Proceedings of EKONBIZ 2026
ISBN: 978-99955-45-52-9
UDK: 347.44:004.738.5(4-672EU+497.11)

Submitted: 23.03.2026.
Accepted: 27.04.2026.
Review Article

OPPORTUNITIES AND CHALLENGES OF BLOCKCHAIN APPLICATION IN FINANCIAL ACCOUNTING

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Abstract: *Contemporary digital technologies are reshaping the business environment, creating opportunities for innovation while challenging traditional models of governance and financial reporting. In this context, blockchain technology constitutes an innovative distributed ledger infrastructure that provides a secure, cryptographically protected, and shared platform for recording and exchanging accounting information. This paper examines the transformative potential of blockchain in financial accounting through a systematic review of the relevant academic literature, aiming to identify prevailing research trends and assess the practical implications of its adoption. The analysis focuses on the core attributes of blockchain and their effects on data integrity, process efficiency, and the reliability of financial reporting. The findings suggest that blockchain may function as a platform for the voluntary disclosure of financial and non-financial information, thereby enhancing stakeholder trust and reducing information asymmetry in the short term. Over the long term, the integration of blockchain and smart contracts may reduce errors, improve the quality, timeliness, and comparability of accounting information, and streamline reconciliation and auditing procedures. The study also addresses key implementation challenges, including regulatory uncertainty, privacy concerns, scalability limitations, and the costs of integration with existing systems. Although blockchain holds significant innovative potential for financial accounting, its sustainable implementation requires a strategic approach and strong institutional support.*

Key words*: blockchain technology; financial accounting; regulatory challenges; cost–benefit analysis*

JEL classification*: M41*

1. INTRODUCTION

This paper examines the transformative potential of blockchain technology in the context of financial accounting, with particular emphasis on its application opportunities and the challenges associated with its adoption. Blockchain represents a technology for storing, verifying, and exchanging transaction records through a distributed ledger system that operates by adding cryptographically linked blocks of data within a decentralized peer-to-peer network (Coyne & McMickle, 2017). Owing to its core characteristics—immutability, decentralization, and transparency—blockchain has the potential to reshape business models and market structures across various sectors, including accounting and auditing (Bonsón & Bednárová, 2019).

Although initially developed as the technological foundation for cryptocurrencies, blockchain has, over the past decade, evolved into a broader infrastructural platform applicable in areas such as financial services, supply chain management, financial technology (FinTech), and digital administration. Despite the growing body of literature on blockchain across multiple disciplines, research specifically addressing its systematic application in financial accounting remains relatively limited (Schmitz & Leoni, 2019;

Liu et al., 2024). This research gap highlights the need for a comprehensive analysis of the technology's potential, limitations, and the key factors influencing its adoption in accounting theory and practice. Within this analytical framework, prior studies have indicated that the application of blockchain in accounting and public finance may enhance fiscal transparency, strengthen oversight of public expenditure, and reduce opportunities for data manipulation (Petrović, Tanasić, & Radovanović, 2022). These authors emphasize that distributed ledger technology may provide a foundation for the modernization of financial management, particularly in systems characterized by deficits in trust and supervision.

Contemporary accounting systems face persistent challenges related to data reliability, reconciliation efficiency, audit costs, and protection against manipulation. Within this framework, blockchain is viewed as a technology capable of enhancing the integrity of financial information and automating selected processes through smart contracts. These potentials have been recognized by leading international accounting firms, which have begun developing blockchain-based solutions in collaboration with financial and technological institutions, thereby demonstrating that blockchain has moved beyond a purely theoretical concept and is gradually being integrated into professional practice.

Given the breadth of its applications and ongoing technological developments, financial accounting appears to be on the threshold of significant transformation. Nevertheless, the integration of blockchain technology is not without challenges. Regulatory uncertainty, data protection concerns, scalability limitations, and implementation costs represent factors that may delay or constrain its adoption. Accordingly, the objective of this study is to analyze the implications of blockchain technology for financial accounting through a review of the literature, a comparative assessment with traditional accounting systems, and an examination of the costs and benefits associated with its implementation.

The paper is structured to provide, following the theoretical framework, a review of the most significant research in this field, an overview of relevant case studies of organizations that have implemented blockchain solutions, a comparative analysis of blockchain-based and traditional accounting systems, and a discussion of the economic and regulatory implications of its application. Based on the conducted analysis, recommendations are formulated for practitioners and policymakers aimed at maximizing the benefits and minimizing the risks associated with blockchain adoption in financial accounting.

2. LITERATURE REVIEW

The literature on the application of blockchain technology in financial accounting has experienced significant growth over the past decade, encompassing conceptual models, technological dimensions, regulatory implications, and professional transformations. The dominant research streams can be classified into several thematic categories: (1) conceptual models of blockchain-based accounting, (2) the technological architecture of distributed ledgers, (3) implications for auditing and corporate governance, and (4) regulatory and institutional challenges.

One of the most influential contributions was provided by Dai and Vasarhelyi (2017), who developed the concept of triple-entry accounting based on blockchain infrastructure. The authors defined blockchain as a novel accounting database capable of enabling automated transaction processing and reporting through smart contracts, thereby enhancing the reliability and verifiability of financial information. This model is widely regarded as a theoretical foundation for the digital transformation of accounting systems.

The concept of triple-entry accounting was further elaborated in subsequent research, emphasizing that the introduction of a third, cryptographically verified record may substantially increase the security and transparency of financial reporting (Petrović, Tanasić, & Jovičić, 2024). According to these authors, transformation through triple-entry accounting extends beyond technical innovation to encompass a shift in the paradigm of trust in financial reporting, as data validation becomes embedded within the accounting infrastructure itself.

Schmitz and Leoni (2019) expanded this discussion by analyzing the implications of shared ledgers for governance, transparency, and continuous auditing. They emphasized that, despite increased transparency, privacy protection and data confidentiality remain critical concerns given the sensitivity of accounting information.

Kokina, Mancha, and Pachamanova (2017) highlighted the potential of distributed ledger technology to facilitate consensus without reliance on a central authority, reduce transaction costs, and strengthen inter-organizational trust. Similarly, Coyne and McMickle (2017) identified coordination issues and identity verification as key challenges in applying distributed systems within accounting contexts.

The technological foundations of blockchain were examined in detail by Androulaki et al. (2018), who introduced Hyperledger Fabric as a permissioned blockchain system with clearly defined validation and access control mechanisms. Zheng et al. (2018) identified decentralization, persistence, and auditability as core characteristics of blockchain, while Christidis and Devetsikiotis (2016) emphasized the role of consensus mechanisms and cryptographic hash functions in ensuring data integrity. Zheng et al. (2017) further underscored the synergy between blockchain and big data, particularly with respect to secure data storage and authentication. Swan (2015) conceptualized blockchain as an integrated information infrastructure comparable to the Internet in terms of its transformative potential.

Bonsón and Bednárová (2019) systematized the implications of blockchain technology for accounting and auditing, emphasizing the potential of smart contracts to automate transactions and reduce administrative costs. The authors argued that the immutability of records may significantly contribute to fraud prevention and detection, as well as to enhanced external assurance and stakeholder trust.

Despite the expanding body of literature, research remains fragmented and predominantly focused on conceptual and technical dimensions, while empirical investigations and regulatory implications are still insufficiently systematized. Critical issues persist regarding the integration of blockchain into existing accounting frameworks, alignment with international financial reporting standards, and the long-term impact on professional competencies in accounting. The following table presents the ten most frequently cited documents identified through bibliometric analysis using CiteSpace software

Table 1. Most frequently cited articles in blockchain accounting research

Author(s)	Article Title	Number of Citations
Dai, J., Vasarhelyi M. A. 2017:5-21	Toward blockchain-based accounting and assurance.	435
Schmitz, J., Leoni, G. 2019:331–342	Accounting and Auditing at the Time of Blockchain Technology: A research Agenda.	197
Kokina, J, Mancha, R., Pachamanova, D. 2017:91-100	Blockchain: emergent industry adoption and implications for accounting.	182
Coyne, J., McMickle, L. 2017:101–111	Can Blockchains Serve an Accounting Purpose?	137
Androulaki, E. Barger, V. Bortnikov, et al., 2018:1-15	Hyperledger fabric: a distributed operating system for permissioned blockchains	56
Zheng, Z. Xie, S. H., Dai, N. et al. 2018: 352–375	Blockchain challenges and opportunities: a survey.	53
Christidis, K. Devetsikiotis, M., 2016:2292–2303	Blockchains and smart contracts for the Internet of things.	46
Zheng, Z. Xie, S., Dai, H. et al., 2017:557–564	An Overview of Blockchain Technology: Architecture, Consensus, and Future Trends.	40
Bonsón, E., Bednárová, M. 2019: 725-740	Blockchain and its implications for accounting and auditing.	40
Swan , M. 2015:1-15	Blockchain: Blueprint for a New economy	31

Source: Adapted from Liu, C., Muravskyi, V., Wei, W. (2024: 6); Evy Nurhayati Sri Hardini & Blasius Erik Sibarani (2025:92–93); Bellucci, M., Bianchi, D. C., & Manetti, G. (2022:10).

3. APPLICATION OF BLOCKCHAIN TECHNOLOGY IN FINANCIAL ACCOUNTING

Blockchain technology has attracted considerable scholarly attention since the emergence of Bitcoin, primarily due to its potential applications across a wide range of economic and social sectors. Its implementation extends to areas such as financial services, supply chain management, digital security, healthcare, insurance, digital asset management, and public administration (Miraj et al., 2023, p. 649). This breadth of application underscores its infrastructural character and transformative potential.

In the context of financial accounting, blockchain is conceptualized as a decentralized and cryptographically secured distributed ledger that can function as a reliable accounting information system (Moll & Yigitbasioglu, 2019, p. 7). Its application enables transaction automation, improved tracking of business events, and a reduction in the risk of data loss or unauthorized modification. A key distinction from traditional centralized databases lies in the immutability of records, as validated transactions cannot

subsequently be deleted or altered (Coyne & McMickle, 2017).

Due to these characteristics, blockchain holds the potential to transform accounting processes, auditing procedures, and professional roles within financial reporting (Yermack, 2016; Schmitz & Leoni, 2019; Yu et al., 2018). These transformations extend beyond the technical infrastructure of transaction recording and encompass the institutional and professional dimensions of accounting practice.

3.1. FINANCIAL ACCOUNTING – OPPORTUNITIES FOR BLOCKCHAIN

The motivation for investigating blockchain technology in financial accounting is rooted in efforts to overcome the limitations of traditional accounting systems, enhance data integrity, increase transparency and security, and streamline and automate business processes in line with contemporary digital transformation. By leveraging the distinctive characteristics of blockchain, financial accounting may achieve significant benefits through improvements in the recording, management, and auditing of financial data (Almadadha, 2024, p. 313).

Blockchain technology offers innovative concepts that may contribute to greater accuracy and reliability of accounting information. Organizations are able to store relevant documentation and transactions within a distributed ledger, while smart contracts can enable the automatic generation of accounting records and financial statements. In the case of public blockchain systems, records are distributed across a network of nodes, ensuring multiple copies of data and a high degree of resistance to unauthorized modifications (Miraj et al., 2023).

The implementation of an appropriate blockchain architecture for accounting purposes requires careful consideration of several elements, including node selection, database structure, authorization mechanisms, and verification protocols (Bonsón & Bednárová, 2019). A distributed ledger may facilitate data sharing among various stakeholders—such as suppliers, customers, banks, public authorities, and audit firms—while transactions are updated through a cryptographically secured peer-to-peer network. By employing suitable permission models, it is possible to precisely define levels of access to information, thereby ensuring both transparency and data confidentiality.

At the internal level, blockchain architecture may enable differentiated access to accounting information in accordance with organizational needs. Management may obtain comprehensive access to financial data, while specific departments access only relevant segments of information. Smart contracts may be used to automate selected processes, such as time tracking and payroll generation. External stakeholders—including investors, regulators, and auditors—may be granted access to aggregated or detailed data in compliance with regulatory requirements and professional standards. For instance, public authorities may access specific data such as accounts payable and receivable, and tax filings could be automated. Conversely, audit firms may be granted full access to ensure that transactions are recorded in accordance with applicable accounting standards

Key initiatives undertaken by various organizations to leverage blockchain in order to enhance transparency, efficiency, and security in financial accounting and related fields are presented in the following table (Table 2).

Table 2 Implementation of blockchain technology in financial accounting

Case study	Description	Explanation	Data	Period	Country	Level of implementation
Maersk and IBM's TradeLens platform	Maersk partnered with IBM to develop TradeLens, a blockchain-based platform for global trade and supply chain management.	TradeLens aims to provide end-to-end visibility into the supply chain, including documentation and financial transactions.	Shipping data	2018–present	Global	Advanced
Walmart's food traceability initiative	Walmart implemented blockchain to enhance food traceability and safety in its supply chain.	Blockchain records each step of the supply chain, improving food safety and traceability.	Food traceability data	2016–present	USA	Advanced

ING Bank's zero-knowledge range proof solution	ING Bank developed a zero-knowledge range proof solution on its blockchain platform for secure financial transactions.	Solution ensures regulatory compliance without compromising client privacy.	Financial transaction data	2019–present	Netherlands	Advanced
Nestlé's blockchain pilot for supply chain transparency	Nestlé launched a blockchain pilot to enhance transparency and traceability in its supply chain for food products.	Blockchain enables real-time tracking of food products from farm to table, ensuring product authenticity	Supply chain data	2020–present	Switzerland	Intermediate
Microsoft's Azure blockchain service	Microsoft introduced Azure Blockchain Service, providing a cloud-based platform for building blockchain applications.	Service offers scalability, security, and ease of deployment for blockchain-based solutions.	Blockchain application data	2018–present	USA	Advanced
HSBC's blockchain-based trade finance platform	HSBC developed a blockchain-based trade finance platform to streamline international trade transactions and documentation.	Platform reduces paperwork, delays, and risks associated with trade finance processes.	Trade finance data	2017–present	UK	Intermediate
Amazon's blockchain initiatives	Amazon has explored various blockchain initiatives, including supply chain management, digital advertising, and web services.	Initiatives aim to enhance transparency, efficiency, and security across Amazon's business operations.	Various data	2019–present	USA	Intermediate
IBM's blockchain solutions for financial services	IBM offers a range of blockchain solutions for financial services, including payment processing, identity verification, and trade finance.	Solutions leverage blockchain to improve security, reduce costs, and enhance efficiency in financial transactions.	Financial services data	2016–present	USA	Advanced

Source: Prokopenko, O. et al. 2024:8

The aforementioned organizations recognized the potential of blockchain technology to transform their financial accounting processes by introducing immutable, transparent, and decentralized ledger systems. Each of the presented case studies reflects a distinct approach to the practical implementation of blockchain technology within the domain of financial accounting.

3.2. FINANCIAL ACCOUNTING – CHALLENGES OF BLOCKCHAIN IMPLEMENTATION

Blockchain technology is not without challenges and limitations that may affect its adoption in financial accounting. Key barriers that organizations must consider when implementing blockchain solutions have been identified in relevant studies (Prux et al., 2021; McDaniel & Norberg, 2019; as cited in Almadadha, 2024, p. 318).

From a regulatory perspective, the decentralized and transnational nature of blockchain gives rise to complex regulatory and legal considerations. Divergent regulatory frameworks may complicate compliance with financial reporting standards, data protection regulations, and anti–money laundering legislation. The absence of a harmonized regulatory approach constitutes a significant obstacle to its broader implementation. A particular challenge concerns balancing the inherent transparency of blockchain systems with regulatory requirements aimed at safeguarding confidential information.

Scalability represents an additional technical challenge, particularly in the context of public blockchain networks. As transaction volumes increase, processing speed may decline and operational bottlenecks may emerge, thereby affecting overall system efficiency (Prokopenko et al., 2024, p. 13). Such limitations may be especially problematic in financial accounting, where the timeliness of data processing is of critical importance.

Although transparency and immutability are among the principal advantages of blockchain, these same characteristics may generate concerns regarding privacy and data confidentiality. In public blockchain systems, information may be visible to a broad range of participants, potentially exposing sensitive financial data (Almadadha, 2024). Proposed solutions include the use of hash

values or the implementation of permissioned blockchain systems, which enable controlled access to information (Bonsón & Bednárová, 2019).

In addition to regulatory and technical issues, the integration of blockchain technology with existing accounting systems presents a substantial challenge. Many organizations operate on legacy information infrastructures, and adapting existing systems, migrating historical data, and training personnel require considerable financial and organizational resources (Almadadha, 2024). Successful implementation therefore necessitates an interdisciplinary approach involving collaboration among technology specialists, legal experts, regulatory authorities, and accounting professionals.

4. COMPARISON OF BLOCKCHAIN-BASED ACCOUNTING AND TRADITIONAL ACCOUNTING SYSTEMS

As technological innovations continue to transform various industries, accounting and auditing have not remained unaffected by these developments. The emergence of blockchain technology has influenced the manner in which financial transactions are recorded and accounting records are maintained. Unlike traditional centralized systems, which have long constituted the foundation of accounting processes, blockchain offers a decentralized, immutable, and transparent distributed ledger (Almadadha, 2024).

In existing accounting systems, transactions involving multiple parties are recorded in separate ledgers managed by individual organizations or centralized authorities. Due to timing differences, errors, or disputes, discrepancies between records frequently arise, necessitating additional reconciliation procedures. Moreover, external auditors are required to attest to the reliability of financial information for stakeholders, a process that can be both time-consuming and costly (Akter et al., 2024). Although traditional accounting systems form the backbone of financial reporting, they may be susceptible to data manipulation, delays caused by manual data entry, and security vulnerabilities (Almadadha, 2024).

The distributed and immutable nature of blockchain technology has the potential to address these shortcomings. Through the concept of triple-entry accounting (Dai & Vasarhelyi, 2017), transactions between two parties are recorded not only in their respective ledgers but also in a shared, cryptographically secured ledger, thereby enhancing verifiability and reducing the need for subsequent reconciliation.

Real-time updates may further increase the efficiency of accounting processes, as data are simultaneously reflected across all relevant participants. In this context, security and transparency in financial reporting may be further strengthened through the application of triple-entry accounting models, whereby each transaction is cryptographically validated and becomes part of a shared, immutable record (Petrović, Tanasić, & Jovičić, 2024). Such an approach reduces information asymmetry and reinforces trust among market participants.

The following table (Table 3) presents a comparative analysis of the key characteristics of blockchain-based accounting and traditional accounting systems, with particular emphasis on data integrity, transparency, efficiency, security, and regulatory implications in the context of maintaining financial records.

Table 3 Blockchain-based accounting versus Traditional accounting systems

Characteristics	Blockchain-Based Accounting	Traditional Accounting Systems
Data integrity and immutability	In blockchain-based accounting, transactions are recorded in a decentralized and secure manner. Once a transaction is added to the blockchain, it becomes immutable, thereby reducing the risk of fraud and unauthorized alterations.	Traditional systems rely on centralized databases, which makes them more susceptible to data manipulation and fraud. Transactions can be altered or deleted, potentially compromising the integrity of financial records.
Transparency and auditability	Blockchain provides transparent and verifiable records, as each participant has access to the same set of data. Transactions can be tracked and audited in real time.	Transparency and auditability depend on established controls and processes. Record manipulation may occur, making it more difficult to ensure accurate and reliable audits.
Real-time updates	Changes in the ledger are reflected in real time across the network, enabling up-to-date and synchronized records.	Updating records may result in delays due to centralized processing, leading to potential discrepancies and outdated information.
Decentralization and trust	The decentralized nature of blockchain eliminates the need for intermediaries and	Traditional systems often involve intermediaries and may require trust in

	fosters trust among participants, as data are validated through consensus mechanisms.	central authorities, potentially leading to delays, disputes, and increased costs.
Security and privacy	Data stored on the blockchain are cryptographically secured and accessible only to authorized participants, thereby enhancing data privacy and security.	Centralized systems are more vulnerable to security breaches and unauthorized access, thereby placing sensitive financial information at risk.
Efficiency and automation	Smart contracts within blockchain systems enable automatic execution based on predefined rules once specified conditions are met, thereby reducing manual intervention and enhancing process efficiency.	Automation may be limited and often requires manual validation and verification steps, potentially leading to errors and delays.
Scalability	Scalability remains a challenge for certain public blockchains, affecting the speed and efficiency of transaction processing.	Traditional systems are more easily scalable due to their centralized infrastructure; however, this may also result in potential single points of failure.
Regulatory compliance	Blockchain may offer transparency while preserving data privacy, which can facilitate regulatory compliance. However, regulatory frameworks governing blockchain technology are still evolving.	Compliance depends on internal controls and procedures, which may vary across organizations and industries.

Source: Adapted from Almadadha, R. 2024:321-322.

Blockchain-based accounting offers enhanced data integrity, greater transparency, and a higher level of operational efficiency compared to traditional accounting systems. Conversely, its broader adoption requires addressing challenges related to scalability, regulatory compliance, and integration with existing information systems.

Beyond its direct implications for accounting processes, the application of blockchain technology also raises questions concerning the accounting treatment and responsibility for blockchain-based assets, including crypto-assets.

The absence of clearly defined accounting standards and reporting requirements for crypto-assets in financial statements further complicates their appropriate classification, measurement, and presentation.

5. COST–BENEFIT ANALYSIS OF BLOCKCHAIN ADOPTION IN FINANCIAL ACCOUNTING

The cost–benefit analysis of blockchain technology adoption in financial accounting constitutes a critical component of strategic decision-making for organizations considering the implementation of distributed ledger systems within their information infrastructures. Given that blockchain adoption entails substantial technological, organizational, and regulatory transformations, the assessment of its economic viability must encompass both direct financial costs and long-term operational and strategic benefits.

The key elements of the cost analysis associated with blockchain adoption in financial accounting are presented in the following table.

Table 4 Key costs of blockchain adoption in financial accounting

Cost element	Description	Source
Initial implementation	Initial investments in hardware, software, and expertise required for the design and implementation of blockchain infrastructure.	Singh & Michels, 2018.
Integration challenges	Adapting existing systems to ensure compatibility with blockchain may require substantial resources for data transformation and system integration.	Berdik, et al. 2021.
Training and education	Costs associated with training employees to effectively manage and synchronize blockchain systems.	Salah, et al. 2020; Pinna, et al. 2020.
Scalability issues	Potential issues related to transaction processing speed and system performance, particularly in public blockchain networks.	Zheng, et al. 2018; Khan, et al. 2021.
Reduction of intermediaries	Resources required to comply with continuously evolving regulatory requirements related to blockchain technology.	Yeoh, 2017.

Source: Prepared by the authors

Conversely, the benefits of adopting blockchain technology in financial accounting are reflected in enhanced data integrity and immutability, increased transparency and real-time auditability, reduced reliance on intermediaries, and the automation of processes through smart contracts. These features may lead to lower administrative costs, accelerated reconciliation procedures, and increased trust among external users of financial information. Table 5 outlines the principal advantages associated with the practical implementation of blockchain technology in financial accounting.

Table 5 Key benefits of blockchain adoption in financial accounting

Benefit element	Description	Source
Improvement of data integrity	Protection against unauthorized modifications within blockchain systems ensures that financial data remain secure and unaltered, thereby reducing the risk of manipulative activities and errors in financial records.	Jreisat & Mili, 2024.
Increased transparency	Blockchain technology enables real-time transaction tracking, providing auditors and stakeholders with accurate and up-to-date information.	Van Thanh Le, et al. 2019.
Reduction of intermediaries	The decentralized architecture of blockchain eliminates the need for intermediaries in financial transactions, thereby reducing processing time and associated costs.	Chen & Bellavitis, 2020.
Streamlined processes	Smart contracts automate processes based on predefined conditions, reducing the need for manual intervention and minimizing human error.	Ciotta, et al. 2021.
Efficient reconciliation	Real-time updates and the shared nature of blockchain ledgers can streamline and accelerate reconciliation procedures, minimizing discrepancies and delays.	Deshpande, et al. 2017.

Source: Prepared by the authors

However, cost–benefit analysis should not be exclusively short-term and financially oriented; rather, it should adopt a strategic perspective that takes into account the long-term effects on the quality of financial reporting, risk management, and the organization's competitive position. The decision to adopt blockchain technology in financial accounting therefore requires a comprehensive approach that integrates technological, regulatory, and organizational aspects of implementation.

CONCLUSION

Blockchain technology represents one of the most significant drivers of contemporary digital transformation and, given its potential to enhance the security, transparency, and efficiency of data and value exchange, it is increasingly considered a foundational infrastructure for future business systems. Its application in financial accounting opens the possibility of redefining traditional models of recording, verification, and reporting financial transactions.

A review of the relevant literature indicates that blockchain provides both conceptual and technological solutions to longstanding challenges in financial accounting, including reconciliation issues, data reliability concerns, risks of manipulation, and high audit costs. The concept of triple-entry accounting, automation through smart contracts, and real-time data updates constitute mechanisms that may enhance the integrity and verifiability of financial information. Previous studies have further suggested that blockchain may have broader implications for public finance, particularly in terms of increasing fiscal accountability and transparency of budgetary flows (Petrović, Tanasić, & Radovanović, 2022). Transformation through triple-entry accounting and distributed ledgers may form the basis of a new model of financial reporting grounded in systemic verification and digital trust (Petrović, Tanasić, & Jovičić, 2024). At the same time, comparative analysis with traditional accounting systems highlights the potential for reducing administrative costs and strengthening the trust of external stakeholders.

However, the sustainable implementation of blockchain technology in financial accounting requires careful assessment of organizational readiness, technological capabilities, and the regulatory environment. This entails investments in infrastructure, adaptation of existing information systems, employee training, and compliance with accounting standards and data protection regulations. A gradual implementation strategy, beginning with small-scale pilot projects, is recommended in order to test feasibility, mitigate risks, and facilitate organizational learning.

In the digital environment, transformation extends beyond technology to encompass the professional role of accountants. The development of

blockchain systems necessitates a shift in focus from routine record-keeping toward analytical, advisory, and control-oriented functions. Professional accountants must therefore develop digital competencies, data interpretation skills, and the capacity to provide strategic decision-support.

In conclusion, blockchain does not constitute a universal solution to all challenges in financial accounting. Nevertheless, it possesses considerable innovative potential. Its future role will depend on regulatory harmonization, technological interoperability, and the ability of the professional community to adapt to the emerging digital paradigm of business.

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