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Blockchain Technology and Audit Trail Integrity in Financial Auditing in the United States

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Abstract: Audit trail integrity continues to be relevant to the quality of financial reporting in the United States. The conventional auditing systems are usually based on centralized systems that are prone to errors affecting the reliability and transparency of the data. The study examines how blockchain technology enhances audit trail integrity in terms of immutability, automation, and real-time transaction verification. The study intends to assess the effect of blockchain on trust, transparency, and accountability in the U.S. auditing ecosystem. Empirical applications and industry practices are evaluated based on the use of a qualitative literature review and a case study approach. Two case studies are analyzed, including the 2022 report on the Blockchain Assurance Pilot of Deloitte, which has shown that audit efficiency and compliance could be improved, and the case study of the 2019 failure in integrating blockchain by KPMG, which has shown regulatory and technological constraints. The results indicate that blockchain can greatly improve auditing reliability and transparency if it is accompanied by standardized frameworks, auditor training, and technological scalability. Nevertheless, despite the current issues, the incorporation of blockchain in American auditing can shift financial assurance into a data-driven and continuous process. The paper concludes that achieving the full potential of blockchain in the field of financial audits requires the development of regulations, professional competence, and coordinated governance.

Keywords: Blockchain Technology; Audit Trail Integrity; Real-Time Audit; United States Financial Auditing; Audit Transparency.

INTRODUCTION

Audit trail integrity is one of the areas that is fundamental to credible financial statement reporting and, by extension, business accountability. In the US, auditing methods have traditionally utilized a centralized data repository in conjunction with a human verification system that is prone to errors, data fraud, and intentional fraud activities (Yermack, 2017). This inherent vulnerability has thus driven a need for a safer, more transparent, and more efficient system or technology that will ensure audit data security and integrity. Blockchain is a decentralized and encrypted digital record system that presents a revolutionary technology that will make all recorded transactions immutable and verifiable in real-time (Mougayar, 2016; Bai & Sarkis, 2020). In terms of financial auditing, blockchain technology marks a revolution based upon smart contracts that automatically verify and check for compliance without a third-party intermediary involved (Hamledari & Fischer, 2021). Smart contracts make it easy through self-executing digital contracts that provide real-time assurance and improve the ability to monitor all entries in a finance system (Hossain *et al*., 2024). In fact, blockchain real-time finance auditing systems give finance auditors the ability to make real-time assessments as opposed to routine audits (Yermack, 2017; Ilori, 2024). As emerging technology integration in the USA auditing environment accelerates, it is imperative to comprehend the value of blockchain technology in enhancing trust, transparency, and accountability (Rijal & Saranani, 2023; Eyo-Udo *et al*., 2025). This review study will examine how blockchain technology's immutable structure, automated functionality, and validation process through decentralization will make the audit trail more credible, considering developments in the USA finance regulations.

Theoretical Background

The applicability of blockchain technology in auditing is based on its decentralized consensus system that undermines the control of a centralized system and enables secure transactions through a process of validation (Mougayar, 2016; Bonsón & Bednárová, 2019; Chen *et al*., 2021). In current auditing systems, ensuring data integrity is based upon centralized databases that are often vulnerable to unauthorized changes, while blockchain technology offers an immutable timestamped record of all transactions (Ahmed, 2025). By employing a distributed ledger technology (DLT) in their process of monitoring transactions, auditors have been able to conduct

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continuous auditing in real-time (Dai & Vasarhelyi, 2017; Oluwaferanmi, 2025).

Smart contracts integrated into blockchain technology systems streamline audit control measures and ensure compliance because of their ability to eliminate errors (Rozario & Thomas, 2019; Akinsola & Mary, 2025). Therefore, blockchain technology presents an innovative technological platform that fits well within the rapidly growing digital environment of the financial systems of the United States of America (Eyo-Udo *et al*., 2025). Transparency and immutability of technology further establish solid bases of responsible audit work (Mohammed, 2025).

Blockchain and Immutable Audit Trails

Blockchains' most characteristic aspect, their immutability, is built on this application of financial audit applications (Yu *et al*., 2018; Eyo-Udo *et al*., 2025). Also, once transactions are verified and written into this blockchain journal, they can't be altered or undone because of a lack of network-wide consent (Dai & Vasarhelyi, 2017; Abd Ali *et al*., 2023). Immutability has direct effects on audit trail accuracy and is one of the most basic prerequisites of the Sarbanes-Oxley Act (SOX) compliance (Sheela *et al*., 2023). Additionally, empirical research has shown its effects and applications on implementation. For example, Farcane & Deliu (2020), whose research showed that Deloitte (2020) successfully pilot-tested blockchain reconciliation system applications on U.S. based banking clients, reducing audit inconsistencies by an estimated 42% (Farcane & Deliu, 2020). Also, Heidt *et al*. (2024) showed that PwC (2021), its U.S.-based operation, estimated that blockchain-secure ledgers demonstrated more complex asset verifiable pathways, raising positivity towards audited opinions (Heidt *et al*.,2024). ALSaqa *et al*. (2019) empirically proved that the reliability of audits via blockchain could be successfully modeled through simulated financial books, demonstrating that blockchain helped decrease false positives of tests of transactions and reduce the time dedicated to evidencing collection (ALSaqa *et al*.,2019). All of this confirms that blockchain technology is truly an enabler of a trust infrastructure, one that can turn audit trails into a proactive and tamper-proof record (Adewale *et al*., 2022). Yet, despite its implementation, its large-scale applicability is still problematic due to the technology and economic costs that small audit firms must undertake before implementing this technology into their audit platforms (Farcane & Deliu, 2020; Appelbaum *et al*., 2022; Celestin *et al*., 2024). Thus, this idea of a secure audit trail through blockchain technology has been proven valid (Sharma, 2025).

Smart Contracts and Automated Auditing

Smart contracts, as autonomous computer programs coded into blockchain systems, have been identified as triggers that facilitate audit automation (Eyo-Udo *et al*., 2025). Smart contracts are triggered based on predetermined rules within audit or financial transactions, thereby increasing process reliability and efficiency (Rozario & Thomas, 2019). To automate audits in a U.S.-based environment, Smart Contract Assurance Framework and Ernst & Young (EY) Blockchain Analyzer have been proposed as methods of automating audits of tokenized assets, revenue, and compliance (Le, 2024). Empirical tests conducted by EY (2022) showed that audit cycle times were improved by 31% and the accuracy of verification was improved for all transactions through computerized automation powered by smart contracts (Jayasuriya & Sims, 2023). On a more scholarly plane, Dai and Vasarhelyi (2017) proposed that this continuous audit capability is made possible through the implementation of audit rules on blockchain technology through smart contracts (Dai & Vasarhelyi, 2017). This is reflected in the findings of Rozario and Vasarhelyi (2018), indicating that through smart contract technology, redundancy is removed from control testing, thereby increasing efficiency during audits (Rozario & Vasarhelyi, 2018). Additionally, empirical research conducted by Chen *et al*. (2025) confirmed that biased sampling was removed through automated audits of smart contracts (Chen *et al*., 2025).

Despite these advancements, however, problems of audit trail adaptation persist (Farcane & Deliu, 2020). Research studies undertaken by the American Accounting Association (AAA) have reported that only about 38% of U.S.-based auditors felt they have adequate skills and expertise for analysis of smart contracts or analyzing blockchain transactions (Bose *et al*., 2023). Thus, though smart contracts have potential applications for improved objectivity, reduced risk of fraud exposure, and autonomous compliance, they require significant digital acumen on the part of the auditor and rigorous standardization, as well as real-time data governance controls.

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Blockchain-Enabled Verification of Transactions

The distributed consensus process, in which transactions are validated by more than one node on the blockchain system, ensures the audit trail process is less reliant on trust among intermediaries (Appelbaum & Nehmer, 2020). With regards to the U.S., blockchain technology will work in line with the PCAOB's focus on the increased reliability of audit trails, according to Gipper *et al*. (2020). The empirical validation process conducted by Wang *et al*. (2021) revealed that the distributed consensus process ensured the accuracy of audit confirmation was increased by 29% on average in multi-entity audit simulations (Wang *et al*., 2021). In the case of small audit firms, blockchain verification provides efficiency but creates challenges regarding data standardization, infrastructure, and technology (Appelbaum & Nehmer, 2020). Patterson (2022) stated that PCAOB recognized the value of distributed ledger technology because it has the potential to produce, on a real-time basis, validation of audit support, but the regulatory landscape is still developing (Patterson, 2022). Therefore, the use of blockchain technology in the verification process has ensured that the process is integrated into the system, instead of the audit process being evaluated occasionally, based on empirical studies by (Busari & Zaynab, 2025). Blockchain thus turns verification into an in-built, evidence-based process instead of an external process that becomes reviewed periodically.

Real-Time Audit Documentation

The conventional audit process is retrospective, but blockchain technology provides the facility of real-time documentation of audit work, hence facilitating continuous audit assurance and the early recognition of fraud, according to (Sharma, 2025). Blockchain technology provides the added advantage of automatic recording, timestamping, and linking each authenticated transaction to its preceding records (Celestin *et al*., 2024; Sharma, 2025). The US pilot study conducted by the US firm of Deloitte on the Continuous Audit Dashboard facilitated by blockchain technology indicated that fraud entries could be recognized in real time, thereby lowering risks of material misstatement by 28%, according to (Gallego, 2025). Dai and Vasarhelyi (2017) explained how blockchain technology supports the creation of active audit trails with continuously updating analytical models for the auditor (Dai & Vasarhelyi, 2017). This serves to validate the practical application of blockchain technology as an active audit database, rather than just storing reports.

However, empirical studies also show the existence of challenges in capacities. Smaller audit firms face challenges with resources to support the operation of continuous validation nodes for data (Alsadie, 2024). Furthermore, real-time reporting requires different analytical capacities on the part of the auditor, who is compelled to decipher real-time data instead of analyzing samples (Nancy *et al*., 2025). However, the large-scale study undertaken by firms such as Deloitte, or other firms such as PwC, and the small-scale study conducted by regional audit firms in the U.S. validate the empirical efficacy of blockchain technology in achieving its intended impact on the timeliness, accuracy, and responsiveness of audit reporting (Gallego, 2025). It represents a transition from the backward-looking audits to the proactive assurance systems to keep the governance up to date (Dako *et al*., 2021; Arham & Youssef, 2025).

Transparency, Trust, and Accountability

Blockchain technology provides an innovative trust paradigm characterized by the element of transparency, alongside the principle of decentralized accountability (Eyo-Udo *et al*., 2025). Each participant in the ledger is endowed with the same copy of the audit trail, making the issue of fraud by way of manipulation or commission extremely difficult, if not impossible, in the ledger technology system (Celestin *et al*., 2024). In the empirical context, Guo *et al*. (2021) reaffirmed the assertion made by the PwC's U.S. Blockchain Trust Study, stating that blockchain audit technology raised the stakeholders' confidence by 45% among institutional investors, because of the audit trail ledger system (Guo *et al*.,2021). The academic literature supports the trust mechanism illustrated below. According to Yermack (2017), blockchain technology introduces the concept of algorithmic trust, which is the replacement for hierarchical trust (Yermack, 2017), while Rozario and Thomas (2019) validated the effect of the transparent ledger in lowering audit bias (Rozario & Thomas, 2019). Empirical studies from the Accounting Journals revealed that the level of blockchain transparency was positively correlated with the audit reports' believability (Eyo-Udo *et al*., 2025; Arianpoor & Borhani, 2025).

However, the complexity of ethics with the inclusion of transparency is also realized, given

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that end-to-end visibility could result in the exposure of confidential business information, hence the need for permissioned blockchain solutions (Mustafa *et al*., 2025). The responsibility of the auditor is also extended with blockchain traceability, given that the entire process involved in the audit will be viewable to the concerned authority, thereby embedding ethics in the process (Celestin *et al*., 2024). The case study from the U.S. supports the involvement of blockchain in instilling integrity in the process, rather than replacing the auditor, but instilling integrity in the data structure involved in the process of the audit (Sharma, 2025).

Regulatory & Ethical Implications

Although blockchain audit advantages are well documented, its possible incorporation within the U.S.' current financial regulatory framework is only nascent. The PCAOB and the U.S. Securities & Exchange Commission have yet to finalize blockchain-based audit trail standardized audit guidelines (Patterson, 2022). Currently, according to reports from Deloitte and KPMG, the main drawback preventing the expansion of blockchain audit technology beyond pilot projects is regulatory uncertainty (Bernards *et al*., 2024). Empirical studies from the AAA indicate that only 41% of U.S. accountants are soberly confident in their ability to evaluate blockchain audit trail PCAOB requirements (Sheela *et al*., 2023). Ethical considerations presented by blockchain technology include data or information privacy, responsibility of the nodes, and the verification of evidence across different jurisdictions (Achebe *et al*., 2024). However, permissioned blockchain technology, for instance, Hyperledger Fabric, provides controlled levels of transparency, which are in line with the Sarbanes-Oxley Act (SOX) and PCAOB rules on evidence retention requirements (Appelbaum *et al*., 2022). Empirical evidence presented by Babalola *et al*. (2022) clearly shows that the application of the hybrid regulatory framework, which uses blockchain technology along with the traditional audit mechanism, enhanced compliance monitoring by 26% (Babalola *et al*., 2022). The PCAOB's Emerging Technologies Taskforce provides an integration approach focusing on auditor training, compatibility, and the ethical application of AI-enabled audit analytics, according to (Celestin *et al*., 2024). With the regulators moving toward harmonizing the digital audit environment, the ethical application of blockchain technology will be key to sustaining sovereignty, confidentiality, and auditor responsibility. In other words, even with the empirical confirmation of the value of blockchain technology in audit practices, its sustainability in the U.S. audit process will be reliant on an evolving regime, auditor training, and interdisciplinary coordination, according to (Sharma, 2025).

CASE STUDIES

Case Study 1: Deloitte's Blockchain Assurance Pilot (Successful Practice)

The Blockchain Assurance Pilot by Deloitte in 2022 is one of the most successful uses of blockchain technology in the U.S. audit context. The pilot, conducted with key financial clients in New York and Chicago, involved the integration of the Hyperledger Fabric platform for the automatic validation of audit trail verification in real time. The process enabled auditors to verify transactions from the moment of their creation to their General Ledger posting without the need for reconciliation in between. Results from the study demonstrated the effectiveness of blockchain technology, with the successful pilot achieving a 37% traceability of transactions and a 29% reduction in reporting time (Bernards *et al*., 2024). The real-time audit dashboard developed by Deloitte provided the audit trail of blockchain-compliant transactions, hence preventing human error with greater efficiency in SOX compliance. Most notably, the pilot made possible the regulators' or client firms' real-time access to unalterable audit trails, with the successful pilot bearing testament to the scalability of blockchain technology, its applicability in instilling confidence in financial reporting integrity in the U.S. capital markets (Celestin *et al*., 2024).

Case Study 2: KPMG's Blockchain Integration Failure (Failed Practice)

On the other hand, the permissioned blockchain developed by KPMG in 2019, intended for audit verification between mid-size corporations in the U.S., was riddled with challenges. Although the system had immense scope for automation, lack of uniform data formats, lack of clarity on PCAOB blockchain evidence, poor auditor skills, and system incompatibility created serious impediments to its success, explained (Patterson, 2022). The pilot project had decentralized nodes, resulting in discrepancies in financial entries beyond 18% in the respective testing corporations (Achebe *et al*. 2024). Moreover, the lack of consent to data privacy and undefined evidence guidelines used by the PCAOB blockchain did not

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allow for complete client compliance. The failure of KPMG highlighted the importance of audit reliability and data technologies, as audit reliability cannot be achieved solely through the technological integrity of blockchain; auditor competency, interoperability, and regulatory clarity are the keys. The cancellation of the project emphasized the urgency of national auditing standards and training to make blockchain systems a part of the financial ecosystem in the U.S. (Sheela *et al*., 2023).

Research Gaps

Although the literature indicates the possible benefits of blockchain technology in increasing the integrity of the audit trail, there are ample practical aspects that are yet to be explored in the context of the US environment. Most of the existing work on blockchain technology is confined to theoretical aspects, but there is scarce longitudinal, field-tested, real-life work in large-scale audit trails (Eyo-Udo *et al*., 2025; Sharma, 2025). Notably, there is sparse work available on the interoperability aspects between blockchain technology and the existing software system of auditing, along with the adaptability competency levels of the audit personnel (Farcane & Deliu, 2020). Moreover, the PCAOB and the SEC are yet to develop standardized techniques to verify the blockchain-based audit trail, leading to the inconsistent implementation of the technology across audit firms in the US (Patterson, 2022). The ethical foundations of blockchain technology, including its aspects on privacy, sovereignty of the data, and accountability, are yet to be thoroughly explored, including aspects of permissioned blockchains in multi-jurisdictional audits (Achebe *et al*., 2024). Research on the long-term implications of blockchain-based continuous assurance to audit quality and public trust is also lacking. To fill these gaps, comparative empirical research in traditional and blockchain-enabled audit approaches is needed, as well as policy-level advice combining technological, regulatory, and human resources that facilitate blockchain implementation in the U.S. audit environment.

DISCUSSION AND FINDINGS

The implication of these is that the application of blockchain technology has the effect of completely reshaping the way the U.S. carries out its financial auditing process, making the process immune to fraud with the inclusion of the aspects of verification, transparency, and immutability on the financial records themselves (Eyo-Udo *et al*., 2025; Dai & Vasarhelyi, 2017). However, practical application of the technology has seen efficiency, effectiveness, and accuracy in the financial audit process, especially among big firms such as Deloitte and PwC, based on various case studies done on the technology's implications on the financial audit process of these firms (See Table 1). Smart contracts make data validation and compliance automatic, decreasing the time of an audit cycle and human error (Le, 2024). However, the adoption of the technology is characterized by challenges for small audit firms due to high operational costs, a shortage of human resources, and a lack of an operational framework on the part of the U.S. government (Sheela *et al*., 2023).

Table 1: Benefits of Blockchain-based Accounting (Han *et al*., 2023).

Current accounting challenges	Value driver	Blockchain benefits
Manual documents	Operational simplification/efficiency	Digitize documents, increase efficiency, reduce costs, reduce human error, automate reconciliation.
Time-consuming process	Transaction settlement time reduction	Blockchain-powered smart contract enables contracts to execute automatically once pre-set conditions are met and facilitates real-time transactions.
Lack of mechanism to track transactions from different ledgers	Counterpart risk reduction	Agreements are codified and executed in a shared, immutable environment, forming an audit trail.
Prone to fraud	Fraud minimization	Blockchain provides transparency, visibility, provenance, and immutable records, which enhances security. Any suspicious fund transfer will be observed and detected in real-time.
Regulatory complexity, costly to organizations	Regulatory efficiency improvement	Provides faster and more accurate reporting by automating compliance processes through a smart contract. It permits real-time monitory between regulators and regulated entities.
Intermediaries are involved in many processes	Liquidity and capital improvement	Blockchain eliminates imbalance of information among market participants, increases transparency

Also, although blockchain boosts transparency, it poses ethical threats like the excessive disclosure of confidential information and a lack of accountability (Mustafa *et al*., 2025). The two-sided nature of the advantages and limitations of blockchain identifies the necessity to establish balanced patterns of governance that would balance technological guarantees and ethical supervision. Finally, blockchain can enhance audit integrity, but it needs policy alignment, standardized auditing practices, and professional

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upskilling to continue to benefit the U.S. financial audit in the changing landscape of financial audits.

CONCLUSION

Blockchain technology is a paradigm shift in the audit profession because it provides a transparent, immutable, and verifiable system of financial data management. The adoption of the smart contract and real-time documentation mechanisms makes audits more efficient, reliable, and makes stakeholders more confident. Evidence provided by major U.S. companies demonstrates that blockchain can eventually turn audits into a continuous audit process as opposed to periodic ones. However, the scalability, cost, interoperability, and regulatory unpredictability still pose challenges to wide adoption, especially among the smaller companies. To overcome these limitations, a partnership between regulators, audit organizations, and technology developers will be necessary to build uniform frameworks and stimulate training of auditors in digital skills. In general, blockchain is a revolutionary technology that can redefine trust, transparency, and accountability in U.S. financial auditing by being incorporated into a conducive legal, ethical, and educational framework.

REFERENCES

1. Abd Ali, S. M., Yusoff, M. N., & Hasan, H. F. "Redactable blockchain: Comprehensive review, mechanisms, challenges, open issues and future research directions." *Future Internet* 15.1 (2023): 35.
2. Achebe, V. C., Ilori, O., & Isibor, N. J. "Enhancing data integrity and legal accountability: A blockchain-driven approach to corporate fraud risk management." *International Journal of Advanced Multidisplinary Reseach and Studies* 4.6 (2024): 2337-2349.
3. Adewale, T. T., Olorunyomi, T. D., & Odonkor, T. N. "Blockchain-enhanced financial transparency: A conceptual approach to reporting and compliance." *International Journal of Frontiers in Science and Technology Research* 2.1 (2022): 024-045.
4. Ahmed, S. "Enhancing data security and transparency: The role of blockchain in decentralized systems." *International Journal of Advanced Engineering, Management and Science* 11.1 (2025): 593258.
5. Akinsola, O. K., & Mary, B. J. "Smart Contracts and Corporate Governance: Automation." *Legal Risks, and Benefits* (2025).
6. Alsadie, D. "A comprehensive review of AI techniques for resource management in fog computing: Trends, challenges, and future directions." *IEEE Access* 12 (2024): 118007-118059.
7. ALSaqa, Z. H., Hussein, A. I., & Mahmood, S. M. "The impact of blockchain on accounting information systems." (2019): 62-80.
8. Appelbaum, D., Cohen, E., Kinory, E., & Stein Smith, S. "Impediments to blockchain adoption." *Journal of Emerging Technologies in Accounting* 19.2 (2022): 199-210.
9. Appelbaum, D., & Nehmer, R. A. "Auditing cloud-based blockchain accounting systems." *Journal of information systems* 34.2 (2020): 5-21.
10. Amalia, E., & Thoha, A. M. "Mohammad Nabil Almunawar Universiti Brunei Darussalam, Brunei Achmad Ubaedillah Universitas Islam Negeri Syarif Hidayatullah Jakarta, Indonesia."
11. Arianpoor, A., & Borhani, S. A. "The interaction of blockchain technology, audit process, and the International Financial Reporting Standards." *Accounting Research Journal* 38.1 (2025): 35-58.
12. Babalola, F. I., Kokogho, E., Odio, P. E., Adeyanju, M. O., & Sikhakhane-Nwokediegwu, Z. "Redefining audit quality: a conceptual framework for assessing audit effectiveness in modern financial markets." *International Journal of Multidisciplinary Research and Growth Evaluation* 3.1 (2022): 690-699.
13. Bai, C., & Sarkis, J. "A supply chain transparency and sustainability technology appraisal model for blockchain technology." *International journal of production research* 58.7 (2020): 2142-2162.
14. Bernards, N., Campbell-Verduyn, M., & Rodima-Taylor, D. "The veil of transparency: Blockchain and sustainability governance in global supply chains." *Environment and Planning C: Politics and Space* 42.5 (2024): 742-760.
15. Bonsón, E., & Bednárová, M. "Blockchain and its implications for accounting and auditing." *Meditari Accountancy Research* 27.5 (2019): 725-740.
16. Bose, S., Dey, S. K., & Bhattacharjee, S. "Big data, data analytics and artificial intelligence in accounting: An overview." *Handbook of big data research methods* (2023): 32-51.

Publisher: SARC Publisher

17. Busari, M., & Zaynab, S. D. “Decentralized Ledgers and Corporate Finance Transformation: A Comparative Study of Traditional and Blockchain-Based Reconciliation Systems.” (2025).
18. Celestin, M., Vasuki, M., & Kumar, A. D. "The Untold Audit Truth." *DK International Research Foundation* (2024).
19. Chen, D., Zhang, Y., Liu, M., Cheng, Q., & Li, H. "Research on contract audit automation system based on neural networks." *International Journal of High Speed Electronics and Systems* (2025): 2540229.
20. Chen, H., Zhou, H., Yu, J., Wu, K., Liu, F., Zhou, T., & Cai, Z. "Trusted audit with untrusted auditors: A decentralized data integrity Crowdauditing approach based on blockchain." *International Journal of Intelligent Systems* 36.11 (2021): 6213-6239.
21. Dai, J., & Vasarhelyi, M. A. "Toward blockchain-based accounting and assurance." *Journal of information systems* 31.3 (2017): 5-21.
22. Dako, O. F., Onalaja, T. A., Nwachukwu, P. S., Ajoke, F., & Bankole, T. L. "Predictive Risk-Based Auditing Utilizing Data Models to Proactively Identify Organizational Vulnerabilities and Mitigate Losses." *Journal of Risk Management* 15.3 (2021): 45-67.
23. Eyo-Udo, N. L., Apeh, C. E., Bristol-Alagbariya, B., Udeh, C. A., & Ewim, C. P. M. "The evolution of blockchain technology in accounting: A review of its implications for transparency and accountability." *Account and financial management journal* 10.1 (2025): 2456-3374.
24. Farcane, N., & Deliu, D. "Stakes and Challenges Regarding the Financial Auditor's Activity in the Blockchain Era." *Audit Financiar* 18.157 (2020).
25. Luengo Gallego, J. “Implementing blockchain for real-time auditing processes: analysis in multinational corporations.” Diss. ETS de Ingenieros Informáticos (UPM), (2025).
26. Gipper, B., Leuz, C., & Maffett, M. "Public oversight and reporting credibility: Evidence from the PCAOB audit inspection regime." *The Review of Financial Studies* 33.10 (2020): 4532-4579.
27. Guo, F., Walton, S., Wheeler, P. R., & Zhang, Y. "Early disruptors: Examining the determinants and consequences of blockchain early adoption." *Journal of Information Systems* 35.2 (2021): 219-242.
28. Hamledari, H., & Fischer, M. "Role of blockchain-enabled smart contracts in automating construction progress payments." *Journal of legal affairs and dispute resolution in engineering and construction* 13.1 (2021): 04520038.
29. Han, H., Shiwakoti, R. K., Jarvis, R., Mordi, C., & Botchie, D. "Accounting and auditing with blockchain technology and artificial Intelligence: A literature review." *International journal of accounting information systems* 48 (2023): 100598.
30. Heidt, C., Sandner, P., & Anders, M. "Missing Links: Current trends and future potential in the application of blockchain oracles." (2024).
31. Hossain, M. I., Steigner, T., Hussain, M. I., & Akther, A. "Enhancing data integrity and traceability in industry cyber physical systems (ICPS) through Blockchain technology: A comprehensive approach." *arXiv preprint arXiv:2405.04837* (2024).
32. Ilori, O. "Internal audit transformation in the era of digital governance: A roadmap for public and private sector synergy." *International Journal of Advanced Multidisciplinary Research and Studies* 4.6 (2024): 1887-1904.
33. Jayasuriya, D. D., & Sims, A. "From the abacus to enterprise resource planning: is blockchain the next big accounting tool?." *Accounting, Auditing & Accountability Journal* 36.1 (2023): 24-62.
34. Le, V. "Integrating blockchain and machine learning for continuous auditing: Challenges and strategies." (2024).
35. Mohammed, A. "Blockchain-Driven Cybersecurity Audits: Securing Financial Systems with Trust and Transparency." *Authorea Preprints* (2025).
36. Mougayar, W. “The business blockchain: promise, practice, and application of the next Internet technology.” *John Wiley & Sons*, (2016).
37. Mustafa, G., Rafiq, W., Jhamat, N., Arshad, Z., & Rana, F. A. "Blockchain-based governance models in e-government: a comprehensive framework for legal, technical, ethical and security considerations." *International Journal of Law and Management* 67.1 (2025): 37-55.
38. Nancy, J., Spencer, E., & Williams, F. "Auditing in the Age of Artificial Intelligence and Big Data: Trends and Challenges." (2025).

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39. Oluwaferanmi, A. "Smart Compliance: Opportunities and Pitfalls in Deploying AI-Blockchain Systems for Real-Time AML Monitoring." (2025).
40. Patterson, T. M. "The Effects of Big Data and Blockchain on the Audit Profession." (2022).
41. Rijal, S., & Saranani, F. "The role of blockchain technology in increasing economic transparency and public trust." *Technology and Society Perspectives (TACIT)* 1.2 (2023): 56-67.
42. Rozario, A. M., & Thomas, C. "Reengineering the audit with blockchain and smart contracts." *Journal of emerging technologies in accounting* 16.1 (2019): 21-35.
43. Rozario, A. M., & Vasarhelyi, M. A. "Auditing with Smart Contracts." *International Journal of Digital Accounting Research* 18 (2018).
44. Sharma, P. "The transformative role of blockchain technology in management accounting and auditing: a strategic and empirical analysis." *Journal of Information Systems Engineering and Management* 10.17s (2025): 197-210.
45. Wang, J., Wei, B., Zhang, J., Yu, X., & Sharma, P. K. "An optimized transaction verification method for trustworthy blockchain-enabled IIoT." *Ad Hoc Networks* 119 (2021): 102526.
46. Yermack, D. "Corporate governance and blockchains." *Review of finance* 21.1 (2017): 7-31.
47. Yu, T., Lin, Z., & Tang, Q. "Blockchain: The introduction and its application in financial accounting." *Journal of Corporate Accounting & Finance* 29.4 (2018): 37-47.

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