adoption and GDP ($p \leq 0.000$). Top tercile GDP: $50,278 vs. bottom: $9,265. Higher AI correlates with higher social progress (SPI: 85.3 vs. 69.2)
3.	Dash et al. (2025)	To explore AI applications in auditing for fraud detection and risk assessment enhancement	Conceptual with statistical analysis	Literature review, case studies, and expert interviews	Employee activity logs and transaction records (2021-2023); 70% training, 30% testing split	AI enhances fraud detection speed and accuracy. No gender-based perception differences ($p = 0.981$). High variability in user understanding observed
4.	Hidayat & Lindrianasari (2025)	To evaluate AI impact on audit efficiency and compare AI users vs. non-users	Quantitative	Structured questionnaire via Google Forms	204 external auditors from Indonesian public accounting firms (40.8% response rate)	Digital transformation negatively affects fraud risk ($B = -0.725$, $p < 0.001$). Cybersecurity moderates relationship ($B = 0.245$, $p < 0.001$). $R^2 = 0.655$.

						Sensitivity = 76.5%
5.	Abu-Dabaseh et al. (2025)	To explore digital transformation impact on fraud risk with cybersecurity as moderator	Quantitative	Structured questionnaire via email (Google Forms)	204 employees from audit and accounting firms in Jordan	Digital transformation reduces fraud risk. Cybersecurity maturity moderates effect (B = 0.245, p < 0.001). R^2 = 0.631. All constructs valid (CR > 0.89, AVE > 0.67)
6.	Chen & Wu (2023)	To develop fraud detection models for Chinese companies and compare single vs. ensemble classifiers	Quantitative	Secondary data from CSMAR database	35,574 annual reports (1998-2016); 337 fraud samples; 4,463 matched non-fraud samples	Stacking algorithm best: AUC = 0.742, sensitivity = 76.5%, precision = 76.5%. Ensemble learning outperforms single classifiers. Western models require Chinese market adaptation
7.	Guerrero et al. (2025)	To examine AI, RPA, and Big Data integration in strategic accounting management	Mixed-Methods (Systematic Literature Review, Case Studies, Interviews,	Systematic literature review, internal documentation, structured interviews with	Accounting firms in Colombia and Brazil (PwC, Datactil) and 30 experts from financial and	AI reduces processing time 50%; RPA reduces errors 60%; Big Data improves accuracy 40%. 83% report efficiency gains.

			Quantitative Analysis)	accounting and technology experts, and quantitative analysis	technology sectors	Barriers: resistance (17%), infrastructure (50%), training (33%)

Source: Data processed (2025)

The synthesis of the seven selected studies shows a consistent conclusion that the adoption of Artificial Intelligence in auditing strengthens fraud detection, improves audit efficiency, and enhances the overall reliability of audit procedures. Across different countries and research designs, the evidence indicates that AI-driven audit techniques allow auditors to analyze financial and behavioral data more deeply and accurately than traditional manual approaches.

A major contribution comes from the research conducted by Chen and Wu in 2022 and 2023. Their findings demonstrate that machine learning has the ability to shift the audit process from limited sampling toward full-population testing. Using more than twenty-five thousand travel expense transactions, their 2022 study proves that the CART model can achieve extremely high performance with precision and recall above ninety-nine percent. Their 2023 study further strengthens this conclusion by showing that ensemble learning models, particularly the Stacking method, perform significantly better than single algorithms. The model reaches an AUC value of 0.742 with strong sensitivity and precision. Together, these results show that AI-based fraud detection reduces the possibility of overlooked anomalies and greatly enhances the credibility of audit evidence.

The study by Dash and colleagues in 2025 provides additional support for the effectiveness of AI in identifying fraudulent behavior. By examining employee activity logs and transactional records, they find that AI tools can improve both the speed and accuracy of fraud detection. The study also reveals wide differences in digital literacy among auditors, which means that the usefulness of AI depends not only on the technology itself but also on the ability of users to operate and interpret it. This finding highlights the importance of improving auditor competence so that AI can deliver its full benefits.

Further evidence arises from Indonesia through the work of Hidayat and Lindrianasari in 2025. They show that digital transformation, including the use of AI tools, significantly reduces fraud risk among external auditors. The impact becomes even stronger when cybersecurity maturity is considered as a moderating factor. With an R^2 value of 0.655, the study illustrates that the effectiveness of AI-supported auditing relies heavily on the strength of an organization's digital security. A similar pattern appears in Jordan based on the study by Abu-Dabaseh and colleagues in the same year. They confirm that digital transformation consistently lowers fraud risk and that cybersecurity preparedness is essential for maximizing the positive impact of AI technologies.

A broader perspective is provided by Kerr and colleagues in 2025. Their analysis of multiple countries shows that higher AI readiness is closely associated with higher levels of economic performance and social progress. Although the study does not focus directly on fraud detection, it suggests that countries with strong AI capabilities tend to have better technological governance and

stronger accountability systems. These conditions indirectly support the adoption of AI-driven audit processes, including those related to fraud detection.

Additional insights come from the study by Guerrero and colleagues in 2025, which examines the combined use of AI, Robotic Process Automation, and Big Data in accounting environments in South America. Their findings show noticeable improvements in efficiency and accuracy, including shorter processing times, fewer human errors, and more precise analytical results. Even though this study is not specifically centered on fraud, the improvements in accuracy and transparency create an environment that naturally supports better fraud prevention and detection.

Discussion

Based on the seven studies that were analyzed, the relationship between Artificial Intelligence, auditing practices, and fraud detection reveals a strong and consistent pattern. The collective evidence shows that AI significantly enhances the auditor's ability to identify irregularities, evaluate risk, and strengthen the integrity of the audit process. However, the degree of improvement varies across contexts, depending on the type of AI model used, the readiness of organizations, and the level of digital competence within the audit environment.

The studies conducted by Chen and Wu in 2022 and 2023 provide the strongest indication that AI can fundamentally reshape fraud detection in auditing. Their findings show that machine learning models, especially ensemble learning techniques, outperform traditional audit approaches by enabling full-population testing and achieving high levels of accuracy. These results imply that AI can help auditors detect subtle anomalies that would likely be missed under manual or sampling-based procedures. In this sense, AI serves not only as a supportive tool but as an independent analytical mechanism that enhances the credibility of audit evidence and reduces detection risk.

The study by Dash and colleagues in 2025 supports this conclusion by highlighting that AI tools accelerate the identification of suspicious activities. Their research shows that AI increases both the speed and precision of fraud detection by analyzing employee activity logs and transaction histories. Nevertheless, the study also emphasizes that digital literacy gaps among auditors may limit the full potential of AI. This finding suggests that while AI is highly effective, its success depends on the competence and readiness of its users. It becomes clear that auditor training and technological understanding play a crucial role in maximizing the benefits of AI in fraud-oriented audit work.

Further evidence from Indonesia through the study of Hidayat and Lindrianasari in 2025 strengthens the argument that AI-driven digital transformation reduces fraud risk. Their findings indicate that the presence of mature cybersecurity systems enhances the effectiveness of digital audit tools. With a high explanatory value, the study illustrates that AI cannot operate optimally without a secure and reliable digital environment. This pattern is echoed in the study conducted by Abu-Dabaseh and colleagues in Jordan, which similarly finds that digital transformation lowers fraud risk as long as cybersecurity maturity is sufficiently developed. These results demonstrate that AI in auditing is inseparable from the broader digital infrastructur that supports it.

Although Kerr and colleagues in 2025 do not focus specifically on fraud, their macro level analysis shows that nations with strong AI readiness tend to exhibit higher levels of accountability and technological governance. These conditions indirectly support the adoption of AI-driven auditing techniques. Their findings imply that the success of AI in detecting fraud may also depend on national-level factors such as technological advancement and institutional stability.

The study by Guerrero and colleagues in 2025 provides additional insights by showing that the integration of AI, Robotic Process Automation, and Big Data strengthens the reliability of accounting processes. The reduction of human error and the improvement in analytical accuracy suggest that digital systems create an environment where fraudulent activities become easier to

detect. Even though this study does not focus directly on fraud detection, its findings reinforce the idea that AI-supported systems enhance transparency and operational integrity, which are critical components in preventing and detecting fraud.

From the seven studies examined, the relationship between AI and fraud detection in auditing appears to be strongly positive. AI improves the accuracy of fraud identification, reduces the likelihood of error, and supports more objective audit assessments. However, the studies also show that these benefits are not automatic. The effectiveness of AI depends heavily on the competence of auditors, the preparedness of organizations, and the strength of cybersecurity systems. In some cases, technology alone is not enough, and human expertise remains an essential component in ensuring reliable audit outcomes.

Overall, the findings reveal that AI plays an increasingly important role in modern fraud detection. AI strengthens the auditor's analytical capability, enhances the quality of audit evidence, and speeds up the process of identifying irregularities. Yet the successful application of AI relies on a balanced combination of technology, human judgment, ethical behavior, and organizational support. This indicates that while AI is a powerful tool in combating fraud, it must be accompanied by strong governance, continuous training, and robust digital infrastructure to be fully effective.

CONCLUSION

The review of the seven studies points to the same general idea, which is that Artificial Intelligence tends to make fraud detection in audits work better, although not always in the same way for every situation. Several of the studies bring up solid findings showing that machine learning and different ensemble techniques manage to catch unusual patterns faster and with more precision than methods that rely heavily on manual checking. With these tools, auditors can work through entire datasets instead of using small samples, and they can notice irregular details that would probably be missed in a regular audit. Even with those advantages, the results are not completely consistent, because the success of AI depends on a mix of factors such as the auditors' digital skills, the level of cybersecurity protection in the organization, and whether the whole system is ready to support more advanced technology. When those parts fit together properly, AI tends to improve audit quality and help reduce undetected fraud, but it still needs human interpretation and a supportive environment to work as intended.

Improving the impact of AI in auditing requires organizations to keep developing the skills of their auditors, especially their ability to read and interpret insights generated by AI tools. Strengthening cybersecurity also becomes important so that the information processed by these systems stays secure and reliable. Another thing that organizations need to pay attention to is whether their digital infrastructure is strong enough to handle AI-based audit work, because outdated systems can limit the benefits. The studies also mention several areas that future researchers should explore, such as how culture inside the organization affects the use of AI, how ethical concerns and regulatory requirements shape its implementation, and how auditors' professional skepticism might influence the way AI findings are used. By understanding these different elements, both researchers and practitioners can get a clearer picture of how AI can actually help reduce fraud risks and improve audit results in different types of organizations.

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