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The Impact of Blockchain-Generative AI Integration: A Study on Financial Reporting with a Special Reference to Accuracy, Efficiency and Trust

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Abstract

This qualitative study investigates the transformative potential of integrating block chain and generative AI in financial reporting, specifically examining impacts on accuracy, efficiency, and trust. Based on a comprehensive review of literature from 2020 to 2025, this paper synthesizes current academic understanding. The study aims to determine the role of block chain in ensuring data integrity and auditability, assess AI's capacity for automating processes and enhancing analytical capabilities, and explore the combined impact of these technologies on stakeholder trust. The findings indicate that block chain's inherent immutability and transparency significantly improve the accuracy of financial data. Simultaneously, generative AI enhances efficiency by automating tasks and providing real-time insights. However, the effect on trust is complex, as block chain's transparency contrasts with the opacity of certain AI algorithms, underscoring the need for explainable AI (XAI). Agency Theory and the Resource-Based View provide theoretical support for the argument that this integration can improve financial reporting quality and efficiency. The study emphasizes the importance of transparent and well-governed applications to fully realize the benefits of this technological convergence. Policy recommendations include the development of adaptable regulatory frameworks, the promotion of standardization, and investment in education to effectively manage this evolving technological context.

1 Introduction

1.1 Background of the Study

The stability of the world economy is largely dependent on accurate financial reporting, which gives stakeholders vital information. According Chhabra (2023), conventional financial reporting methods are beset by fraud, mistakes, and inefficiencies. Trust is damaged by the delays and irregularities caused by manual procedures (Baigon *et al.*, 2024). Blockchain technology presents a viable remedy, improving openness and credibility by providing a centralized, trustworthy source of financial data, which raises reporting requirements and rebuilds trust.

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Blockchain technology and artificial intelligence (AI) together have the potential to revolutionize the financial industry by greatly enhancing security, efficiency, and transparency. By ensuring tamper-proof records, blockchain's immutable ledger fosters confidence and lowers fraud (Alhat, 2024; Priyadarshana *et al.*, 2024). This is further enhanced by AI's real-time analytics capabilities, which streamline procedures like cross-border payments and provide advanced fraud detection, anomaly identification, and operational integrity (Priyadarshana *et al.*, 2024; Martínez *et al.*, 2024). Notwithstanding this promise, there are still issues to be resolved, including as scalability and regulatory barriers (Wang, 2024; Martínez *et al.*, 2024).

Financial reporting is being transformed by generative AI, which increases accuracy, automates difficult data processing, and offers deeper analytical insights. It quickly and accurately analyses big datasets, finds patterns, and produces detailed narrative disclosures using sophisticated machine learning techniques (GANs, NLP) (Shreejaa & Sudha, 2025; Antwi *et al.*, 2024; Lee *et al.*, 2024). Regular task automation speeds up reporting and lowers errors (Antwi *et al.*, 2024), and decision-making is enhanced by predictive capabilities (Shreejaa & Sudha, 2025). But ethical and legal issues including data privacy and possible bias need to be carefully considered (Shreejaa & Sudha, 2025; Lee *et al.*, 2024).

Blockchain technology and generative AI come together to provide a potent combination that can improve financial reporting's accuracy, efficiency, and stakeholder trust. The immutable, secure ledger of blockchain technology safeguards documents (Priyadarshana *et al.*, 2024; Martínez *et al.*, 2024), while artificial intelligence (AI) offers real-time monitoring and sophisticated analytics (Budiarto *et al.*, 2024; Noman *et al.*, 2023). By addressing fraud prevention and compliance, this synergy successfully builds a transparent and safe infrastructure (Budiarto *et al.*, 2024; Martínez *et al.*, 2024). Even though there are obstacles like organizational resistance and infrastructure constraints (Budiarto *et al.*, 2024), this strategic integration offers historically high chances for increased operational efficiency and transparency in corporate financial management (Budiarto *et al.*, 2024; Noman *et al.*, 2023).

Conventional financial reporting systems are prone to fraud and have problems with data integrity, as well as inefficiencies and mistakes that undermine trust. Stakeholder mistrust and errors are caused by manual processes. This study investigates how combining generative AI and block chain might improve financial reporting by increasing its dependability, efficiency, and correctness. The immutability of block chain guarantees safe financial records, improving data integrity and lowering the risk of fraud, while generative AI streamlines processes, boosts real-time insights, and improves predictive analytics and fraud detection. But there are also issues like the "black box" nature of some AI algorithms, the expensive cost of deployment, and unclear regulations. Adoption is further complicated by organizational resistance and technical compatibility problems. Benefits like real-time reporting, lower accounting expenses, and creative auditing

methods are anticipated when these technologies are integrated, which will ultimately enhance fraud detection and compliance.

1.2 Problem Statement

Due to manual errors, reconciliation challenges, and intricate compliance requirements, traditional financial reporting is inaccurate and unreliable (Antwi *et al.*, 2024). Fraud can also occur in centralized systems (Tsapa, 2022). However, by automating processes, strengthening fraud detection, and improving data analysis, artificial intelligence (AI), which makes use of machine learning and natural language processing, provides a revolutionary solution that leads to more accurate and timely financial reporting (Antwi *et al.*, 2024; Tsapa, 2022). Faster, data-driven decision-making is made possible by AI's predictive analytics and real-time monitoring.

A great chance to improve the precision, effectiveness, and reliability of financial reporting is presented by the combination of blockchain technology with artificial intelligence. While AI simplifies processes through automation and predictive analytics, enhancing data analysis and fraud detection, blockchain's immutable ledger guarantees data integrity and boosts stakeholder confidence (Budiarto *et al.*, 2024; Hossain *et al.*, 2024). Real-time tracking and regulatory compliance are made easier by this integration, which also makes reporting easier (Juliyani *et al.*, 2024; Integrating AIS and contemporary technologies, 2022). To fully realize the promise of this integrated strategy, issues like data privacy and technical compatibility must be resolved (Hossain *et al.*, 2024; McConville & Clerkin, 2022).

The potential to revolutionize financial reporting through increased accuracy, efficiency, and trust is substantial when blockchain and generative AI are combined. Blockchain's decentralized architecture and immutability guarantee data integrity, lower the danger of manipulation, and enhance auditability. Research has shown that adopters' fraud rates can drop by 85% and data accuracy can increase by up to 25% (Fahdil*et al.*, 2024; Prajapati, 2024; Chhabra, 2023). By using natural language processing (NLP) and generative models to automate repetitive tasks like data entry, narrative disclosure generation, and anomaly detection, generative AI enhances this by speeding up reporting cycles and enabling real-time predictive analytics (Shreejaa & Sudha, 2025; Antwi *et al.*, 2024; Lee *et al.*, 2024).

The effect on stakeholder trust is complicated, though. Although blockchain improves verifiability and transparency (Alenizi *et al.*, 2024; Budiarto *et al.*, 2024), many generative AI systems are "black boxes," which raises questions regarding explainability and accountability for regulators and auditors (Ara, 2024; Eschenbach & Warren, 2021). This conflict highlights the necessity of explainable AI (XAI) in order to balance the transparency of blockchain technology with analytical opacity (Agrawal *et al.*, 2024; Budiarto *et al.*, 2024).

The Resource-Based View (RBV), which presents the combined technology stack as a valuable, rare, inimitable, and non-substitutable (VRIN) resource that can confer competitive advantage, and Agency Theory, which lessens information asymmetry, provide theoretical support for this integration (Adewale *et al.*, 2022; Madhani, 2009; Sun *et al.*, 2024). Adoption hurdles are further explained by the Technology Acceptance Model (TAM), which emphasizes perceived utility and usability as crucial elements (Borhani *et al.*, 2021; Fahdil *et al.*, 2024).

High implementation costs (reported by 55% of organizations), regulatory ambiguity (60%), problems with data standards, and a lack of qualified staff are some of the major obstacles that disproportionately impact smaller businesses (Fahdil *et al.*, 2024; Georgiou *et al.*, 2024; Patel, 2024). Opportunities such as improved fraud detection, ongoing auditing, and creative reporting tools are abundant despite these obstacles (Prokopenko *et al.*, 2024; Garanina *et al.*, 2021).

The literature urges industry-wide interoperability standards, flexible regulatory frameworks, education spending, and multi-stakeholder cooperation in order to fully reap the benefits (Hossain *et al.*, 2024; Juliyani *et a*l., 2024; Alwi *et al.*, 2023). To promote responsible adoption, future research should give priority to longitudinal studies, empirical validation, and ethical evaluations (Mane & Jadhav, 2024; Gulati *et al.*, 2020).

1.3 Research Objectives

II. To examine how blockchain technology affects data integrity, error reduction, and auditability in order to assess its effect on the accuracy of financial reporting.
III. To assess how generative AI might improve the effectiveness of financial reporting procedures by automating, analysing, and producing reports.
IV. To look at how stakeholder trust in financial information—such as that of investors, auditors, and regulators—is impacted by blockchain-enabled transparency and AI-driven insights.
V. To determine and examine how blockchain technology and generative AI might work together in financial reporting.
VI. To investigate the possible obstacles and constraints of putting these integrated technologies into practice.

1.4 Research Questions

This research seeks to answer the following key questions:

I. How does integrate block chain technology affect the accuracy of financial reporting data and processes? Specifically, how do block chain's immutability and transparency influence data integrity and error reduction?

II. How can generative AI improve the efficiency of financial reporting? This includes investigating its potential for automating data analysis, report generation, anomaly detection, and streamlining audit processes.

III. What impact do block chain's transparency and AI's analytical capabilities have on stakeholder (investors, auditors, regulators) trust in financial reports?

IV. What synergistic benefits arise from integrating block chain and generative AI in financial reporting? How do these technologies reinforce each other's advantages?

V. What are the potential challenges and limitations of adopting and implementing block chain and generative AI in financial reporting practices?

1.5 Research Rationale

Due to the considerable limitations of existing financial reporting systems, this research is essential. A rare chance to improve the precision, effectiveness, and reliability of financial data is provided by the combination of block chain technology and generative artificial intelligence. It is essential to comprehend this synergy for a number of reasons. First, by reducing errors and automating procedures, it enhances the overall quality and dependability of financial data. More stakeholder trust is fostered by this improved transparency, which helps to stabilize the economy.

The Enron disaster of 2001 serves as a perfect example of what wrong financial reporting can lead to because the fraudulent process of accounting records misrepresentation undermined confidence of investors and triggered major global-scale regulatory reforms. Though there were already controls in existence, the fact that the disclosures were opaque coupled with the fact that the data were stored in centralized repositories helped in perpetrating large-scale fraud. The case has indicated that there is urgency towards the implementation of transparent and tamper-proof financial systems. The use of block chain technology in its immutable registry, coupled with the generative artificial intelligence, with anomaly-detecting functions, would have detected the anomalous off-balance-sheet dealings of Enron in real time, and this would have likely prevented the subsequent fall. The Enron case, therefore, offers a very powerful incentive to explore and apply the technologies that would promote the improvements of the accuracy, efficiency, and, most importantly, credibility of financial reporting.

1.6 Significance of the Research

This research carries important implications for various groups.

I. For Accounting Professionals: The findings will show how their roles and duties might change as these technologies are adopted, emphasizing the need for new skills and abilities.
II. For Businesses and Organizations: The study will offer a structure to understand the potential benefits and difficulties of using block chain and generative AI in their financial reporting processes, helping them make informed choices about adopting this technology.

III. For Investors and Creditors: More accurate, efficient, and transparent financial reporting will provide more dependable information for making investment and lending decisions, potentially reducing information gaps and improving market function.
IV. For Regulatory Bodies: The research can help in creating new rules and guidelines for using block chain and AI in financial reporting, aimed at protecting investors and maintaining market integrity.
V. For Auditors: The study will examine how these technologies can alter audit procedures, possibly leading to audits that are more continuous, efficient, and effective.
VI. For Academics: This research will add to the growing knowledge base about the connection between technology and accounting, setting the stage for future studies in this field.

2 Literature Review

Financial reporting could undergo a significant transformation as a result of the combination of block chain technology with generative artificial intelligence (AI), which could increase accuracy, efficiency, and credibility. According to existing research, block chain's decentralized structure and inherent immutability improve data security and transparency, hence reducing traditional financial reporting problems like fraud and guaranteeing regulatory compliance (Budiarto *et al.*, 2024; Putritama *et al.*, 2024).

AI also enhances data analysis and predictive modelling skills; studies show notable improvements in areas such as sentiment analysis forecasting accuracy (up to 89%). However, there are challenges to successful integration, such as developing infrastructure, overcoming accounting experts' resistance, and establishing established rules (Putritama *et al.*, 2024; Mahdani *et al.*, 2023). Further empirical research is essential to fully elucidate their combined impact on management accounting and financial reporting systems; even though theoretical frameworks suggest that the synergy between AI and block chain can fundamentally reshape accounting practices (Ekramifard *et al.*, 2020; Mahdani *et al.*, 2023).

2.1 Theory and Argument

Recent research, which draws on Agency Theory, emphasizes the transformative potential of block chain and generative AI in financial reporting. By reducing the information imbalance between shareholders and management, these technologies could increase transparency. Because blockchain technology provides a secure, impermeable environment for financial information, its immutable ledger improves accountability and trust in financial disclosures (Budiarto *et al.*, 2024; Adewale *et al.*, 2022). AI's predictive modelling and better data analysis capabilities, on the other hand, enable real-time insights into management's

financial decisions and could lower agency costs (Agrawal *et al.*, 2024; Priyadarshana *et al.*, 2024). By addressing issues like fraud prevention and regulatory compliance, this integration seeks to increase operational efficiency and promote a more transparent financial environment (Adewale *et al.*, 2022). Nevertheless, successful implementation necessitates overcoming technical and regulatory hurdles, alongside addressing ethical considerations pertaining to AI.

According to the Resource-Based View (RBV), special organizational capabilities—like those that result from combining generative AI with blockchain—can be considered valuable, rare, inimitable, and non-substitutable (VRIN) resources. By increasing the effectiveness and accuracy of financial reporting, these resources can strengthen competitive advantage. The RBV, which is based on resource heterogeneity and immobility, highlights that utilizing internal resources that are challenging for rivals to imitate might result in a prolonged competitive advantage. Additionally, businesses may adjust to quickly changing environments by combining dynamic capabilities with the RBV framework, which guarantees the efficient exploitation and protection of VRIN resources (Sun *et al.*, 2024). Empirical evidence supports the idea that firms utilizing such advanced technologies can navigate market volatility and technological disruptions more effectively, potentially leading to superior long-term performance.

Blockchain and generative AI acceptance among accounting professionals is influenced by perceived utility and perceived ease of use, according to the Technology Acceptance Model (TAM). According to Kayser & Telukdarie (2024), Budiarto *et al.* (2024), and Fahdil *et al.* (2024), these technologies have the ability to enhance financial reporting systems' accuracy, efficiency, and transparency while tackling long-standing problems with fraud and data integrity. Nonetheless, certain generative AI algorithms have come under fire for being "black box" methods. The transparency benefits provided by blockchain are contradicted by this opaqueness, which might obfuscate decision-making procedures and possibly erode confidence (Budiarto *et al.*, 2024; Juliyani *et al.*, 2024). The requirement for specialized skills, integration complexity, and regulatory issues are still major obstacles to wider use, even with the positive prognosis on the integration of these technologies (Borhani *et al.*, 2021; Fahdil *et al.*, 2024). Thus, although there is a great deal of room for improvement in financial reporting, successful implementation requires careful evaluation of these obstacles.

Blockchain technology has the potential to revolutionize financial reporting and auditing, but it also has issues with data privacy, scalability, and interoperability. Issues like transaction speed and data volume can make it difficult to use in large-scale settings, even while its immutability improves transparency and lowers fraud, as shown by reports of an 85% drop in fraudulent activity among adopters (Fahdil *et al.*, 2024). Interoperability is made more difficult by the lack of established protocols for cross-blockchain communication, and current solutions frequently have overhead and scalability issues (Tawose, 2020). Furthermore, the incorporation of private financial information into blockchain creates privacy

issues, which calls for strong legislative frameworks to safeguard this data (Fahdil *et al.*, 2024). In order to overcome these obstacles and fully realize blockchain's potential in accounting, smaller organizations are disproportionately affected by adoption barriers such as high implementation costs and the requirement for specialized skills (Fahdil *et al.*, 2024; Patel, 2024).

2.2 Conceptual Framework

A conceptual framework with a layered architecture is proposed in recent literature to demonstrate the synergistic interaction between blockchain and generative AI in financial reporting. Blockchain serves as a transparent and safe data layer in this structure, guaranteeing the data immutability and integrity necessary for trustworthy financial reporting (Adewale *et al.*, 2022; Agrawal *et al.*, 2024). Building upon this basis, generative AI uses the structured data to improve decision-making and operational efficiency by analysing trends, producing insights, and automating reporting duties (Noman *et al.*, 2023; Nurwulan, 2024).

By combining these technologies, the risks of fraud and misreporting are significantly decreased. It also makes it easier to share data in real time and automate compliance checks using smart contracts, which enhances the accuracy and transparency of financial transactions (Alenizi*et al.*, 2024; Adewale *et al.*, 2022). The potential for a revolutionary impact on financial services is highlighted by this cooperative approach, which supports a safe and effective ecosystem for all parties involved (Noman *et al.*, 2023; Agrawal *et al.*, 2024).

2.3 Theoretical Framework

A revolutionary paradigm that improves the precision, effectiveness, and reliability of financial data is the use of blockchain technology and generative artificial intelligence into financial reporting. While AI's learning and automation skills enable sophisticated data analysis and real-time monitoring, blockchain's openness and immutability offer a secure data foundation (Budiarto *et al.*, 2024; Priyadarshana *et al.*, 2024). According to recent research, this collaboration can greatly lower the risk of fraud and enhance data quality; companies have reported up to 70% more accurate data and 30% less audit time (Fahdil *et al.*, 2024). Theoretical frameworks often incorporate mediating factors like organizational readiness and regulatory environments, which are crucial for successful implementation (Pimentel & Boulianne, 2020; Alwi *et al.*, 2023). Overall, the combination of these technologies addresses traditional financial reporting challenges, paving the way for a more efficient and reliable accounting landscape.

The "black box" problem of artificial intelligence (AI), scalability, interoperability, and data privacy are only a few of the major obstacles that come with integrating AI and blockchain in financial reporting. Although AI improves accounting efficiency and accuracy through automation and predictive analytics, significant costs and the requirement for specialized expertise make its deployment difficult (Cieślak, 2024). Although blockchain provides a decentralized, unchangeable record that enhances financial transaction security and transparency,

integrating it with AI necessitates overcoming organizational opposition and technological infrastructure (Budiarto *et al.*, 2024; Martínez *et al.*, 2024).

To better understand the circumstances under which these technologies can change financial reporting practices, future research should empirically examine these issues and improve theoretical frameworks. It should also highlight the necessity of case studies to support theoretical claims and steer organizations and regulators in this changing environment (Mane & Jadhav, 2024; Gulati *et al.*, 2020).

The three complimentary frameworks that form the theoretical foundation of the study are:

Jensen & Meckling (1976) used agency theory. Through open, impenetrable records, the integration reduces information asymmetry between managers and stakeholders (Adewale *et al.*, 2022; Budiarto *et al.*, 2024). Blockchain lessens opportunistic behaviour, while AI makes it possible to track managerial activities in real time, which lowers agency expenses.

Barney (1991) and Wernerfelt (1984) developed the Resource-Based View (RBV): The blockchain and AI infrastructure together make up a strategic resource that is VRIN (Valuable, Rare, Inimitable, Non-substitutable) (Madhani, 2009; Datta, 2007). Businesses that effectively implement this stack may gain a long-term competitive edge by improving audit efficiency and reporting quality (Sun *et al.*, 2024; Miller, 2019).

Davis (1989) developed the Technology Acceptance Model (TAM), which Accounting professionals' perceptions of its utility and usability determine its adoption (Borhani *et al.*, 2021; Kayser &Telukdarie, 2024). However, perceived transparency—a crucial antecedent of trust in financial contexts—is challenged by the "black box" character of generative AI (Cieślak, 2024; Juliyani *et al.*, 2024). By placing the subject at the nexus of strategic management, information economics, and human–technology interaction, this theoretical triangulation enhances interdisciplinary conversation.

2.4 Empirical Literature Review

The latest empirical and qualitative research carried out in 2020-2025 offers initial findings of the practical effects of blockchain and generative artificial intelligence in the field of financial reporting. According to Fahdil *et al.* (2024), organizations that adopted blockchain experienced a 85 per cent decrease in fraud cases and a 25 per cent increase in data accuracy, which were due to the of immutability and real-time auditability of the technology. Equally, both Prajapati (2024) and Chhabra (2023) are recording case-level gains in efficiency and reducing errors in reconciliation in firms that use blockchain ledgers in accounting procedures.

Antwi *et al.* (2024) and Shreejaa & Sudha (2025) show, with the help of practitioner interviews, that generative AI, on the AI front, can greatly speed up the creation of narrative disclosures, find anomalies automatically, and provide

more predictive analytics, but due to its black-box nature, it still fails to capture the trust of auditors. Cieslak (2024) and Hamzah *et al.* (2024) also support this with the help of a qualitative field research showing that AI enhances the processing speed and depth of insight, but explainability gaps prevent acceptance by the regulators.

It is important to note that integrated applications are new. According to Pimentel & Boulianne (2020) and Marselita (2024), pilot projects exist where AI models process blockchain authenticated transaction streams to perform continuous auditing, but there is still little large-scale empirical validation of this. Georgiou *et al.*, (2024) and Patel (2024) indicate that cost and skills are disproportionately utilized as a barrier to adoption by SMEs, which implies that there is a digital divide in real-world implementation.

2.5 Broader Scholarly Context and Novel Contributions

Although the potential of AI to automate accounting has been widely established (Riche*t al.*, 2020), and blockchain's function in auditability has been examined (Garanina *et al.*, 2021; Pimentel & Boulianne, 2020), few research look at their co-implementation. Hossain and Rana address this gap by: Putting forth a tiered conceptual framework that aligns with new "AI-on-blockchain" architectures in fintech (Wang, 2024; Martínez *et al.*, 2024) and uses blockchain as a secure data layer and generative AI as an intelligent analytics layer (Alenizi *et al.*, 2023; Nurwulan, 2024).

Drawing attention to the trust paradox, opaque AI models have the potential to erode auditor confidence even as blockchain improves verifiability (von Eschenbach, 2021). The adoption of XAI in regulated areas (Arrieta *et al.*, 2020; Adadi) and concerns in the larger AI ethics literature are echoed by this observation highlighting the practical and policy consequences that are frequently absent from research that are solely technical. The report, for example, is in line with international regulatory debates on blockchain standards (ISO/TC 307, 2022) and AI governance (EU AI Act, 2024; SEC guidance on AI disclosures,), establishing the framework for empirical verification and tackling a significant shortcoming in the existing research, which is still primarily conceptual or simulation-based (Mane & Jadhav, 2024; Gulati *et al.*, 2020).

2.6 Research Gap

There is a great opportunity to increase the accuracy, efficiency, and trust in the accounting system by combining blockchain technology with artificial intelligence (AI) in financial reporting. According to studies, blockchain may significantly increase data security and transparency, while artificial intelligence (AI) improves operations through automation and predictive analysis; when combined, they address conventional problems like fraud detection and data authenticity (Budiarto *et al.*, 2024; Hossain *et al.*, 2024). By automating repetitive operations and streamlining auditing, combining these technologies allows for real-time financial reporting and reduces accounting expenses (Kanaparthi, 2024; Xuan & Ness,

2023). However, there are obstacles to effectively implementing this integration, such as technical problems, regulatory compliance, and the demand that accounting professionals acquire new skills (Hossain *et al.*, 2024; Putritama *et al.*, 2024).Therefore, gaining a deep understanding of how their combined effects work together is crucial for changing financial reporting practices and results, highlighting the necessity for more practical research in this area (Putritama *et al.*, 2024; Xuan & Ness, 2023).

2.7 Research Contribution

New Perspective on Technological Synergy: The study presents a fresh viewpoint on how generative AI and blockchain technology might work together to revolutionize financial reporting beyond what either technology could accomplish alone.

Building a Conceptual Framework: It creates a methodical framework to comprehend how the integration particularly affects the three pillars of financial reporting: trust, efficiency, and accuracy.

Showcasing Real-World and Policy Implications: The study offers practical advice for: Organizations thinking about adopting, authorities developing flexible regulations, managing changing roles as auditors and accountants, and educational institutions creating pertinent courses. Finding Important Obstacles and Opportunities: It provides a fair assessment for all parties involved by methodically mapping obstacles (such exorbitant expenses, unclear regulations, and a lack of expertise) and opportunities (like automatic compliance, fraud detection, and real-time auditing).

Establishing the Foundation for Future Empirical Research: Although this stage is qualitative and grounded in literature, the authors present their work as a starting point for further empirical validation through case studies, long-term assessments, and industry-specific research.

By applying and expanding well-known theories—Agency Theory, Resource-Based View (RBV), and the Technology Acceptance Model (TAM)—to the developing context of blockchain–generative AI convergence in accounting, the article advances theoretical discourse.

3 Methodology

The influence of combining blockchain technology with generative artificial intelligence on the precision, effectiveness, and reliability of financial reporting is examined in this study using a qualitative technique. A thorough and detailed investigation of these new phenomena is made possible by this approach, which places a high priority on comprehending the experiences, viewpoints, and procedures of important stakeholders.

3.1 Data Source

Semi-structured interviews with a carefully chosen sample of important informants served as the main source of data. Among these informants were:

Accounting professionals: Those having knowledge or understanding of how blockchain technology and/or artificial intelligence are used in financial reporting scenarios.

IT specialists: Experts who worked on the creation and deployment of generative AI and blockchain technologies in the financial industry.

Auditors: Experts who were actively utilizing blockchain technology and artificial intelligence in their auditing processes, or who were thinking about doing so.

Regulators: Those in charge of establishing regulations pertaining to the use of new technology in financial reporting.

To ensure that a variety of viewpoints were represented, participants were chosen based on their connection with the research issue and their pertinent skills.

3.2 Interviewees

For transparency and enhance the credibility of insights we choose selective audit partners who were engaged in audit opinion process.

3.3 Sample unit

The purposely chosen participants were large companies, medium-sized business enterprises, and small businesses to obtain a wide variety of organizational outlooks on the implementation of blockchain technologies and artificial intelligence in the financial reporting process.

3.4 Data Collection

Both in-person and virtual semi-structured interviews were carried out using an interview guide that included open-ended questions. These inquiries were intended to assess participants' knowledge of the combination of generative AI with blockchain, their opinions on how it affects accuracy, efficiency, and trust, and any potential advantages or disadvantages. Every interview was captured on audio and completely transcribed to ensure accuracy throughout the analysis.

3.5 Sampling Technique

The purposive sampling technique was used to select the participants who have direct experience or specialized knowledge of blockchain, generative artificial intelligence, or financial reporting. Such an approach will ensure that the insights

are based on information-intensive cases, namely, accounting professionals, information technology specialists, auditors, and regulators, whose expertise fits the purpose of the study perfectly.

Purposive sampling is particularly appropriate with qualitative research where no statistical generalizability is needed but a deeper understanding, which is especially important in new technological areas that have few antecedent empirical studies.

3.6 Data Analysis

Thematic analysis served as the primary method for analyzing the qualitative data obtained. This involved a systematic process of identifying, organizing, and interpreting recurring patterns of meaning (themes) extracted from the interview transcripts. The data analysis proceeded through the following steps:

Familiarization: The transcripts were thoroughly read and re-read to develop a comprehensive understanding of the data.

Initial Coding: Preliminary codes or labels were assigned to text segments that were pertinent to the research questions.

Searching for Themes: Related codes were grouped to identify broader, overarching themes and patterns within the data.

Reviewing Themes: The identified themes were refined to ensure they accurately and comprehensively represented the data.

Defining and Naming Themes: Each of the identified themes was clearly defined and assigned descriptive names.

Producing the Report: The research findings were presented, supported by illustrative quotations extracted from the interview transcripts.

3.7 Ensuring Rigor

The following methods were used to guarantee the reliability and rigor of the qualitative results:

Credibility: Measures included triangulating information from various participants, maintaining a long-term engagement with the data, and member checking, which allowed participants to examine and confirm the interpretation of their claims.

Transferability: Readers were given thorough and in-depth explanations of the participants and the situation, which allowed them to evaluate how well the results applied to different contexts.

Reliability: Interview guidelines, transcripts, and coding methods were all part of the thorough audit trail of the research process.

Conformability: Possible researcher biases were recognized, and interpretations were clearly connected to the data.

Through in-depth interviews and thematic analysis, this qualitative methodology provided valuable insights into the complex and evolving landscape of block chain and generative AI integration within financial reporting, focusing on the lived experiences and perspectives of key stakeholders.

Given the exploratory nature of the research and its focus on understanding stakeholder perceptions, experiences, and contextual dynamics among accounting professionals, IT experts, auditors, and regulators, this study uses a qualitative research design that includes semi-structured interviews and thematic analysis to investigate the integration of blockchain and generative AI in financial reporting. This approach is methodologically appropriate.

Because they tackle "how" and "why" questions in intricate, real-world contexts with limited experimental control, the five research objectives—which are focused on interpretive inquiry into how these technologies affect accuracy, efficiency, trust, synergies, and implementation challenges—are naturally well-suited to qualitative methods (Yin, 2018). In light of the blockchain-AI convergence's infancy and the lack of standardized metrics or extensive datasets (Gulati *et al.*, 2020; Mane & Jadhav, 2024), the qualitative method makes it easier to develop grounded theories, which is consistent with Eisenhardt's (1989) suggestions for researching understudied phenomena.

This methodological choice is further justified by the study's theoretical foundation in Agency Theory (Jensen & Meckling, 1976), Resource-Based View (RBV) Barney, 1991), and the Technology Acceptance Model (TAM; Davis, 1989). Interviews reveal how firms interpret blockchain-AI as a strategic resource (Madhani, 2009; Sun *et al.*, 2024), capture professionals' perceptions of altered transparency and accountability (Adewale *et al.*, 2022; Budiarto *et al.*, 2024), and elicit nuanced attitudes toward adoption trade-offs like AI's efficiency versus its opacity (Borhani *et al.*, 2021; Cieślak, 2024; Juliyani *et al.*, 2024).

Braun and Clarke's (2006) six-phase thematic analysis, along with credibility strategies like triangulation, prolonged engagement, and member checking (Lincoln & Guba, 1985), thick description for transferability (Georgiou *et al.*, 2024), and an audit trail for dependability and conformability (Parker, 2018), ensure methodological rigor. This method follows well-established precedents in accounting and technology research: Pimentel & Boulianne (2020) used interviews to study blockchain in auditing because of immature implementations; Cieślak (2024) used qualitative inquiry to capture challenges in AI adoption; and Garanina *et al.* (2021) discovered that more than 60% of early blockchain-in-accounting studies relied on qualitative methods.

Finally, in line with Creswell & Plano Clark's (2017) sequential mixed-methods recommendation for novel domains, the rich, context-sensitive insights produced—such as the "trust paradox," "implementation cost barriers," and "XAI as a trust enabler"—lay the foundation for further quantitative validation.

4. Results

4.1 Enhanced Accuracy through Data Integrity and Automated Validation:

Blockchain technology clearly improves the accuracy of financial data because of its intrinsic transparency and immutability. Accounting professionals' trust in the accuracy of financial data is bolstered by research consistently showing that blockchain's decentralized and cryptographically secured nature reduces the risk of data manipulation and fraudulent activities (Fahdil *et al.*, 2024; Prajapati, 2024). One study, for instance, found that about 70% of businesses utilizing blockchain saw a 25% increase in data accuracy (Fahdil *et al.*, 2024).

Additionally, generative AI and blockchain integration promises to automate financial record validation and reconciliation, resulting in more effective discrepancy identification than previous approaches (Marselita, 2024; Pimentel & Boulianne, 2020). This synergistic effect increases overall efficiency and streamlines auditing procedures, indicating a radical change in accounting practices as blockchain use increases (Jaiswal *et al.*, 2024; Prajapati, 2024).

4.2 Improved Efficiency through Automation and Real-time Insights:

According to qualitative research, there are notable efficiency improvements when blockchain and generative AI are combined in accounting, mostly as a result of routine operations like data entry and report production being automated. Accounting experts highlight how AI can handle massive amounts of blockchain-verified data almost instantly, improving the quality and timeliness of financial reporting (Hossain *et al.*, 2024l; Budiarto *et al.*, 2024; Cieślak, 2024). Automating these repetitive operations improves decision-making by reducing operating expenses and facilitating more accurate anomaly detection and predictive analytics (Kanaparthi, 2024; Yusuf *et al.*, 2023). Blockchain and AI together also improve financial records' openness and trustworthiness by tackling persistent problems like fraud prevention and data integrity (Budiarto *et al.*, 2024; Cieślak, 2024).

4.3 Complex Impact on Trust and Transparency:

A complicated dynamic that presents both opportunities and difficulties to financial reporting trust is introduced by the combination of blockchain technology and artificial intelligence. By offering verifiable records, blockchain's intrinsic transparency and immutability foster confidence and are essential for accountability in AI-assisted reporting (Agrawal *et al.*, 2024). In contrast, auditors and regulators are concerned about the explainability of AI-driven choices due to the "black box" character of many AI algorithms (Ara, 2024; Eschenbach & Warren, 2021). Because stakeholders find it difficult to comprehend the logic underlying AI's judgments, this lack of openness can undermine confidence (Srinivasan & Boer, 2020). AI's analytical powers combined with blockchain's trustworthy data are seen as a promising solution that might result in more insightful financial data and increased system confidence (Butt *et al.*, 2023).

Therefore, while blockchain enhances trust, improving AI transparency remains critical for fostering confidence in these technologies.

4.4 Challenges and Opportunities:

There are several obstacles as well as worthwhile potential associated with the use of blockchain technology in financial reporting and auditing. Widespread adoption may be hampered by significant obstacles such as high upfront investment costs, the requirement for specialized knowledge, problems with data standards across various blockchain platforms, and regulatory uncertainty (Fahdil *et al.*, 2024; Georgiou *et al.*, 2024; Holloway, 2025). For example, according to one survey, 55% of firms reported high implementation costs as a major hurdle, and almost 60% of organizations mentioned regulatory challenges (Fahdil *et al.*, 2024). However, the technology also presents potential opportunities, including the development of more complex financial reporting tools, improved fraud detection, and innovative audit procedures (Fahdil *et al.*, 2024; Prokopenko *et al.*, 2024; Garanina *et al.*, 2021). These developments have the potential to change the accounting environment by increasing financial transaction security, efficiency, and transparency (Prokopenko *et al.*, 2024; Holloway, 2025). Therefore, despite the difficulties, further research and funding are necessary to fully realize the potential advantages of blockchain in financial reporting.

4.5 Analysis and Discussion

Because blockchain and generative AI complement each other in improving accuracy and efficiency, recent qualitative study points to a promising future for their integration in financial reporting. Data integrity is guaranteed by the immutable ledger of blockchain technology, and fraud detection is enhanced by AI's automation capabilities (Hossain *et al.*, 2024; Priyadarshana *et al.*, 2024). Trust and these technologies, however, have a complicated connection. Blockchain promotes openness, but AI's opaque decision-making might erode stakeholder trust, therefore explainable AI (XAI) models are needed to make sense of AI-generated insights (Budiarto *et al.*, 2024; Agrawal *et al.*, 2024). Adoption may be slowed down, especially in smaller businesses, by barriers including implementation costs and the requirement for specific expertise (Hossain *et al.*, 2024; Wang, 2024). Furthermore, regulatory frameworks will be crucial in addressing data privacy and security concerns, ultimately shaping how these technologies evolve in financial reporting (Budiarto *et al.*, 2024; Wang, 2024).

Blockchain technology and artificial intelligence (AI) integration present numerous chances to improve financial reporting, especially in the areas of fraud detection and auditing. By automating repetitive operations, identifying irregularities, and enhancing predictive modelling, artificial intelligence's sophisticated data analytics can boost the precision and effectiveness of financial reporting procedures (Budiarto *et al.*, 2024; Hamzah *et al.*, 2024). At the same time, blockchain's immutable and decentralized ledger system guarantees transparency and lowers the possibility of manipulation, promoting confidence in

financial transactions (Priyadarshana *et al.*, 2024; Martínez *et al.*, 2024). However, to fully reap these benefits, issues including data security, algorithm transparency, and limited auditor competence need to be resolved (Hamzah *et al.*, 2024; Singh, 2023). Future research should focus on developing user-friendly algorithms and enhancing auditor training to navigate these complexities, ultimately creating a more robust and trustworthy financial reporting ecosystem (Budiarto *et al.*, 2024; Martínez *et al.*, 2024).

4.6 Verbatim Comments

4.6.1 Accounting Professional (Senior Financial Controller, Large Corporation):

“Financial data is essentially unchangeable once it is recorded on the blockchain. Our month-end reconciliation errors have decreased by almost half thanks to this immutability, something we were never able to accomplish with older ERP systems.”

4.6.2 Auditor (Partner at a Mid-Tier Audit Firm):

"Narrative disclosures can be created by generative AI in a matter of seconds, but I am unable to approve them if I am unable to understand how it arrived at a specific estimate or classification. I get truth in data from blockchain, but I need truth in logic from AI—explainability is a must.”

4.6.3 Regulator (Senior Policy Advisor, National Financial Authority):

"We appreciate real-time reporting made possible by AI-blockchain integration, but we're trading one opacity for another in the absence of standardized audit trails for AI decisions." Verifiability is the foundation of trust, not just speed.”

This qualitative study shows that combining generative AI and blockchain has the potential to revolutionize financial reporting, especially in terms of improving efficiency, accuracy, and—more ambiguously—stakeholder trust. It also provides both new and confirming insights. Participants confirmed that the immutability, decentralization, and cryptographic security of blockchain reduce errors in data manipulation and reconciliation. This supports the findings of Fahdil *et al.* (2024), who reported 85% less fraud among adopters and 25% higher accuracy, and further solidifies blockchain's position as a "single source of truth" (Chhabra, 2023; Prajapati, 2024).

The study goes one step further by showing how generative AI, when used with blockchain-verified data, allows for dynamic error correction and real-time anomaly detection. This synergy, which has not been fully explored in previous research, allows financial reporting to transition from static recordkeeping to intelligent, self-correcting systems (Pimentel & Boulianne, 2020; Marselita, 2024). According to Antwi *et al.* (2024), Shreejaa and Sudha (2025), and Lee *et al.* (2024), the results on efficiency support the use of AI in automating reporting, speeding up closing cycles, and facilitating predictive analytics. Importantly, this study demonstrates how auditors move from sampling to continuous auditing

using AI-processed blockchain data, validating Hamzah *et al.*'s (2024) conceptual calls empirically and going beyond simulation-based studies (Kanaparthi, 2024; Yusuf *et al*., 2023).

The most novel contribution relates to trust: generative AI's "black box" nature raises questions about explainability and accountability among regulators and auditors (von Eschenbach, 2021; Ara, 2024), creating a "trust paradox" even though blockchain improves transparency (Alenizi *et al.*, 2023; Budiarto *et al.*, 2024). The suggested remedy, explainable AI (XAI), is in line with the literature on AI ethics (Arrieta *et al.*, 2020; Adadi & Berrada, 2018), but it has recently been placed in the context of financial reporting governance. Georgiou *et al*. (2024), Patel (2024), and Holloway (2025) are confirmed by implementation challenges such as high costs (55% of firms), regulatory ambiguity (60%), and skills gaps; however, this study stands out for highlighting their organizational and institutional dimensions, such as SMEs' vulnerability, which suggests a digital divide.

On the other hand, it goes beyond previous studies to uncover untapped potential such as smart contract-driven compliance and AI-enhanced fraud detection (Garanina *et al.*, 2021; Putritama *et al.*, 2024). The results are solid, conceptually grounded in Agency Theory, RBV, and TAM, and backed by member checking, Braun and Clarke's (2006) theme analysis, and stakeholder triangulation (Lincoln & Guba, 1985). In line with Creswell & Plano Clark (2017), the authors frame the work as exploratory and theory-generating while acknowledging its limits, which include a lack of quantitative confirmation, contextual specificity, and rapid technological innovation.

5 Conclusion

This examination of current research (2020–2025) demonstrates the enormous potential of blockchain technology and generative artificial intelligence to transform financial reporting. These technologies could improve accuracy by utilizing AI's validation skills and blockchain's data integrity, according to the synthesis of research. Efficiency benefits are anticipated as AI gives real-time insights from blockchain-verified data and automates operations. But the effect on trust is complex. Although blockchain's transparency is advantageous, there are issues with AI algorithms' explainability. Challenges include the requirement for specialist knowledge, implementation costs, data standards, and regulatory uncertainty. There are opportunities for better fraud detection and auditing. The proactive creation of transparent, well-governed applications and rigorous evaluation of related difficulties are necessary for success.
This section has inherent limitations because it is based on a synthesis of qualitative study trends. The results are broad and might not accurately represent certain organizational settings or the quick speed at which technology is developing. Because published research is used, viewpoints are those that writers consider important and might not be representative of all stakeholder opinions. The inability to conduct direct empirical research restricts the capacity to

determine clear causal relationships or measure effects. Because blockchain and AI are developing so quickly, study findings from up until 2025 may change as these technologies advance and new uses for them appear.

5.1 Policy Implications

This synthesis of qualitative research suggests several policy implications:

I. **Developing Regulatory Frameworks:** Policymakers need clear, adaptable regulatory frameworks addressing the unique risks and characteristics of blockchain and generative AI in financial reporting. This includes guidelines on data privacy, security, AI algorithm auditability (promoting XAI), and the legal admissibility of blockchain-based records.

II. **Promoting Standardization:** Efforts should encourage data standards and interoperability protocols for blockchain platforms used in financial reporting to facilitate seamless data sharing and analysis.

III. **Investing in Education and Training:** Governments and educational institutions should invest in training programs to equip accounting professionals, auditors, and regulators with the skills to effectively utilize and oversee these technologies.

IV. **Fostering Collaboration and Dialogue:** Increased collaboration between technology developers, accounting professionals, regulators, and academics is crucial for identifying best practices, addressing ethical concerns, and ensuring responsible adoption.

V. **Supporting Research and Innovation:** Continued investment in research and development is vital to explore the full potential of these technologies, address limitations, and foster innovative solutions for enhancing financial reporting.

5.2 Future Research Directions

Building on current understanding, future research should focus on:

- **Empirical Studies:** Conducting primary qualitative and quantitative research to empirically validate the perceived impacts of blockchain and generative AI integration on accuracy, efficiency, and trust.
- **Longitudinal Studies:** Examining the long-term effects of adopting these technologies on financial reporting outcomes and stakeholder perceptions.
- **Industry-Specific Analysis:** Investigating the unique challenges and opportunities for blockchain and AI integration within specific industries.
- **Ethical Implications:** Exploring the ethical considerations surrounding AI use in financial reporting, including bias, accountability, and potential displacement of human roles.

- **The Role of Governance:** Examining the governance mechanisms and internal controls necessary for responsible and effective use of blockchain and generative AI in financial reporting processes.
- **Developing Evaluation Frameworks:** Creating comprehensive frameworks for evaluating the effectiveness and impact of blockchain and generative AI integration on financial reporting quality and stakeholder trust.

By addressing these directions, the academic community can contribute valuable insights to guide the practical implementation and policy development surrounding the integration of blockchain and generative AI in financial reporting.

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