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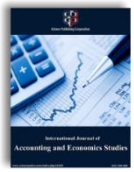

Blockchain Adoption in Accounting and Auditing: Evidence from U.S. Organizations

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Abstract

Blockchain technology has gained increasing attention for its potential to transform accounting and auditing practices by enhancing transparency, data integrity, and process efficiency. This study examines how blockchain is being applied within accounting and auditing functions in U.S. firms and explores its implications for professional practice. Using a qualitative research design, data were collected through survey questionnaires administered to managers from 23 accounting and internal auditing departments across a range of organizations. The findings indicate that blockchain is used for multiple purposes, including digital document authentication, smart contract execution, digital asset registration, payment processing, transaction verification, and the development of verifiable audit trails. The scope and intensity of blockchain adoption varied across industry sectors. Participants reported notable improvements at the transactional level of accounting, enabling accountants to review a greater volume of transactions originating from multiple areas within their organizations. Overall, the findings indicate that blockchain adoption is beginning to influence several aspects of accounting and auditing practice, particularly through improved transaction traceability, faster reporting cycles, and more reliable audit trails.

Keywords: *Blockchain Technology; Accounting; Auditing; Real-Time Reporting; Audit Assurance.*

1. Introduction

The public relies on auditors to increase trust in the audited records of the firms they examine and to help organizations operate with more confidence. During an audit, the process requires the collection of appropriate evidence on which auditors can base their professional judgments. Auditing involves evaluating recorded transactions to ensure they are supported by evidence that is accurate, appropriate, objective, reliable, and supportable. When transactions are recorded on an irreversible blockchain, the auditor's role increasingly shifts towards verifying the occurrence and validity of transactions rather than reconstructing historical information. The availability of blockchain-recorded financial data may therefore influence both accounting procedures and the evaluation of audit evidence.

Blockchain technology was first introduced through Bitcoin; however, its uses have expanded well beyond just cryptocurrency. The appeal of blockchain stems from its use of peer-to-peer networks and cryptography to create secure, decentralized, and tamper-resistant records. As organizations make sizable investments in advanced technologies, accounting and auditing functions are expected to evolve as well. Blockchain allows participants within an organization to access a shared ledger that records every transaction, forming the basis for accounting entries. These shared ledgers serve as a single source of information for all stakeholders. Authorized external parties, such as auditors and regulators, can access read-only ledgers to efficiently confirm transactions for regulatory compliance and financial reporting. When blockchain is incorporated with artificial intelligence and data analytics, irregularities can be identified in real time. This integration reduces the need for auditors to rely heavily on manual sampling procedures or retrospective testing to detect mistakes or fraud. Additionally, blockchain assists transactions between parties who may not know one another, without the need for traditional intermediaries. As a result, investment in blockchain technology has increased across a wide range of industries in recent years. Technology continues to evolve and is now being tested in several financial and enterprise purposes. Thus, many accounting and auditing firms have begun blockchain-related projects to better understand its effects for professional practice. Although hesitations remain regarding the full impact of blockchain on accounting, auditing, and assurance services, the technology is already reshaping these fields and is expected to continue doing so.

2. Research Questions

How are accounting and auditing practices in the U.S. using blockchain to reshape practices?

3. Purpose

Accounting and auditing services remain essential to organizations. Blockchain technology has brought new opportunities to the accounting and auditing practices. There are various ways in which technology meaningfully influences how auditors take on their tasks. Businesses have also seen the scope of accounting and auditing grow, bringing more areas into focus, such as technology. This study examines how blockchain technology can transform accounting and auditing tasks in U.S. Firms. The purpose of the study is to investigate the impact of blockchain on various organizations and how it can improve everyday tasks. The study makes an important contribution to the field of accounting and blockchain, as most blockchain–accounting/audit research still relies heavily on conceptual arguments, pilots, or "intent-to-adopt" framing. This study aims to provide practical evidence of what firms are doing after adoption across different industries.

4. Literature Review

Blockchain technology is increasingly used in accounting functions, particularly for core recordkeeping activities. Its use can transform organizational processes for transaction initiation, approval, recording, and reporting. As business processes and operating models evolve alongside blockchain adoption, downstream functions such as financial reporting and tax compliance may also be affected. To effectively respond to these changes, accountants and auditors must develop a solid understanding of how blockchain systems operate within their organizations and how technology influences accounting information flows.

From a theoretical perspective, the impact of blockchain on accounting and auditing can also be interpreted through technological adoption and institutional change frameworks. Emerging digital technologies often reshape professional routines by altering how information is generated, verified, and governed within organizations. Distributed ledger systems modify traditional evidence chains by allowing transactions to be recorded and validated through decentralized consensus mechanisms. As a result, accounting and auditing work increasingly shifts away from reconstructing historical records toward evaluating system reliability, interpreting economic substance, and overseeing automated verification processes. These changes suggest that blockchain adoption not only affects technical procedures but also gradually reshapes the professional roles and competencies required within accounting and assurance functions.

Prior adoption research indicates that organizational interest in blockchain does not necessarily translate into full implementation. According to Akter et al. (2024), the pace of integration with legacy systems may be slow and expensive, limiting the support of accounting teams. Gkekas et al. (2025) believe that social factors, such as professional identity and moral standards, are also crucial in the adoption process. These considerations are particularly relevant because accounting systems operate within structured control environments that define clear professional responsibilities. There is also a legal restriction on data sharing of firms among partners and across borders. Adoption failure is common when blockchain is viewed as a plug-in rather than a change to the process.

5. Audit and Assurance Design

There has been an increase in audit research on how assurance would be implemented on blockchain systems. Guo et al. (2025) examine smart contracts in auditing and demonstrate how specific audit steps can be written as contract code. This can accelerate checking, but it relies on the quality of the inputs and the clarity of the rules' governance. Zhang et al. (2025) examine the literature on audits and emphasize a major dilemma between disclosure and limited access in permissioned registers. They also point out the risks associated with smart contract malfunctions, platform control, and off-chain data processing. Clear responsibility lines and control points are still required in assurance work.

6. Accounting Change, Crypto Assets, and Record Structure

A third stream of research examines how blockchain influences accounting records, financial reporting processes, and the measurement of digital assets. Georgiou et al. (2024) survey blockchain and cryptocurrency accounting and propose closer connections between standards, governance, and work practice. Suggesting that data definitions that allow shared ledgers may help reduce reconciliation when data definitions are aligned, Petratos (2024) relates the concept of triple-entry accounting to that of system integration. The standard setting is also changing. ASU 2023-08, issued by the Financial Accounting Standards Board, amended the measurement and disclosure of many crypto assets in financial reports (Financial Accounting Standards Board, 2023). This demonstrates that the rules of reporting are in step with emerging asset types. Standards can influence the data elements firms gather and reconcile.

7. Study Contribution Compared with The Literature

This qualitative research provides evidence at the practice level from U.S. organizations reporting their use of blockchain in accounting or internal audit. Articles such as those by Zhang et al. (2025) and Georgiou et al. (2024) report that most statements continue to be based on theoretical frameworks or small pilot samples. The research uses survey data from managers at 23 companies in the healthcare, manufacturing, and technology sectors. The items are scaled by perceived impact and incorporate open questions about the use and purpose of blockchain adoption. It is reported to be used for transaction checking, audit trails, and quicker access to source records for internal checks. The research maps existing application cases and relates them to the apparent impacts. In comparison to adoption-intent models, the research aims at post-adoption practices and control decisions within companies. It also indicates that most organizations begin with easy record use, then proceed to coded audit logic. This helps isolate what is currently working and what requires design.

8. Clarifying Impact and Role Change

The study explains the meaning of impact in everyday work and its potential development. Adoption work, as explained by Akter et al. (2024), explains why firms are reluctant to take a step, whereas this work is the change when they have started using it. Managers reported that blockchain adoption reduces interruptions in audit evidence chains and improves access to transaction records. These results are consistent with the logic Guo et al. describe (2025) for checking, but most respondents indicate they began with simpler ledger applications and then transitioned to more sophisticated automation. Managers also define role changes to include review, control, oversight, and data governance work. This provides a basic perspective on what initially transforms within teams.

Dai & Vasarhelyi (2017) argue that the roles and required competencies of accountants and auditors are evolving in response to the emergence of blockchain-based techniques. Prior research highlights that traditional approaches to obtaining sufficient and appropriate audit evidence must be re-evaluated to accommodate both conventional standalone general ledgers and the distributed ledger systems enabled by blockchain technology. In addition, it has increased transparency and standardization in accounting and reporting, thereby promoting more efficient data extraction and analysis (Rückeshäuser, 2017). Because of this, while traditional audit services remain essential, blockchain has brought new opportunities and challenges, changing the approach. Emerging innovations, including blockchain technology shared with advanced data analytics, are reshaping how auditors plan and execute audit engagements. As blockchain adoption becomes more common, prior studies recommend that auditors expand their technical knowledge and skills to meet the growing demands of the business environment.

Material financial irregularities and misstatements can be detected as they occur and, in a lot of cases, prevented altogether. Even though identifying irregularities remains a main responsibility of auditors, the nature of audit work has changed significantly. The role of the auditor is gradually shifting toward the oversight of automated processes rather than reliance on retrospective, after-the-fact procedures. Auditors are now more involved in designing, monitoring, and refining automated audit and accounting systems, as well as evaluating the assumptions and estimates embedded within business analytics (Brandon, 2016).

As a result, audit engagements typically require fewer personnel than in the past; however, the professionals involved must possess more advanced technical and analytical skills. Overall, these changes have had a positive impact on the profession. Blockchain adoption has improved auditor productivity and enabled auditors to devote more time to exercising professional judgment (Melnichenko & Hartinger, 2016). In addition, enhanced access to operational data has provided deeper insights into organizational activities, making audit work more informative and professionally rewarding.

9. How Blockchain Impacts The Role of Accountants and Auditors

Accounting activities center on the generation and interpretation of financial information that supports organizational decision-making and resource allocation. Within this context, blockchain technology introduces new opportunities to improve visibility over an organization's financial position, including its assets and obligations. By providing a shared, tamper-resistant ledger, blockchain can reduce the time and cost of maintaining records and reconciling accounts across systems. When integrated with complementary digital technologies, such as machine learning and advanced analytics, blockchain enables a greater proportion of accounting processes to be executed at the transactional level with increased consistency and reliability.

Prior research indicates that blockchain also has the potential to fundamentally alter audit practices by enabling automated, near-real-time assurance mechanisms (Dai & Vasarhelyi, 2017). As transactional processes become more automated, certain routine accounting tasks may no longer require extensive manual intervention, allowing non-specialist staff to perform standardized activities. This shift, in turn, places greater emphasis on the professional judgment and analytical capabilities of accountants and auditors. Because of this, the role of professional accountants has shifted toward interpreting the economic implications of blockchain-based records, linking recorded transactions to underlying economic value, and ensuring that reported information accurately reflects economic reality. This is further supported by a study by Schmitz and Leoni (2019) on the opportunities arising from blockchain-enabled continuous audits, the application of smart contracts, and a paradigm shift in the execution of accountants and auditors. For example, although blockchain technology can consistently prove the existence of certain economic claims, such as receivables, it does not determine the underlying economic value of those claims or the recoverable amount of the related debt associated with those accounts. Likewise, while blockchain can be used to verify legal ownership of assets, assessments of asset valuation, physical condition, and location continue to require professional accounting judgment.

According to Xu et al. (2020), blockchain is better positioned to enhance the quality of information and accounting. The transparency and immutability of blockchain would increase the trust and reliability of the financial information conveyed. Besides, Bonsón and Bednárová (2019) demonstrate how blockchain impacts accounting and auditing by highlighting improved data integrity and security. Thus, blockchain technology can be adopted to improve the quality of information and financial reporting processes.

By increasing data reliability and reducing the need for transaction reconciliation, blockchain technology expands the scope of accounting and auditing by bringing additional areas into analytical focus. Certain categories, such as the economic value of organizational data, were previously difficult to measure due to limitations in data integrity and accessibility. At the same time, blockchain automates reconciliation and bookkeeping functions, which may reduce demand for accounting roles focused on these activities while strengthening roles that emphasize value creation and professional judgment. For example, distributed consensus over key financial information during mergers and acquisitions can accelerate the process by reducing time spent reconciling figures and allowing greater emphasis on valuation judgments.

Blockchain also has important implications for both internal and external auditing. Traditional confirmation procedures may become less necessary when underlying transactions are transparently recorded on a blockchain. This shift represents a fundamental change in audit practice. When combined with appropriate data analytics, blockchain-based systems can support continuous, transaction-level auditing and enhance the formation of audit assertions. As a result, auditors can devote more effort to higher-level evaluative tasks. Auditing extends beyond verifying transaction amounts and counterparties; it also involves assessing how transactions should be classified and recorded. For instance, when cash is credited, auditors must determine whether the transaction represents a cost of sales, an asset acquisition, or an operating expense. Such judgments require contextual knowledge of the organization that cannot be derived solely from transactional data. By reducing routine verification tasks, blockchain allows auditors to focus more fully on these judgment-intensive aspects of the audit process. Liu et al. (2019) postulate that blockchain may improve audit quality by reducing the disparity in expectations between financial statement consumers and auditors, particularly among regulatory users. With the transparency and traceability functions blockchain provides, issues concerning accuracy and completeness that affect the credibility of an audit report may be resolved.

10. How Audit and Assurance Have Evolved with Blockchain

Prior research suggests that blockchain technology may substantially alter established audit approaches by enabling assurance processes that are more automated, timely, and reliable (Dai & Vasarhelyi, 2017). In addition, the integration of blockchain with Internet of Things (IoT) systems has emerged as a particularly promising direction for advancing audit and assurance functions, given the increasing volume and complexity of data generated by connected devices (Panarello et al., 2018). Growing scholarly attention has also focused on blockchain's role in safeguarding data integrity and strengthening security within IoT environments, thereby expanding its relevance to assurance practices concerned with the reliability and resilience of information systems (Liang et al., 2017).

The use of blockchain offers a chance to facilitate audit processes and financial reporting. Several studies have reiterated the likelihood that blockchain will transform accounting and auditing and automate and enhance assurance processes (Dai & Vasarhelyi, 2017). It can facilitate input into the evolution of auditing and assurance by streamlining processes that are currently prone to inaccuracies. Moreover, blockchain technology has been discussed as a means to make sustainability reports by multinational corporations more accountable and reliable, again proving that blockchain's role does not stop there, replacing traditional methods of financial auditing in assurance practices (Perego & Kolk, 2012).

Traditionally, account reconciliations, journal entries, trial balances, supporting spreadsheets, and subledger extracts are provided to auditors in both manual and automated formats. Every audit engagement typically begins with different schedules and data requests, requiring auditors to devote substantial time to audit planning and data preparation (Sutton & Samavi, 2017). This technology can alter this process by giving auditors near-immediate access to transactional data via read-only nodes. As a result, auditors can obtain the required information in a consistent and standardized format across reporting periods.

The primary impact of blockchain in this context is improved access to timely and reliable information. As more organizations migrate to blockchain-based systems, the effects on accounting and auditing practices are likely to become increasingly significant. For example, when a firm records a large volume of transactions on a blockchain, accountants and auditors can develop automated tools that support continuous auditing. Such systems can substantially reduce the need for physical data removal and audit planning tasks, which are often time-consuming and labor-intensive for both management and audit staff.

In this regard, the development of fraud theory has focused on fraud detection and prevention. At the same time, blockchain technology has been highlighted for enhancing the robustness of audit and assurance systems against fraudulent activities (Dorminey et al., 2012). It thereby shows that blockchain is well-equipped to make substantive contributions toward enhancing the effectiveness of audit and assurance mechanisms in detecting and mitigating fraudulent activities.

Technologies that accelerate audit procedures can significantly reduce the time lag between transaction execution and verification, a long-standing criticism of traditional financial reporting. By reducing this lag, auditors can enhance the effectiveness and efficiency of the audit and financial reporting processes, allowing greater focus on complex and higher-risk transactions while routine activities are performed in near real time (Appelbaum & Nehmer, 2017). Auditors can also deploy advanced analytics, machine learning, and automation tools, such as systems that automatically alert relevant parties to unusual or high-risk transactions with minimal delay

Documents such as invoices, contracts, agreements, and purchase orders can be securely encrypted and integrated within blockchain-based systems. Granting auditors access to these tamper-resistant records strengthens audit reliability and supports more timely financial reporting. As auditing becomes more continuous, accountants and auditors must increasingly rely on professional judgment when preparing financial statements and evaluating accounting estimates.

At the same time, increased automation necessitates thorough evaluation and testing of internal controls related to data integrity and the reliability of underlying information sources. As transaction processing becomes more standardized across industries, auditors will play a critical role in providing assurance over blockchain-based systems. Accountants are also well-positioned to assume expanded roles due to their expertise, objectivity, independence, and evolving technical skill sets. Without independent evaluation, organizations risk undetected vulnerabilities and errors within automated systems. Consequently, accountants and auditors may need to develop new competencies, including an understanding of blockchain functionality and, in some cases, relevant programming and technical concepts.

11. What Blockchain Adoption Means for Accounting and Auditing Practice

The shift to an economic system with significant blockchain components presents an opportunity for the accounting profession. Accountancy professionals are considered experts in standards-setting, the application of intricate rules, record-keeping, and business judgment. With these skills, accountants can influence and guide the development and utilization of blockchain in the near future and help advance blockchain-led services and solutions. Blockchain must be optimized, consistent, and developed in order to become a vital part of the financial system. The process may take several years. While blockchain has been around for roughly a decade, there is still much work to be done. There are numerous blockchain startups and applications, but few have gone beyond the pilot or proof-of-concept stage. While the accountancy profession is an important stakeholder in the research, there is more it can do.

Research by Zheng et al. (2017) highlights the potential of blockchain to transform existing auditing practices, leading to a more detailed and effective automated assurance system. Standards and regulations covering blockchain are no minor matters, and accounting firms and bodies have the expertise to bring to bear. Professionals can also serve as guides to firms considering joining the blockchain, providing advice on the costs and benefits of the new system. Accounting and auditing professionals have a mix of financial and business nous to position themselves as key advisers to firms intending to use the technology.

Accounting functions related to the transfer of property rights and the assurance of transactions are likely to change as smart contracts and blockchain-based systems become more widely adopted. Prior research suggests that blockchain can support an accounting environment characterized by real-time processing, verifiability, and enhanced transparency (Dai and Vasarhelyi, 2017). This insight underlines the likely uses of blockchain to transform accounting practices, providing a new level of transparency and reliability in financial reporting. The decline in the need for dispute management and reconciliation combined with improvement in rights and responsibilities will permit considerable attention on how to record and evaluate transactions and allow the growth in parts that should be reported. Numerous existing accounting departments' procedures can be optimized using modern technologies like machine learning or data analytics and blockchain. In future, this will improve the value and efficiency of accounting function.

As blockchain technology continues to develop and gain wider acceptance, the mix of skills required in the accounting and auditing profession may gradually change. Certain routine activities, such as data collection and reconciliation, could become less prominent as systems become more automated, while areas involving professional judgment, advisory services, and higher-value analysis may assume greater importance. In audit engagements that involve blockchain-based transactions, auditors may place increased emphasis on assessing system

controls, process design, and the assumptions embedded within automated procedures. At the same time, the availability of verifiable transaction records may reduce, but not eliminate, the need for traditional confirmation procedures using external sources. Khezr et al. (2019) discuss the key themes identified in academic studies and professional publications, highlighting the blockchain ecosystem's problems with transparency, governance, and trust, blockchain-enabled Constant audits, applications of contracts, and the model change in the responsibilities of auditors and accountants. This suggests that the integration of blockchain technology will not only impact processes but also redefine the obligations and functions of professionals in accounting and auditing. However, there is likely to be more attention to pay towards confirming how the transactions are recognized and recorded in the financial statements as well as how valuations and other judgmental assets are decided.

As blockchain-based systems become more common in practice, an increasing portion of accounting records may be maintained on distributed ledgers. This shift allows accountants, auditors, and other authorized users to review transactions with greater assurance regarding their origin and timing, often without the delays associated with traditional reporting processes. While accounting professionals are not required to develop technical expertise in blockchain design, they do need a working understanding of how these systems operate in order to assess their implications, adapt audit procedures, and provide practical advice to clients adopting blockchain solutions. Additionally, they will need to act as the bridge, between business stakeholders and technologists by having informed conversations with both. As a result, accounting and auditing professionals will need to broaden their competencies to include a practical understanding of blockchain's core functions and operational features.

Even when underlying transactions are recorded and accessible through blockchain systems, human auditors must continue to perform audit procedures related to estimates and judgments. Audited financial statements remain central to organizational decision-making and play a critical role in equity and debt financing, regulatory compliance, mergers and acquisitions, participation in capital markets, and the overall efficiency of financial markets. Financial statements show management claims, containing estimates and assumptions, that can't be generated or validated by blockchain technology alone. Nevertheless, blockchain enhances audit processes and continues to reshape the roles of accountants and auditors.

Human judgment remains essential to the auditing function and is fundamental to maintaining trust in financial reporting. Erosion of this trust can negatively affect stock prices and shareholder value, damage organizational reputation, and lead to asset losses, fines, or regulatory penalties. While blockchain technology supports transparency and data integrity, it does not replace the need for professional judgment exercised by human auditors.

Widespread adoption of blockchain technology allows centralized access to audit data across organizational platforms. When audit procedures are well developed, auditors may obtain audit evidence directly from blockchain systems. Nevertheless, accountants and auditors must continue to assess the risk that such evidence may be inaccurate due to errors, system weaknesses, or fraudulent activity. Blockchain also introduces new challenges because many systems are controlled by the entities being audited, raising concerns about data extraction and reliability (Ovenden, 2017).

As a result, auditors may need to evaluate general information technology controls associated with the blockchain environment. This evaluation can include an assessment of the blockchain's consensus mechanism, as weaknesses or manipulation of the protocol could compromise data integrity. Given the increasing use of both public and private blockchains, accountants and auditors must consider how different blockchain structures affect audit risk and audit procedures. It is also important to assess an organization's accounting policies related to digital assets and liabilities, particularly in light of limited guidance under IFRS. In addition, auditors must identify incremental dangers related with blockchain adoption and adapt audit procedures to successfully leverage the technology while maintaining audit quality.

12. Research Contribution

This study shows an important contribution to the accounting and auditing literature by providing recent empirical evidence drawn from the period between 2022 and 2025, a timeframe that captures the latest developments in blockchain adoption. Prior research has largely relied on conceptual frameworks or early-stage case evidence, leaving limited understanding of how blockchain is currently implemented in practice. By examining barriers to adoption, audit design considerations, and reporting and regulatory implications, this study offers timely insights into how blockchain is affecting accounting and auditing functions within U.S. firms.

The primary contribution of this study lies in its use of empirical data to document how blockchain technology is actually being used by managers today, thereby narrowing the gap between theoretical predictions in prior literature and observed organizational practices. The findings indicate that realized benefits—particularly improvements in traceability and reporting timeliness—are closely linked to system integration and access governance. These results help explain variation in blockchain outcomes across firms and provide a clearer foundation for future research. In doing so, the study informs the direction of subsequent empirical work by highlighting the need for larger samples and direct measures of process-level change to further validate and extend these findings.

13. Methodology

13.1. Research design

The research design was guided by the study's aims, objectives, and research questions. A descriptive research approach was selected to develop a comprehensive understanding of shared experiences and professional insights across organizations. Accordingly, the study adopted a qualitative methodology, which allowed for systematic and analytical responses to the research questions using clearly defined data collection procedures. The choice of research design was also shaped by the nature of the topic under investigation and involved collecting data from multiple organizations to capture diverse perspectives.

13.2. Sampling

A purposive sampling method was used to make sure the collection of information-rich and relevant data. This sampling strategy was appropriate because it targeted organizations with direct experience using blockchain in accounting or internal auditing functions. Purposive sampling recognizes that not all potential participants possess the knowledge or experience necessary to provide meaningful insights, particularly when examining emerging technologies.

The study sample consisted of 23 managers from both publicly traded and privately held firms, representing 23 distinct organizations. All participants held positions in either accounting or internal auditing functions, ensuring that responses reflected informed professional perspectives. This sampling approach was important because it improved the reliability and relevance of the findings by drawing on the experiences of individuals directly involved in blockchain-related accounting and audit activities.
The sample size of 23 participants is consistent with qualitative research designs that emphasize depth of practitioner insight rather than statistical generalization. Prior qualitative studies examining emerging technologies in accounting often rely on similar smaller samples when participants possess specialized professional knowledge. Because the respondents represented distinct organizations and held managerial roles, the sample provided a sufficiently diverse set of perspectives to support meaningful thematic analysis.

13.3. Data collection

Survey questionnaires were used as the primary data collection instrument. This approach was appropriate given the study's objective of capturing informed perspectives from accounting and internal audit professionals across multiple organizations in a consistent and systematic manner. Data collection began with the development of an introductory letter explaining the study's purpose, which was emailed to all potential participants. The study objectives and survey procedures were communicated in advance to ensure participant understanding and informed participation. Following this initial communication, the survey questionnaires were sent to participating organizations. Survey questions were organized thematically to facilitate structured analysis and comparison across responses.
The use of survey questionnaires was important because it enabled the collection of detailed and comparable qualitative data from geographically dispersed participants. This format allowed respondents to provide in-depth explanations grounded in their professional experience, thereby enriching and strengthening the data. Prior to survey administration, the study's purpose and the structure of the questions were clearly explained to participants to promote thoughtful, accurate responses.
Questionnaire development followed a multi-stage design process that emphasized clarity, relevance, and validity. The method began with a careful review of the research questions, which guided the selection and formulation of survey items. An initial draft of the questionnaire was reviewed and subsequently pretested to identify areas requiring refinement. In the early stages of development, a small focus group was used to assess how participants interpreted the questions, helping to ensure that wording was unambiguous. Pretesting was a critical step in improving the overall quality of the instrument by evaluating respondent comprehension and the effectiveness of individual questions.
A total of 23 questionnaires were developed and administered. The survey consisted of three sections. Part A collected participant background information, including position within the organization. Part B gathered organizational characteristics, such as firm size and number of employees. Part C contained the substantive survey questions related to blockchain adoption and its implications for accounting and auditing practices. Prior to distribution, participants received a formal letter of introduction outlining the study and survey procedures. All questionnaires were administered electronically using Qualtrics, which facilitated secure distribution and efficient data collection.

14. Data Analysis

To strengthen analytical rigor, the coding process followed a structured qualitative procedure. Initial open coding was conducted to identify recurring concepts within participant responses. Codes were then reviewed and grouped into higher-level thematic categories that reflected broader patterns in the data. To improve reliability, coding decisions were revisited multiple times during the analysis process and compared across responses to ensure consistent interpretation.
Thematic saturation was considered achieved when additional responses did not generate new conceptual categories but instead reinforced previously identified themes. Because the participants represented organizations with diverse industry backgrounds, repeated patterns across responses were interpreted as evidence that the themes adequately reflected the range of practitioner experiences captured in the study.
The first step involved familiarization with the data. All questionnaire responses were reviewed multiple times to allow the researcher to become fully immersed in the content and to gain an overall understanding of the responses. The second step consisted of coding, during which concise labels were generated to capture key features of the data relevant to the research questions. The entire dataset was coded to ensure comprehensive coverage. Codes were then collated and organized using a structured table that linked themes and subthemes to corresponding codes, supporting consistency and traceability throughout the analysis.
The third step involved identifying potential themes by examining patterns across the coded data. Related codes were grouped into broader themes that reflected recurring meanings within the dataset. Data associated with each potential theme were reviewed to assess coherence and relevance. The fourth step focused on reviewing and refining the themes by comparing them against the full dataset to ensure that they accurately represented participant responses and effectively addressed the research questions. During this stage, themes were refined through combining, separating, or eliminating categories as needed. Each theme was then clearly defined and named to establish its scope and focus.
The final step involved developing the analytic narrative by integrating the identified themes with representative data extracts and situating the findings within the setting of existing literature. This approach enabled a productive, clear presentation of the results, providing readers with a clear understanding of the study's findings. Following this structured analytical process was important in ensuring that the identified themes were credible, systematically derived, and reflective of the entire dataset.

15. Results and Findings

15.1. Demographics

Fig. 1: Gender Distribution of Respondents.

This figure illustrates the gender distribution of survey participants included in the study. Of the 23 respondents, 17 identified as male and 6 identified as female, reflecting the composition of the participating accounting and internal auditing professionals.

Age group	Number
18-25 years	2
26-35 years	6
36-50 years	10
50 years and above	5

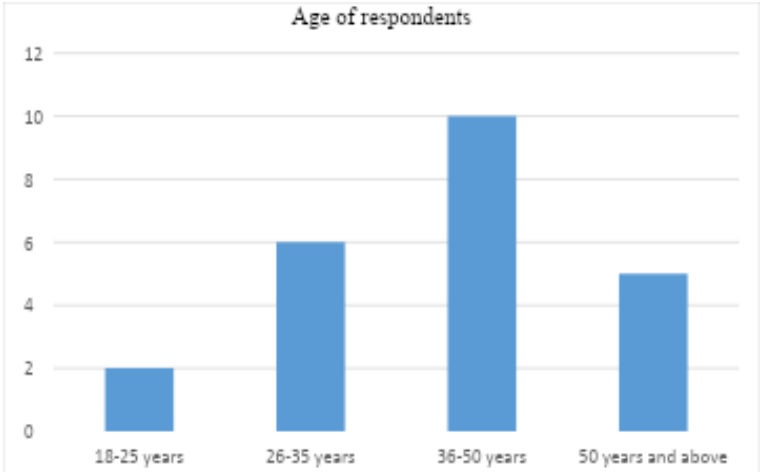

Fig. 2: Age Distribution of Participants.

This figure presents the age distribution of respondents participating in the study. The largest group of participants falls within the 36–50 age range, indicating that many respondents have mid-career experience in accounting and auditing.

15.2. Blockchain adoption period

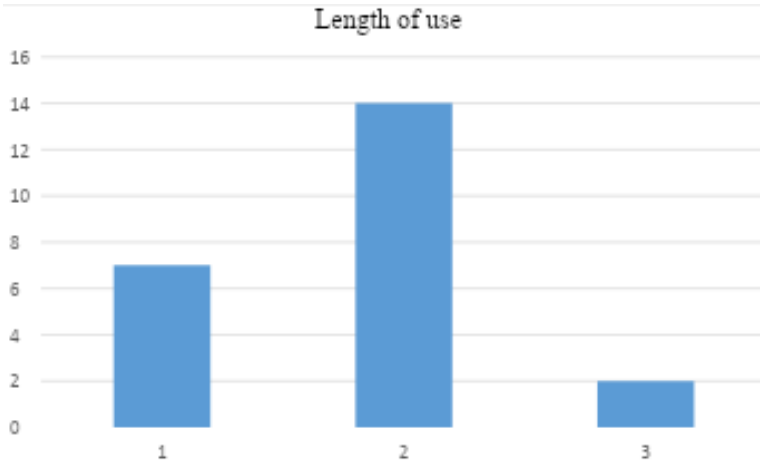

Fig. 3: Organizational Length of Blockchain Adoption.

This figure shows how long participating organizations have used blockchain technology for accounting or auditing purposes. Most organizations reported adoption periods between one and five years, indicating that blockchain implementation remains relatively recent within many firms.

Blockchain technology remains a relatively recent development in finance and auditing, making the length of organizational adoption an important contextual factor in interpreting the study's findings. To assess the maturity of blockchain use among participating organizations, respondents were asked how long their firms had implemented blockchain for accounting or auditing purposes. Seven organizations reported using the technology for less than one year, fourteen indicated adoption periods ranging from one to five years, and two organizations reported using blockchain for more than five years.

Understanding the duration of adoption is important because it provides insight into the extent of organizational experience with blockchain systems and helps contextualize differences in implementation, perceived benefits, and challenges across firms. The distribution of adoption periods suggests that most participating organizations are at the early to intermediate stages of blockchain adoption, with implications for both the interpretation of current practices and the direction of future research.

15.3. How the selected organizations use blockchain

The findings indicate that blockchain technology is used for a broad range of applications, including digital document authentication, online voting, smart contract execution, digital asset registration, payment processing, transaction verification, and the creation of verifiable audit trails. The nature and extent of these applications varied across industry sectors. For example, transaction-intensive financial services organizations were more likely to use blockchain for contract execution than firms in other sectors.

To facilitate analysis, these applications were grouped into six functional categories: transaction processing, contract execution, authorization, recordkeeping, reporting, and verification. This classification is important because it highlights the various ways in which blockchain is integrated into accounting and auditing processes and illustrates how industry characteristics influence adoption patterns.

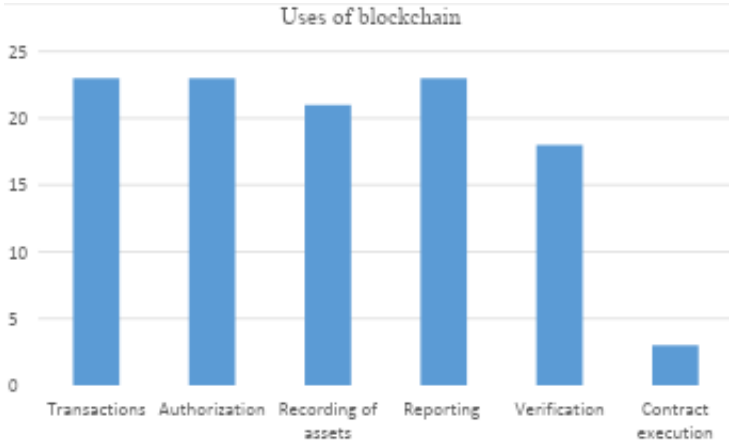

Fig. 4: Organizational Uses of Blockchain Technology.

This figure illustrates the primary functional uses of blockchain reported by participating organizations. Transaction processing, authorization, and reporting were the most commonly cited uses, while smart contract execution and automated contractual functions were reported less frequently.

The distribution illustrated in Figure 4 shows that blockchain applications were most frequently reported in transaction processing, authorization procedures, and financial reporting support. These categories represent core accounting functions where distributed ledgers provide immediate operational advantages. By contrast, more complex uses such as automated contract execution were reported less frequently, suggesting that organizations may adopt blockchain first in areas where process standardization already exists.

These findings are important because they illustrate that blockchain adoption in accounting and auditing is selective rather than uniform. While organizations appear comfortable leveraging blockchain for core recordkeeping and reporting functions, more complex applications—such as automated contract execution—remain limited. This pattern suggests that concerns about judgment, control, and risk may continue to influence how organizations integrate blockchain into their accounting and audit processes.

15.4. The degree of impact on selected organizations

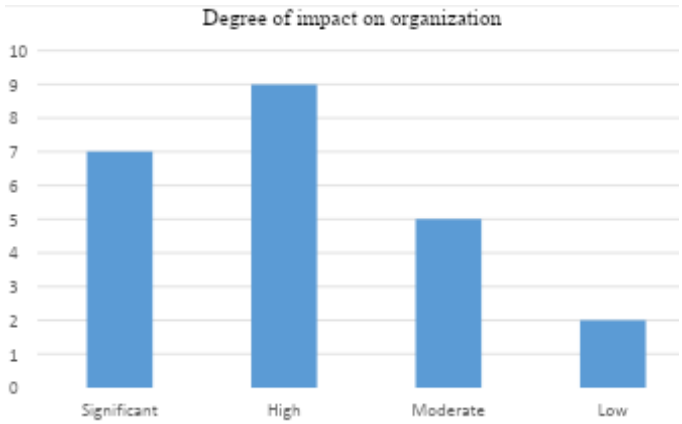

Fig. 5: Perceived Impact of Blockchain on Accounting and Auditing Practices.

This figure summarizes respondents' perceptions of how blockchain technology influences accounting and auditing activities. Key areas of impact identified by participants include improvements in transparency, real-time reporting, audit trail integrity, and transaction authentication.

Participants were asked to describe how blockchain technology has transformed their accounting and auditing practices. Analysis of the responses revealed several recurring themes, organized into key topic areas: transparency, bookkeeping processes, immutable and traceable audit trails, real-time reporting, transaction authentication, and the development of smart contracts.

Identifying these themes is important because they capture the specific dimensions through which blockchain is influencing professional practice. Together, these themes provide a structured framework for understanding how blockchain adoption reshapes accounting and auditing functions beyond simple transaction processing, highlighting its broader implications for assurance, control, and decision-making.

15.5. Degree of professional role change

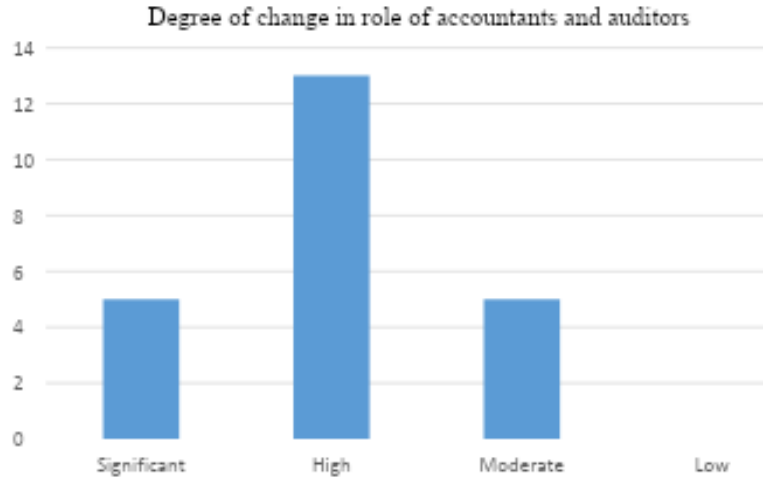

Fig. 6: Degree of Professional Role Change for Accountants and Auditors.

This figure presents respondents' perceptions of how blockchain adoption has influenced the professional responsibilities of accountants and auditors. Results indicate a shift toward greater emphasis on analytical review, system oversight, and evaluation of automated processes.

16. Discussion

The findings indicate that blockchain has a profound influence on accounting and auditing practices. Consistent with prior research, the findings suggest that blockchain adoption can improve transparency and strengthen the reliability of accounting information systems. Recent systematic reviews have highlighted blockchain's capability to advance transparency and reliability in accounting while also spotting areas for further empirical analysis (e.g., Bellucci et al., 2022; studies in 2024–2025 emphasize similar trends).

Although early studies such as those by Potekhina and Riumkin (2017), Simoyama et al. (2017), and Karajovic et al. (2017) provided foundational insights into blockchain's potential, more recent research documents a marked increase in empirical and thematic analysis focused on real-world impacts and implementation challenges. Studies from 2023 and 2024 further suggest that blockchain's influence on accounting and auditing extends beyond basic recordkeeping to include real-time accounting, continuous auditing, and enhanced data security—all of which reflect evolving professional practices.

Recent systematic reviews demonstrate that blockchain enhances transparency, data integrity, and process efficiency in accounting and auditing while highlighting the need for further empirical investigation (Bellucci et al., 2022; Putritama et al., 2024; Georgiou, 2024; Ziemba, 2025; Shaiku, 2025). Despite these advances, the full range of blockchain's applications remains underexplored, and both academic and practitioner literature call for additional empirical studies to assess how blockchain can be leveraged more broadly to enhance audit quality and financial reporting processes. Importantly, evidence suggests that the rate of blockchain adoption and its influence on professional functions are likely to increase as technology maturity and organizational experience grow. In this study, organizations reported significant benefits associated with blockchain use, adding to the literature that blockchain can improve traceability, timeliness, and overall reliability in accounting and auditing contexts.

The findings also have implications for financial reporting regulation and governance frameworks. As blockchain-based transactions become more common, standard-setting bodies such as the Financial Accounting Standards Board (FASB) and international regulators may need to provide additional guidance regarding the recognition, measurement, and disclosure of digital assets and blockchain-recorded transactions. Governance considerations are particularly relevant in permissioned blockchain environments, where control over system access and validation procedures may influence the reliability of accounting information. Consequently, future regulatory frameworks may need to address both technological architecture and internal control structures when evaluating blockchain-based financial systems.

17. Real-Time Reporting

Respondents identified immediate reporting as a key benefit of blockchain technology. Traditionally, organizations experienced delays between the execution of transactions and their subsequent verification. By significantly reducing this time lag, blockchain enables accounting and auditing professionals to access transactional information more quickly, improving reporting efficiency while allowing greater focus on analytical and judgment-based tasks. However, the extent of blockchain adoption varied across organizations, with some firms applying it to a limited set of accounting functions and others adopting it across a broader range of financial operations.

As a result, organizations that implemented blockchain more extensively reported shorter reporting cycles. Because data stored on distributed ledgers is continuously updated and verified by multiple parties, blockchain enables finance teams to provide near-real-time

information to management and external auditors. This capability also supports more effective collaboration with external audit and tax providers. These findings are important because they highlight how real-time reporting can enhance decision-making and strengthen assurance processes, particularly as organizations move toward more continuous and technology-driven reporting environments.

18. Transparency

Organizations that adopt blockchain technology benefit from increased transparency in accounting and auditing, as all authorized participants can observe changes to shared ledgers. Blockchain systems also restrict the ability to record or alter transactions to users with appropriate authorization, while enabling real-time transaction verification. As a result, reliance on manual document verification may be reduced.

In an ideal implementation, blockchain's automated, distributed verification mechanisms reduce the need for extensive human review of transactional records. Because recorded transactions cannot be altered or deleted, organizations gain greater assurance that reported events occurred. Consequently, the existence of transactions becomes less subject to dispute, strengthening confidence in accounting records and audit evidence.

19. Single-Entry Bookkeeping

Blockchain-based accounting systems enable single-entry bookkeeping, supported by a shared public ledger rather than the traditional dual-entry systems maintained separately by each organization. When Organization A sells goods to Organization B, the transaction is time-stamped and securely recorded on the blockchain. The sale is automatically reflected as a receivable for the seller and a payable for the buyer, with the record encrypted and permanently stored. Because the ledger cannot be altered or deleted, both parties gain assurance that the transaction occurred as reported and that settlement obligations are accurately recorded.

20. Tamper-Resistant Audit Trails

Blockchain enables organizations to establish final audit trails, enhancing the reliability of accounting records. Through cryptographic hashing, transaction data is converted into fixed-length encrypted outputs that uniquely represent the original information. This process ensures data integrity and prevents unauthorized modification. As a result, many traditional verification activities can be reduced. Auditors and accounting professionals often devote substantial time to transaction preparation, reconciliation, and verification. Blockchain adoption minimizes these routine tasks, enabling professionals to focus on activities such as operational analysis, strategic assessment, and problem-solving.

21. Traceable Audit Trails

Blockchain also improves traceability in accounting and auditing by reducing errors in reconciling complex data across multiple systems. Once transactions are recorded on the blockchain, they cannot be modified even by system administrators, thereby strengthening the integrity of financial records. Because every transaction is recorded, verified, and traceable, auditors can access information in a consistent and standardized format. This improves information availability and allows auditors to focus more on evaluation, analytical review, and judgment-intensive tasks, including the assessment of accounting estimates and underlying assumptions. While traceability may reduce the need for extensive audit staffing, it increases demand for accountants and auditors with advanced technical and analytical skills.

22. Authentication of Transactions

Shared blockchain ledgers provide authorized users with direct access to transaction-level details. Consensus mechanisms ensure that all recorded transactions are authentic and agreed upon by network participants. In private blockchain environments, organizations can tailor access permissions to meet operational and regulatory needs. For example, external auditors or regulators may be granted read-only access, while accounting staff retain full real-time visibility. This structure enables faster audit procedures and supports more continuous auditing. Automated alerts and real-time verification reduce the need for extensive post hoc investigations, allowing irregularities to be identified and addressed as they occur.

23. Implications for Accounting and Auditing Roles

Many organizations reported improvements in transaction-level accounting following blockchain adoption. Accountants can now evaluate a larger volume of transactions originating from multiple parts of the organization. Rather than focusing primarily on transaction processing, accounting work increasingly emphasizes assessment of economic substance, asset condition, and valuation (Scott et al., 2017). Blockchain also expands the scope of accounting and auditing by bringing previously opaque areas into clearer focus, thereby enhancing transparency.

For auditors, blockchain provides greater visibility into client operations and financial positions. Audit assertions now require deeper engagement with data and processes, as a larger set of transactions is readily available for analysis. Auditors must evaluate higher-level issues related to controls, judgment, and risk, rather than relying solely on sampling techniques. As blockchain adoption grows, auditors must develop a foundational understanding of blockchain systems to effectively assess complex accounting and audit tasks (Kaaniche & Laurent, 2017). Overall, the introduction of blockchain-based ledgers promotes greater standardization and transparency in accounting and reporting, supporting more efficient data extraction, analysis, and assurance.

24. Conclusion

This study contributes to the growing literature on blockchain and accounting by providing empirical evidence from U.S. organizations actively using distributed ledger technologies in accounting and auditing functions. The findings indicate that blockchain adoption is associated with improvements in transaction traceability, reporting timeliness, and audit trail reliability.

The results also suggest that blockchain technologies may gradually reshape professional roles within accounting and auditing. As transactional verification becomes increasingly automated, accountants and auditors may devote more attention to evaluating system controls, interpreting economic substance, and exercising professional judgment.

Blockchain also has the potential to reduce costs associated with ledger maintenance and reconciliation, thereby improving auditor productivity and the overall efficiency of financial reporting processes. As routine transactional tasks become increasingly automated, the role of accounting professionals continues to shift toward interpreting economic substance, assessing valuation, and exercising professional judgment. While blockchain is already influencing accounting and auditing practices, its full range of applications remains underexplored. Continued adoption is therefore likely to reshape professional roles and skill requirements further, underscoring the importance of ongoing research and practitioner engagement as technology matures.

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