

Article

Analysis of the Role of Artificial Intelligence (AI) and Blockchain Technology in Improving the Effectiveness of Fraud Detection Audits: A Literature Review

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Abstract: The development of digital technology has transformed auditing practices, particularly in improving fraud detection effectiveness. The complexity of financial transactions, large data volumes, and limitations of conventional audit methods have encouraged the adoption of technologies such as Artificial Intelligence (AI) and Blockchain. This study analyzes the role of AI and Blockchain in enhancing audit effectiveness in fraud detection using a systematic literature review (SLR) approach. The method follows PRISMA guidelines by reviewing nationally and internationally indexed articles published between 2022 and 2024. The findings indicate that AI supports large-scale data analysis, anomaly detection, and predictive as well as real-time fraud identification. Meanwhile, Blockchain enhances audit data integrity, transparency, and reliability through an immutable and decentralized recording system. The integration of these technologies promotes a more effective and sustainable auditing system, although challenges remain regarding human resource readiness, technological infrastructure, and ethical and legal considerations.

Keywords: Artificial Intelligence, Audit, Blockchain, Fraud Detection, Systematic Literature Review

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1. Introduction

Cheating (*fraud*) in financial reporting is still a serious issue that demands global attention[1]. Cases of accounting irregularities, manipulation of financial data, and misuse of company assets continue to occur in various sectors and cause significant economic losses. The impact of this practice is not only financially detrimental, but also lowers the level of public trust in the integrity and credibility of the institutions involved[2]. Based on the report *Association of Certified Fraud Examiners* [3], the average organization worldwide loses about 5% of its total revenue each year to fraudulent acts, in an increasingly complex and difficult mode to detect through conventional auditing approaches. This condition shows that traditional audit systems are not fully able to provide effectiveness in preventing and detecting indications *fraud* Amid increasing complexity of transactions and volumes of financial data[4].

Major changes in the global business ecosystem have prompted the auditor profession to transform towards Digitization of the audit process[5]. This is triggered by the acceleration of information technology development, the development of increasingly adaptive digital regulations and infrastructure, and the exploration of the use of technology post-pandemic. This phenomenon requires auditors to move from manual methods to the use of smart technologies such as *Artificial Intelligence* (AI) and *Blockchain* which is able to detect transaction anomalies *real-time*, conduct predictive analysis of

potential fraud, and ensure data reliability through transparent and immutable recording to improve the effectiveness, efficiency, and accuracy of the audit process[6].

Digitizing audits through the use of artificial intelligence (AI) and technology *blockchain* continues to increase in line with the widespread application of digital technology in global financial institutions[7]. This condition is reflected in the high adoption rate of algorithms *machine learning* in fraud detection and prevention systems. This development is inseparable from the increasing complexity of patterns *fraud*, involving high-speed digital transactions, interaction between information systems, and large volumes of data, thus causing limitations to conventional audit methods. On the other hand, the shift in work patterns towards a remote work model in the accounting and auditing professions allows auditors to carry out audit procedures without a physical presence at the entity's premises, which in turn demands the availability of technology-based audit systems that are able to ensure data integrity, process transparency, and testing reliability on an ongoing basis[8].

While AI is able to speed up analysis and improve accuracy in detecting anomalies, human auditors still play an important role because professional judgment, ethical context, and intuition cannot be fully replicated by algorithms[9]. On the other hand, *blockchain* Offering transparency and data integrity that strengthens the verification process as well as tracking audit evidence. Thus, AI and *blockchain* It serves as a supporting tool that increases the effectiveness of auditors in assessing risks and finding indications of fraud, without replacing the essence of decision-making that requires professional competence and independence[10].

Artificial Intelligence (AI) and *Blockchain* be an innovation that plays a role as *enabler technologies* in improving audit effectiveness[11]. AI contributes through big data-driven analysis, anomalous pattern identification, and machine learning-based decision-making. This technology allows the execution of *continuous auditing* with wider coverage and efficient time. Research by [12] and [13] indicates that the algorithm *machine learning* Able to detect indications of fraud with higher accuracy than traditional methods. In practice, the use of artificial intelligence in audit activities needs to be accompanied by ethical principles and algorithm transparency, so that the objectivity of audit results can be maintained.

Meanwhile, *Blockchain* is a distributed database system that is decentralized, immutable, and transparent[14]. In audits, this technology provides proof of transactions that are difficult to manipulate, thus improving data reliability supporting continuous audits with timely verification of transactions[15]. Concept implementation *triple-entry accounting* based *blockchain* Allows the recording of connected transactions between the debtor, creditor, and auditor parties in a single shared recording system. For example, in a service payment transaction between a company and a supplier, the transaction is not only on the company's books as a debit party and the supplier's bookkeeping as a credit party, but also automatically generates one additional digital record that is stored on the *Ledger* and accessible to auditors. Every transaction is stored securely and not easily changed, checking without having to manually confirm both parties so as to increase transparency and accountability of financial records and reduce the risk of fraud[16]. Overall, AI integration and *blockchain* in the audit process has great potential to increase the effectiveness of detection *fraud* through intelligent data analysis and assurance of immutable information integrity. The combination of these two technologies creates a more efficient, transparent, and reliable audit process[17].

Various studies explore the application of AI technology and *blockchain* in audits and detection *Fraud*. For example, a systematic study by [18] Reviewed 104 articles on detection *Fraud* Finance through engineering *machine learning*, and found that most of the research still focused on the credit card and loan area, rather than on the process of auditing full financial statements. Furthermore, research by [19] Audit-based *blockchain* highlighting

advantages such as data integrity and transparency, but also noting the technical constraints and significant barriers to adoption.

In the field of auditing, the research referred to [20] and [21] in *Diponegoro Journal of Accounting* reveals that the utilization of integration between AI and technology *blockchain* able to strengthen transparency, speed up the examination process, and increase accuracy in detecting fraud. Artificial intelligence is used to analyze patterns as well as find irregularities in financial data, while *blockchain* function to maintain the authenticity and integrity of transaction data through the *triple-entry accounting*. However, the implementation of this technology in Indonesia still faces a number of challenges, especially related to information security, readiness of technological infrastructure, and human resource competence. On the other hand, research [22] also emphasizes that the problem *explainability* on the model *deep learning* It is an important issue, because the low level of model clarity still makes it difficult for auditors and analysts to interpret the results of anomaly detection.

The fifth synthesis of the journal shows that AI and *blockchain* have complementary roles in fraud prevention and detection, where AI provides predictive-adaptive capabilities while *blockchain* guarantees transparency as well as data reliability. The diversity and unmapped research related to fraud detection and investigation encourages this research to integrate these findings so that the development of this field can be understood more clearly and systematically. Thus, it was found that *the lack of* empirical data that evaluates the indicator of "fraud detection effectiveness" is not only efficiency in AI-blockchain integration in follow-up research audits is still needed. The purpose of this follow-up research is to synthesize and describe scientific evidence from journals and reports on the role of AI and *blockchain* technology in improving the effectiveness of *fraud detection* in the audit process.

The novelty of this research lies in an in-depth and systematic study of the synergy between AI and *blockchain* technology in increasing the effectiveness of fraud detection. The combination of AI's intelligent analysis capabilities with a patched and non-modifiable blockchain results in a faster, more precise, and more resistant to data manipulation anomaly detection systems. This approach presents a more flexible and reliable supervisory model in fraud prevention efforts. This study uses the *Systematic Literature Review* (SLR) method by accumulating and reviewing various relevant scientific publications for the 2022–2024 period, so that through this qualitative approach, a comprehensive picture is obtained regarding the benefits, constraints, and implementation of AI and *blockchain* integration in fraud detection comprehensively.

Problem Formulation:

1. What is the effect of the application of *Artificial Intelligence* and *blockchain* technology on increasing the effectiveness of *fraud* detection in audit activities?
2. What are the obstacles and benefits of implementing AI and *blockchain* to contribute to the fraud detection process?
3. What is the role of AI and *blockchain* collaboration in creating an audit system that is complementary and adaptive to *fraud risk*?

2. Materials and Methods

This study uses the *systematic literature review* (SLR) with reference to the Preferred guideline *Reporting Items for Systematic Reviews and Meta-Analyses* (PRISMA). This approach is chosen according to [23], SLR is a scientific method that aims to identify, evaluate, and interpret all relevant research through a systematic, transparent, and replicable process.

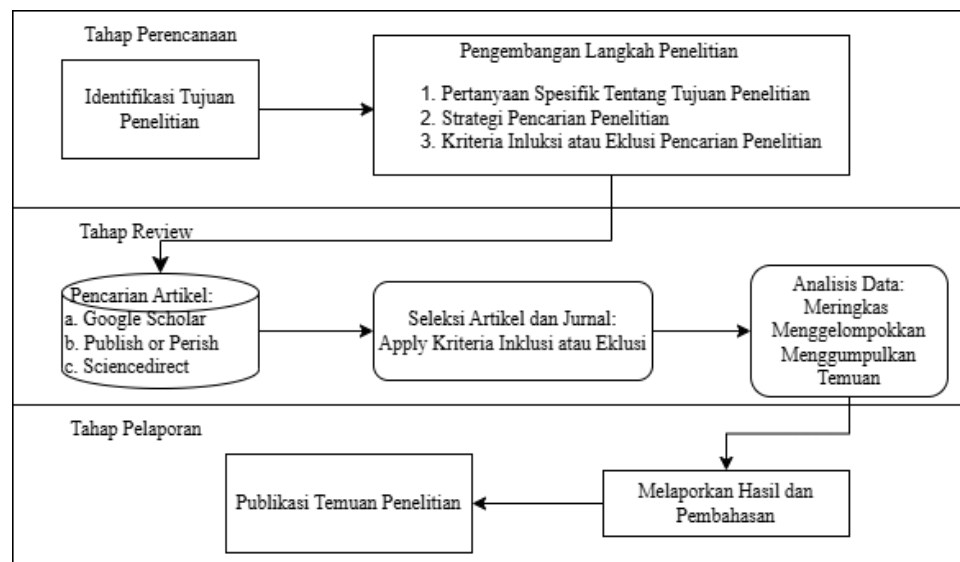


Figure 1. Research Stages Used

Source: Article Analysis[24]

a) Identification

The research stage begins with the identification of research objectives to determine the conceptual direction of the study. Furthermore, the formulation of research questions and the preparation of literature search strategies were carried out. Article searches are conducted through reputable academic databases, namely *SINTA*, *Publish or Perish*, and *Google Scholar*, using a combination of keywords ("Artificial Intelligence" or "AI" or "Machine Learning") and ("Blockchain") and ("Audit" or "Fraud").

b) Selection

The initial search results yielded 987 publications, consisting of 298 articles from *SINTA*, 582 articles from *Publish or Perish*, and 107 articles from *Google Scholar*. To obtain relevant literature, screening was carried out based on the 2022–2024 publication year range, the type of source in the form of scientific journals, and fields of study which include business, management, accounting, economics, and finance. The selection of the 2022–2024 period is based on the increasing intensity of scientific publications discussing the use of *Artificial Intelligence* and *blockchain* technology in the context of audit and *fraud detection* in that period. In addition, during this period, technological development, organizational adoption rates, and regulatory frameworks related to the two technologies are considered to have entered a relatively mature phase, so that research findings are considered more stable, relevant, and representative to be analyzed.

Based on the results of the initial screening, the number of publications identified was then narrowed down to 163 articles that were considered to be related to the focus of the research. The next stage of selection is carried out through the review of titles and abstracts, as well as the process of removing duplicate data using *Mendeley* software. Through this stage, as many as 22 articles were obtained that met all the inclusion criteria set in the research.

c) Review

The selected articles are then analyzed through a *full-text reading* process and thematic synthesis is carried out with the help of *VOSviewer* software. The analysis stage is focused on grouping the literature into three main themes, namely: (1) the benefits of implementing the integration of *Artificial Intelligence* and *Blockchain technology*, (2) challenges in the implementation process, and (3) its implications and contribution to the

development of accounting and auditing practices, especially in efforts to improve the effectiveness of *fraud detection*.

d) Reporting

The final stage of research is directed at the preparation of the synthesis of findings and the reporting of research results systematically in accordance with the rules of scientific writing, so as to be able to provide a comprehensive overview of the role and effectiveness of the application of AI and *blockchain* in supporting auditor performance..

3. Results and Discussion

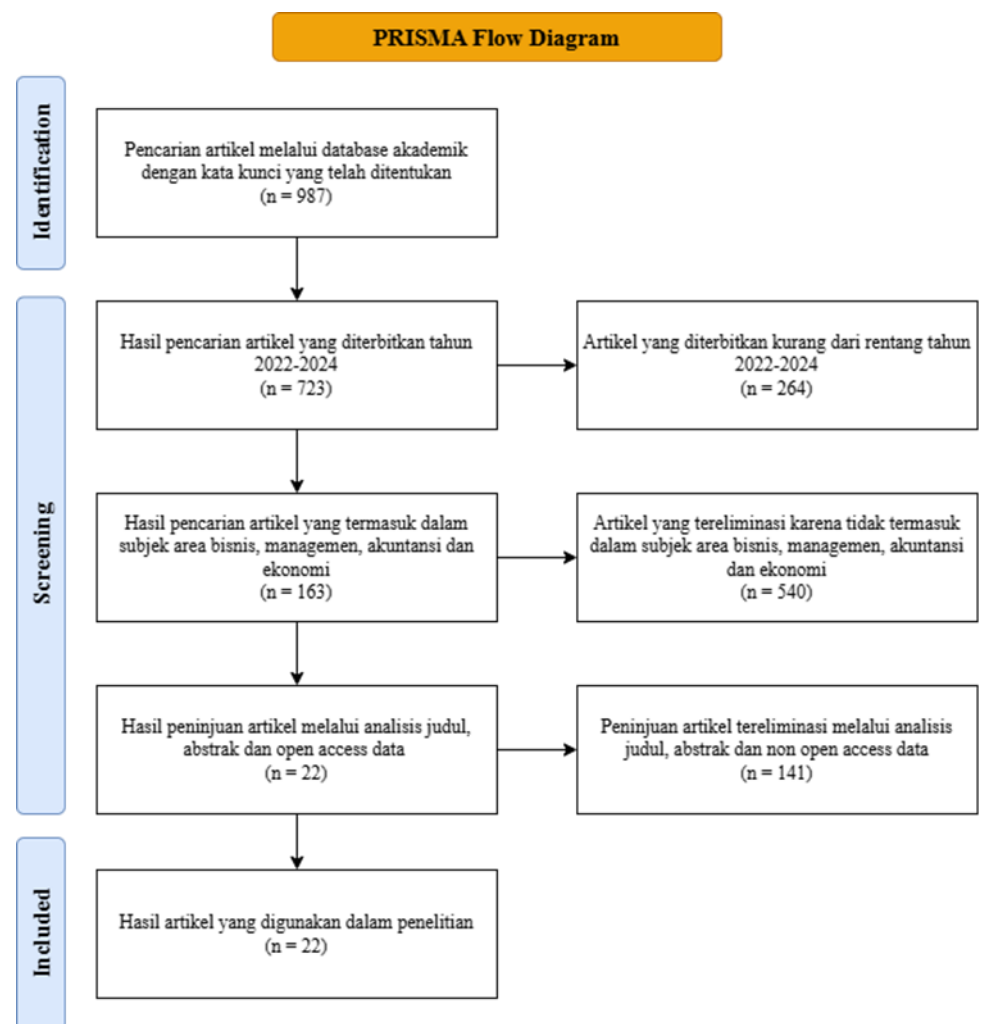


Figure 2. PRISMA flowchart

The results of this study used a systematic literature review that focused on mapping the use of *artificial intelligence* and *blockchain* technology in supporting *fraud detection* in the audit process. This approach not only examines how the two technologies are applied, but also identifies, evaluates, and interprets a variety of empirical research that has been conducted before. To obtain a comprehensive picture, this study examined twenty-two articles that were indexed by SINTA or SCOPUS as primary sources.

No.	Penulis (Judul)	Tahun	Metode Penelitian	Variabel Utama	Gap Penelitian	Temuan Utama
1	Han et al. (Accounting and Auditing with Blockchain Technology and Artificial Intelligence: A Literature Review)	2023	Literature Review tematik	Blockchain, AI-enabled auditing, transparansi, trust	Minim kajian empiris integrasi blockchain-AI dalam praktik audit	Blockchain mendukung audit berkelanjutan dan meningkatkan reliabilitas data audit melalui mekanisme konsensus dan immutable ledger
2	Vitali & Giuliani (Digital Transformation in Auditing)	2024	Studi kualitatif (wawancara)	RPA, AI, struktur organisasi audit, kompetensi auditor	Kurangnya pemahaman dampak teknologi pada organisasi audit non Big4	AI dan RPA meningkatkan efisiensi audit namun berpotensi memperlebar kesenjangan Big4 dan non Big4
3	Almaqari et al. (AI Adoption in Auditing)	2024	Kuantitatif (SEM)	AI, niat penggunaan audit informasi, perceived benefits	Minim bukti empiris dari negara berkembang	AI secara signifikan memperkuat niat dan penggunaan audit berbasis teknologi di Timur Tengah
4	Mahya et al. (Intelligent Automation and Fraud Detection)	2023	Bibliometrik SLR	Intelligent automation, fraud detection	Fokus riset masih terkonsentrasi pada sektor tertentu	Machine learning dominan dalam deteksi fraud, namun efektivitas reduksi fraud belum terukur jelas
5	Gokoglan et al. (Blockchain and Auditing)	2022	Literature Review konseptual	Blockchain, aktivitas audit, transparansi	Kurang kajian kesiapan auditor terhadap risiko baru blockchain	Blockchain menurunkan biaya monitoring audit dan meningkatkan audit trail namun membawa risiko teknologi baru
6	Abu Afifa et al. (Blockchain Adoption in Accounting)	2022	Kuantitatif (PLS-SEM)	Trust, UTAUT, niat adopsi blockchain	Faktor psikologis dan organisasi belum banyak diuji	Trust dan ekspektasi kinerja berpengaruh signifikan terhadap adopsi blockchain akuntansi
7	Ikhsan et al. (AI and Fraud Detection)	2022	Scoping Review	AI, data analytics, fraud detection	Minim implementasi pada lembaga audit publik Indonesia	AI dan data analytics meningkatkan akurasi dan kualitas audit internal secara signifikan
8	Jannah et al. (AI-Blockchain and Fraud Prevention)	2024	Bibliometrik	AI, blockchain, fraud prevention	Kolaborasi riset internasional masih terbatas	Tren riset AI-blockchain meningkat namun dominan bersifat konseptual
9	Mudhories et al. (AI Ethics and Fraud Detection)	2024	Bibliometrik	AI ethics, fraud detection	Dimensi etika AI kurang terintegrasi dalam model teknis	Kebutuhan kerangka etika AI sangat krusial untuk menjaga trust dan akuntabilitas audit digital
10	Syahranny & Dewayanto (AI, Blockchain, and Fraud Audit)	2024	Systematic Literature Review	AI, blockchain, fraud audit	Kurangnya panduan empiris integrasi AI-blockchain	AI meningkatkan akurasi deteksi fraud, blockchain menjamin validitas dan integritas data audit
11	Leocádio, Malheiro & Reis (AI in Auditing Practice)	2024	Systematic Literature Review	AI, praktik audit, real-time monitoring	Kurangnya kerangka konseptual operasional AI dalam audit	AI mentransformasi audit dari pendekatan retrospektif ke pemantauan proaktif berbasis data real-time
12	Ratna Sari & Muslim (Advanced Technology and Audit Quality)	2024	Mixed methods (survei & wawancara)	Blockchain, AI, big data, kualitas audit	Kesenjangan regulasi dan standar audit digital	Teknologi lanjut meningkatkan kualitas audit, namun menuntut tata kelola dan kompetensi auditor baru
13	Ramos, Perez-Lopez & Abreu (AI in Auditing and Fraud Detection)	2024	Bibliometrik + Systematic Review	AI, auditing, fraud detection	Minim riset aplikatif berbasis etika dan governance	AI berkontribusi signifikan pada pencegahan fraud, namun isu etika dan regulasi masih dominan
14	Fartika & Septiawan (Triple-Entry Accounting with Blockchain)	2022	Kualitatif deskriptif	Blockchain, triple-entry bookkeeping, fraud	Belum ada pengujian empiris skala organisasi	Triple-entry berbasis blockchain meningkatkan transparansi dan memperkuat audit trail
15	Hernandez Aros et al. (ML for Financial Fraud)	2024	SLR + bibliometrik	Machine learning, financial fraud	Dominasi riset credit card fraud, kurang sektor publik	ML efektif mendeteksi fraud finansial, namun isu data imbalance dan privasi masih kuat
16	Hasan (Artificial Intelligence (AI) in Accounting & Auditing: A Literature Review)	2022	Literature Review (naratif)	Artificial Intelligence, accounting, auditing	Minim studi empiris dan kerangka implementasi AI dalam praktik audit	AI meningkatkan efisiensi, akurasi, dan kualitas audit, namun menimbulkan tantangan etika, regulasi, dan kesiapan SDM
17	Rosnidah et al. (Detecting and Preventing Fraud with Big Data Analytics)	2022	Literature Review	Big data analytics, fraud detection	Implementasi big data audit masih terbatas	Big data analytics meningkatkan kapabilitas auditor dalam deteksi dan pencegahan fraud
18	Mawlidly et al. (AI-Based Fraud Detection)	2024	Systematic Literature Review	AI, ANN, ML, fraud audit	Minim kajian risiko etika dan keamanan data	AI berperan positif dalam deteksi fraud, namun menimbulkan isu privasi dan etika audit
19	Qader & Cek (Blockchain and AI on Audit Quality)	2024	Kuantitatif (PLS-SEM)	Blockchain, AI, audit quality	Kurang bukti empiris negara berkembang	Blockchain dan AI berpengaruh positif terhadap kualitas audit dan kepercayaan investor
20	Qatawneh (AI, NLP, and Fraud Detection)	2024	Kuantitatif	AI-empowered AIS, NLP, fraud detection	NLP jarang diuji sebagai variabel moderasi	NLP memperkuat hubungan AI dan efektivitas audit serta deteksi fraud
21	Fedyk et al. (Is AI Improving the Audit Process?)	2022	Kuantitatif empiris + wawancara	AI investment, audit quality, efisiensi	Dampak AI terhadap tenaga kerja audit	Investasi AI menurunkan restatement dan biaya audit, namun menggeser struktur tenaga kerja
22	Kumar et al. (AI-Blockchain Integration in Business)	2023	Bibliometrik & content analysis	Integrasi AI-blockchain	Fragmentasi kajian lintas sektor	Integrasi AI-blockchain krusial bagi akuntansi dan audit digital berbasis trust

Figure 3. Research Data Extraction Results

Table 1. The Effect of the Application of Artificial Intelligence and Blockchain on the Effectiveness of Fraud Detection

No	Article Title	Researcher	Research Results
1	Accounting and Auditing with Blockchain and Artificial Intelligence	[25](2023)	This research shows that the application of artificial intelligence and blockchain is able to increase the effectiveness of the audit process through the integration of real-time

			transaction recording and strengthening the continuous auditing system, so that auditors can more quickly identify indications of fraud.
2	Impact of Artificial Intelligence on Information Usage in Audit	[26](2024)	This study found that the use of artificial intelligence has a significant effect on improving the quality of audit information utilization, especially in supporting auditors' decision-making when evaluating fraud risks.
3	Intelligent Automation of Fraud Detection and Investigation	[1](2023)	This research reveals that the application of deep learning and machine learning is able to identify complex fraud patterns more accurately than conventional audit procedures. The results of the study show that the use of artificial intelligence-based data analytics increases the speed and accuracy of auditors in detecting anomalies in financial transactions.
4	Fraud Detection through Data Analytics and Artificial Intelligence	[27](2022)	This research proves that the integration of artificial intelligence and blockchain contributes positively to the effectiveness of fraud prevention and detection through increasing the transparency and validity of audit data.
5	Artificial Intelligence and Blockchain Technology in Fraud Prevention	[28](2024)	This study concludes that machine learning algorithms such as Random Forest and Neural Network are able to significantly increase the accuracy of fraud detection. The results of the study show that artificial intelligence has a high ability to identify indications of financial statement fraud, especially in companies with large transaction volumes.
6	Financial Fraud Detection through Machine Learning Techniques	[29](2024)	This study found that artificial intelligence in accounting information systems has a significant effect on increasing the effectiveness of fraud detection and strengthening the
7	Artificial Intelligence Capabilities for Fraud Detection	[30](2024)	
8	The Role of Artificial Intelligence in Fraud Detection in Accounting Information Systems	[31](2024)	

The application of Artificial Intelligence (AI) and Blockchain technology in the results of the study showed that it consistently made a positive contribution to increasing the effectiveness of fraud detection. Through a predictive modeling approach, it allows the auditor to find transaction anomalies. This mechanism helps to speed up the discovery of unreasonable transactions while reducing the potential for misjudgment errors that generally arise in manual audit procedures based on sampling techniques.

On the other hand, *blockchain* presents an immutable and transparent record-keeping system. Each transaction is permanently recorded and can be traced back without allowing unilateral changes. This characteristic strengthens the reliability of audit evidence, as the auditor obtains a complete and verified track of transactions. The findings of various studies also indicate that the combination of AI and *blockchain* supports the shift from periodic audits to *continuous auditing*. Thus, auditors not only evaluate reports after the period has expired, but can conduct continuous supervision and increase the auditor's level of confidence in the integrity of the audited data, responsive to indications of fraud.

Overall, the results of the literature review show that *Artificial Intelligence* (AI) plays a role as a means of data analysis, while *Blockchain technology* functions in maintaining the reliability and integrity of information. The integration of the two technologies complements each other so that it can increase the effectiveness of auditors in identifying *fraud* that has a complex character, is not easily seen, and occurs repeatedly.

Table 2. Constraints & Benefits of Implementing AI and Blockchain

No	Article Title	Researcher	Research Results
9	Emerging Digital Technologies and Auditing Firms	[32](2024)	This study identifies that although digital technology improves audit efficiency, there is a gap in implementation capabilities between large and small accounting firms that is a major obstacle to technology adoption. This research shows that blockchain is able to improve audit efficiency and transparency, but the cost of initial implementation and infrastructure limitations are still significant obstacles.
10	Blockchain Technology and Its Impact on Audit Activities	[33](2022)	The study found that blockchain adoption intentions are influenced by the perception of ease of use and performance benefits, while user resistance is the main obstacle to the implementation of the technology.
11	Blockchain Adoption in Accounting by UTAUT Model	[34](2022)	

12	Ethical Issues of Artificial Intelligence for Fraud Detection	[35](2024)	This study emphasizes that the use of artificial intelligence in fraud detection poses ethical risks, especially related to data privacy, algorithm transparency, and potential system bias.
13	Transformative Impact of Advanced Technologies on Auditing Profession	[36](2024)	This research shows that advanced technology improves audit quality, but the lack of digital competence of auditors is a challenge in sustainable implementation.
14	Detecting and Preventing Fraud with Big Data Analytics	[37](2022)	This study found that big data analytics is able to increase the effectiveness of fraud prevention, but faces obstacles to data quality and information security.
15	Is Artificial Intelligence Improving the Audit Process?	[38](2022)	This study concludes that artificial intelligence improves audit quality and cost efficiency, but has the potential to increase auditors' dependence on technology systems.

The results of a review of the previous literature show that the use of *Artificial Intelligence* (AI) and *Blockchain* technology makes a significant contribution to fraud detection efforts, although on the other hand it is also accompanied by various challenges and potential risks. In terms of benefits, the application of these two technologies is able to increase the efficiency of audit implementation, accelerate data processing, and strengthen transparency through the availability of a more structured audit trail. Auditors obtain more objective analytical support so that the decision-making process can be based more on adequate evidence.

Nevertheless, the application of this technology is inseparable from a number of obstacles that need attention. One of the obstacles that is still often encountered is related to the readiness of human resources. In practice, not all auditors have adequate technical skills to understand how *Artificial Intelligence algorithms* work as well as the operational mechanisms of *Blockchain technology*. In addition, the need for relatively large infrastructure investment is also a challenge in itself, especially for organizations whose level of technological readiness is still limited. On the other hand, the use of digital systems also raises concerns about the security and confidentiality aspects of data, considering that the increasing use of technology has the potential to increase the risk of information leakage.

Another challenge is related to the lack of optimal standards and audit regulations that specifically regulate the application of this technology. In addition, limitations in interpreting the results of analysis generated by AI raise ethical issues, especially related to the accountability of audit decisions sourced from algorithm recommendations. The findings confirm that the success of technology adoption is not only determined by

technical factors alone, but also influenced by organizational readiness, improved auditor competence, and strengthening of a supportive regulatory framework.

Table 3. The Role of AI and Blockchain Collaboration in Realizing Adaptive Audit Systems

No	Article Title	Researcher	Research Results
16	Application of Artificial Intelligence and Blockchain in the Audit Process	[17](2024)	This research shows that the collaboration of artificial intelligence and blockchain creates a complementary audit system, where blockchain maintains data integrity and AI analyzes fraud risks.
17	Artificial Intelligence in Auditing: A Conceptual Framework	[7](2024)	This research develops an AI-based audit framework that enables real-time monitoring of transactions and improves auditors' response to fraud risks.
18	Bibliometric Analysis of Artificial Intelligence Trends in Auditing	[39](2024)	This study found a significant increase in research related to the integration of AI and digital audits, which shows the direction of development towards adaptive audit systems.
19	Application of Triple-Entry Bookkeeping with Blockchain	[40](2022)	This study shows that blockchain-based triple-entry accounting strengthens the reliability of audit evidence and reduces the chance of transaction manipulation.
20	Accounting and Auditing with Blockchain and AI: A Literature Review	[41](2023)	This study concludes that the integration of AI and blockchain encourages the formation of continuous auditing that is adaptive to modern fraud risks.
21	Influence of Blockchain and Artificial Intelligence on Audit Quality	[11](2024)	This research proves that AI and blockchain collaboration has a significant effect on improving audit quality and fraud detection effectiveness.
22	Artificial Intelligence and Blockchain Integration in Business: Trends from a Bibliometric-Content Analysis	[42](2022)	The results of this study found that AI and blockchain collaboration increases the transparency and effectiveness of

transaction supervision,
which contributes to the
improvement of real-time
and adaptive fraud
detection capabilities.

The findings of the literature synthesis show that the collaboration between *Artificial Intelligence* (AI) and *Blockchain* is proven to form a more robust, complementary, and responsive audit framework to the dynamics of *fraud* risk. The data is then processed by AI to detect anomalous patterns, predict risks, and generate early warnings of possible fraud. Meanwhile, *blockchain* provides a decentralized, transparent, and immutable record-keeping infrastructure, so that every proof of transaction is permanently documented and easily traceable. The integration of these two technologies allows for continuous auditing, reduced data manipulation, and improved quality of auditor decision-making as the verification process becomes more objective and evidence-based.

However, there are several factors that greatly affect the success of the technology, including regulations, cybersecurity management, human resource readiness, and digital infrastructure capacity. Over time, the combination of the two technologies will result in an audit ecosystem that is smarter, more flexible, transparent, and ready to anticipate changing risks. More comprehensive information support also helps auditors to make more precise, objective, and more accountable decisions.

4. Conclusion

The results of the synthesis show that the use of *Artificial Intelligence* (AI) and *Blockchain technology* has been proven to make a significant contribution in increasing the effectiveness of *fraud* detection in the audit process. AI plays a role in accelerating analysis, expanding the scope of reviews, and improving accuracy in identifying abnormal findings in transactions. Instead, *blockchain* creates a permanent, transparent, and easily trackable system of record for transactions, which increases the credibility of audit findings and reduces the likelihood of data falsification. The synergy of these two technologies develops more objective and evidence-based practices in continuous audits. However, the success of its implementation is influenced by the availability of ready human resources, the availability of the necessary infrastructure, information security systems, and legal support. Therefore, further research can be directed at testing the economic impact of the use of this technology as well as the creation of governance models that ensure accountability, ethics, and security aspects when using AI and *blockchain* in audits.

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