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EXPLORING THE ROLE OF BLOCKCHAIN TECHNOLOGY IN ENHANCING FINANCIAL STATEMENT TRANSPARENCY THROUGH TRIPLE-ENTRY ACCOUNTING: A SYSTEMATIC LITERATURE REVIEW

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Abstract: This research examines the potential of blockchain technology and Triple-Entry Accounting (TEA) in improving financial statement transparency, replacing the double-entry system that is vulnerable to manipulation. Blockchain-based TEA enables encrypted and real-time immutable records, as well as integration with smart contracts for process automation and efficiency. Through the Systematic Literature Review method, an analysis of 30 articles shows that blockchain and DLT improve data reliability and accuracy, while smart contracts reduce errors and speed up reporting. However, the implementation of these technologies still faces various barriers such as high costs, technical limitations, institutional resistance, and regulatory uncertainty, especially in Indonesia. In addition, there is a lack of academic literature that discusses the application of TEA in depth. Therefore, further research is needed to explore the empirical application of TEA, the development of auditing standards, and updating the competencies of the accounting profession in the digital era.

Keywords: Blockchain, Triple-Entry Accounting (TEA), Smart Contract, Financial Statements, Financial Reports, Distributed Ledger Technology (DLT).

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INTRODUCTION

The issue of fraud in the world of accounting and finance has been a chronic problem throughout history, despite various efforts to improve transparency. The complexity of modern accounting systems, involving various entities, financial instruments, and regulations, further increases operational risks. History records that accounting has undergone rapid development, yet the double-entry system introduced

in 1494 still has limitations, such as high costs, dependence on a large workforce, and information presentation that depends on the recorder's perspective (Handayanto et al., 2024).

Technological developments, particularly blockchain, offer new solutions in building a more transparent and efficient financial recording system. The concept of triple-entry accounting (TEA) based on blockchain allows for joint transaction recording in real-time, encrypted, and verifiable by all related parties, thereby increasing traceability, timeliness, protection from manipulation, and transparency (Sharma et al., 2022). The implementation of blockchain-based ledgers creates an interconnected system, reduces operational costs, and enhances the accuracy and reliability of financial reports.

Despite its transformative potential, academic research related to blockchain-based triple-entry accounting is still very limited. The lack of systematic conceptualization, inconsistent use of terminology, and minimal exploration of technical and business aspects indicate a significant research gap. Therefore, the development of terminological standards and in-depth studies are needed to support the effective implementation of this concept in real practice. Based on this background, this research aims to conduct an in-depth exploration related to:

RQ1 : How does blockchain technology play a role in supporting the implementation of triple-entry accounting to enhance financial report transparency?
RQ2 : What are the main technical and business challenges in implementing blockchain technology for triple-entry accounting in the context of financial report transparency?
RQ3 : How does the accounting profession adapt to the use of blockchain technology in the triple-entry accounting system to support financial report transparency?

This research is beneficial for enriching academic literature on blockchain-based triple-entry accounting and providing practical guidance for companies, regulators, and the accounting profession in optimizing the use of blockchain to improve the transparency and accuracy of financial reports.

LITERATURE REVIEW

Triple Entry Accounting (TEA) is an extension of the traditional double-entry system by adding a third entry using cryptographic technology, thereby enabling inter-party transaction recording to be more secure and transparent (Grigg, 2024). This system introduces three main components, namely debit, credit, and trebit, which provide additional context for income and expenses. The basic idea of TEA was proposed by Yuji Ijiri, who suggested an approach to link past data with future predictions through the equation: Past = Present = Future (Ijiri, 1982). With the integration of blockchain technology, the third entry can be recorded permanently and automatically through the use of smart contracts, thereby strengthening the verification process and reducing the risk of data manipulation (Dai & Vasarhelyi, 2017). The implementation of blockchain-based TEA supports real-time financial reporting, increases accuracy, and facilitates access to information for various stakeholders, thus offering higher efficiency and accountability in contemporary accounting practices (Handayanto et al., 2024).

Blockchain is a form of decentralized Distributed Ledger Technology (DLT), where transaction data, especially in the context of cryptocurrency, is recorded in a public digital ledger (Chowdhury, 2023). This system creates a single source of truth that can be relied upon by maintaining a shared transaction record. Blockchain has several main characteristics, including decentralization (data distributed across the entire computer network, not in a central repository), immutability (recorded data is difficult to change), transparency (transactions can be seen by network participants), and security (data protected by cryptography). Thus, blockchain technology, as a decentralized and distributed ledger, has the potential to revolutionize accounting and auditing practices, and promises to enhance traditional double-entry accounting (Handayanto et al., 2024; Qadir & Muhamed, 2022).

Distributed Ledger Technology (DLT) is a distributed digital recording system without a central authority. A consensus mechanism is used by each node in the network to store and update identical copies of the ledger. One implementation of DLT, blockchain, offers transparency, security, traceability, efficiency, and automation of data verification through cryptography and digital signatures (Adeola Olusola Ajayi-Nifise et al., 2024). DLT has the potential to transform financial reporting systems in accounting by promoting the triple-entry accounting model,

reducing the need for external validators, lowering audit costs, and increasing the accuracy and efficiency of financial reports.

Smart contract is an automated blockchain-based program that executes agreements between related parties without requiring intermediaries. By automatically executing transactions when certain conditions are met, smart contracts enhance the transparency and effectiveness of accounting processes and reduce the potential for errors and administrative costs (Kimani et al., 2020; Wang, 2017). This technology enables efficient management of recurring transactions such as payments, bank reconciliations, and payroll. Although it cannot fully replace the human role in complex financial reporting, smart contracts have proven effective in automating routine accounting tasks and improving data accuracy (Fahdil et al., 2024).

RESEARCH METHOD

The Systematic Literature Review (SLR) method is used in this research. One of the literature search strategies used is the Population, Intervention, Comparison, and Outcomes (PICO) framework. The PICO framework provides a basis for sorting literature sources, as well as guidance for determining keywords.

Table 1. PICO Framework

PICO Tool	
Population	Perusahaan yang memiliki laporan keuangan
Intervention	*Tripel-Entry Accounting, Blockchain, Distributed Ledger Technology, dan Smrat Contract*
Comparison	-
Outcome	*Financial Reporting atau Financial Statements*

Source: Article Analysis

To search for data, the Scopus database was used. Journal article searches were conducted using a combination of specific keywords and logical operators (AND, OR) to obtain more focused relevant literature. To meet the research needs, main keywords such as ("Financial Reports" OR "Financial Statement") AND ("Triple-Entry Accounting" OR "Blockchain" OR "Distributed Ledger Technology" OR "Smart Contract") were used.

The literature criteria for this research use inclusion and exclusion criteria adapted to the PICO structure above. The inclusion and exclusion criteria are as follows:

Table 2. Inclusion and Exclusion Criteria

Kriteria	Inklusi	Eksklusi
Database	Scopus	Selain Scopus
Rentang Waktu	Artikel publikasi 2017-2025	Artikel yang terbit sebelum tahun 2017
Akses	Akses terbuka (open access)	Akses terbatas (restricted access).
Area	Business, management, and accounting	Selain business, management, and accounting
Bahasa	Inggris	Selain bahasa inggris
Jenis Dokumen	Artikel	Selain artikel

Source: Article Analysis

This research uses the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) method after collecting data from the Scopus database. The method consists of four main stages:

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graph TD
    A[Search on Scopus site (n=780)] --> B(Identified articles after
duplicate removal);
    B --> C[Articles screened based on title and abstract based on year
2017-2025 (n = 762)];
    C --> D[Articles eliminated (n = 18)];
    C --> E[Full-text articles assessed for eligibility according to
inclusion and exclusion criteria (n = 53)];
    E --> F[Articles eliminated (n = 709)];
    E --> G[Final articles included for analysis (n = 30)];

    subgraph Identification
        A
    end
    subgraph Screening
        C
        D
    end
    subgraph Eligibility
        E
        F
    end
    subgraph Included
        G
    end
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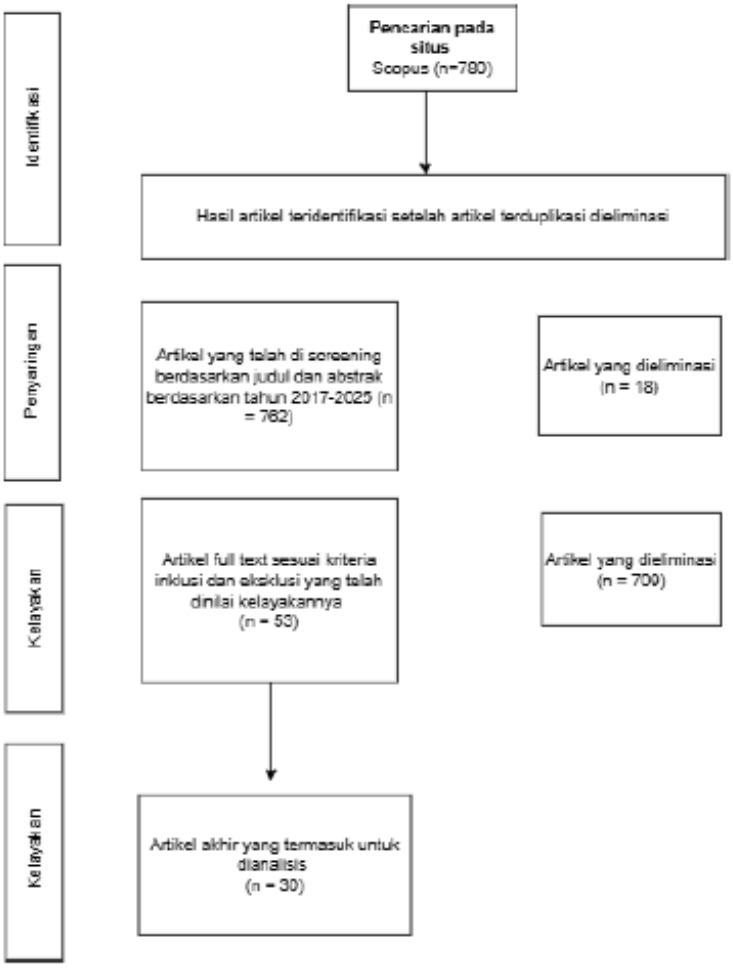

Figure 1. PRISMA Flow Diagram

Source: Article Analysis

The Mermaid diagram above is a representation. The original image shows boxes. The text within the boxes would be:

a. Identification Box: Search on Scopus site (n=780)
b. Box below Identification: Identified articles after duplicate removal
c. Screening Box: Articles screened based on title and abstract based on year 2017-2025 (n = 762)
d. Box to the right of Screening: Articles eliminated (n = 18)
e. Eligibility Box: Full-text articles assessed for eligibility according to inclusion and exclusion criteria (n = 53)

f. Box to the right of Eligibility: Articles eliminated (n = 709)
g. Included Box (bottom): Final articles included for analysis (n = 30)

RESULTS AND DISCUSSION

From the findings of the thirty articles analyzed, here are the positive impacts of using Blockchain, Smart Contract, Distributed Ledger Technology, and Triple-Entry Accounting technologies in enhancing financial report transparency:

1. Blockchain and DLT create a decentralized and immutable recording system, making financial data more secure from manipulation, fraud, and errors. Verification by multiple parties in the network increases accuracy and trust in information.
2. All transactions are recorded openly and can be audited (audit trail) by authorized parties. DLT allows the same data access for various stakeholders, reducing information asymmetry and increasing company accountability.
3. Smart contracts automate the execution of agreements and recording of transactions based on predetermined conditions. This minimizes human error, reduces administrative costs, and speeds up financial processes such as payments and reconciliations.
4. Blockchain technology enables real-time updates and access to financial data for stakeholders. This provides more accurate and current information for faster and more precise decision-making.
5. Triple-Entry Accounting supported by blockchain adds a layer of cryptographic verification to each transaction. This complicates the occurrence of fraud or errors because each transaction has a recorded and independently verified digital proof.

Table 3. Role of blockchain technology in supporting the implementation of triple-entry accounting to enhance financial report transparency

No.	Judul Artikel	Peneliti	Temuan
1	A Private and Efficient Triple-Entry Accounting Protocol on Bitcoin	Liuxuan Pan, Owen Vaughan, and Craig Steven Wright (2023)	Bitcoin *blockchain* digambarkan sebagai sistem *triple-entry bookkeeping* yang dapat dikembangkan menjadi TEA melalui penambahan elemen akuntansi. Integrasi TEA dengan *blockchain* memungkinkan efisiensi pemrosesan data, pengurangan risiko kesalahan manusia, audit otomatis, serta penghematan waktu dan biaya dalam pelaporan dan kepatuhan.
2	An Empirical Study on the Impacts of the Fourth Industrial Revolution Technologies on Internal Audit in Jordanian Banks	Reem Oqab Al-Khasawneh & Tala Al- Khasawneh (2023)	*Blockchain* secara drastis akan mengubah buku akuntansi karena dianggap sebagai buku besar terenkripsi yang tidak dapat diubah dan memberikan kerangka kerja yang lebih transparan. Teknologi ini memungkinkan pencatatan kebijakan dan estimasi akuntansi secara permanen, mengurangi manipulasi. *Blockchain* dapat menyederhanakan dan meningkatkan pekerjaan auditor, memungkinkan audit segera setelah transaksi selesai dan entri akuntansi dibuat.
3	Decentralized Clearing in Financial Networks	Péter Csóka, P. Jean-Jacques Herings (2018)	*Blockchain* menawarkan kemampuan untuk memvalidasi eksekusi dan penyelesaian transaksi tanpa perlu pihak ketiga sentral. Hasil penelitian tentang *decentralized clearing* dianggap "menyatu secara alami dengan implementasi blockchain yang terdesentralisasi" karena tidak memerlukan pihak ketiga sentral untuk menengahi pemenuhan liabilitas.

4	Detecting DeFi Securities Violations from Token Smart Contract Code	Arianna Trozze, Bennett Kleinberg, and Toby Davies (2024)	DeFi (*Decentralized Finance*) menghadirkan layanan keuangan tradisional dalam ekosistem terdesentralisasi melalui kontrak pintar di *blockchain,* terutama *Ethereum*. Dengan sifatnya yang open source dan tanpa izin, DeFi menghilangkan kebutuhan akan perantara, memungkinkan transaksi langsung antar pengguna melalui dApps. Hal ini meningkatkan efisiensi dan aksesibilitas keuangan.
5	Blockchain-based Incentive Mechanism for Environmental, Social, and Governance Disclosure: A Principal-agent Perspective	Yuxiang Niu, Yelin Fu, Xinlai Liu, Arjun Rachana Harish, MingLi, George Q. Huang (2024)	*Blockchain* menawarkan transparansi, keamanan, dan desentralisasi dalam sistem keuangan melalui buku besar terdistribusi. Hal ini menunjukkan bahwa *blockchain* tidak hanya berfungsi sebagai alat transaksi, tetapi juga sebagai sistem yang memperkuat kepercayaan dan efisiensi dalam ekosistem keuangan.
6	Can Blockchain Help Improve Financial Inclusion? A Comparative Study	Yilmaz iğdem, Sébastien Galanti (2023)	Teknologi *blockchain* yang diterapkan pada mata uang digital dan layanan keuangan secara tepat bertujuan untuk menangani masalah privasi dan memungkinkan kepercayaan dalam bertransaksi tanpa secara sistematis membutuhkan intervensi dari pihak ketiga.
7	Fintech in Financial Reporting and Audit for Fraud Prevention and Safeguarding Equity Investment	Paulina Roszkowska (2021)	*Blockchain* meningkatkan transparansi laporan keuangan dengan desentralisasi, autentikasi kuat, dan buku besar yang tahan gangguan. Teknologi ini mencegah manipulasi data, memungkinkan audit *real-time*, serta memastikan informasi terverifikasi dan tidak dapat diubah.
8	Industry 4.0 and its Impact on the Development of Vietnamese Commercial Banks	T.T.D. Loan (2024)	Komponen *blockchain* memiliki dampak yang signifikan terhadap layanan perbankan dan keuangan.
9	Integrated Reporting in the Management of Foreign Economic Activities of Enterprises	Zenovii-Mykhailo Zadorozhnyy, Oksana Lyuba, Iryna Ometsinska, and Mariya Shesternyak (2023)	*Blockchain* menciptakan sistem informasi terdistribusi yang meningkatkan efisiensi dalam pengumpulan dan transmisi data. Dalam akuntansi dan perpajakan, keunggulan utama teknologi ini adalah kemampuannya untuk memusatkan pemrosesan informasi dan mengintegrasikan berbagai layanan. Hal ini dapat meningkatkan transparansi, mengurangi kesalahan, serta menyederhanakan audit dan kepatuhan pajak.
10	Blockchain Technology-based FinTech Banking Sector Involvement Using Adaptive Neuro-fuzzy-based K-nearest Neighbors Algorithm	(Husam Rjoub, Tomiwa Sunday Adebayo, and Dervis Kirikkaleli 2023)	Teknologi *blockchain* diantisipasi untuk meningkatkan perlindungan data, membantu mempercepat resolusi, dan mengotomatisasi proses untuk mengurangi pengeluaran.

Source: Article Analysis

Blockchain technology significantly revolutionizes accounting and financial systems by introducing a digital infrastructure that is decentralized, transparent, and immutable. With a foundation of triple-entry bookkeeping developed into Triple-Entry Accounting (TEA), blockchain enables transaction recording that is automatically verified by the network, thereby reducing the potential for data manipulation and human error. The integration of TEA with blockchain creates efficiency in data processing, accelerates audits, and saves time and costs in reporting and compliance. In the audit field, this technology allows audits to be conducted in real-time immediately after transactions occur, thereby strengthening the assurance function sustainably. Meanwhile, in the financial ecosystem, the emergence of DeFi (Decentralized Finance) built on blockchains like Ethereum demonstrates how traditional financial services can be provided openly and automatically through smart contracts without intermediary involvement, enhancing

efficiency and accessibility. Furthermore, blockchain strengthens trust in digital transactions by providing a robust authentication system, equitable data distribution, and high security. This technology also plays a role in simplifying taxation and compliance processes, speeding up resolutions, and automating administrative procedures in both public and private sectors. Thus, blockchain not only functions as a transaction tool but also as a new foundation that transforms the roles of accounting, auditing, and financial services as a whole.

Table 4. Main technical and business challenges in implementing blockchain technology for triple-entry accounting in the context of financial report transparency

No.	Judul Artikel	Peneliti & Tahun	Temuan
1	Enterprise Generative Artificial Intelligence Technologies, Internet of Things and Blockchain-Based Fintech Management, and Digital Twin Industrial Metaverse in the Cognitive Algorithmic Economy	Tomas Kliestik, Robert Dragomir, Aurelian Virgil Băluță, Iulia Grecu, Pavol Durana, Oana Ludmila Karabolevski, Pavol Kral, Raluca Balica, Petr Suler, Oprea Valentin Bușu, Martin Bugaj, Dan-Valeriu Voinea, Jaromir Vrbka, Mădălina Cocoșatu, Marian Grupac,	Tantangan organisasi dan manajerial, implikasi kebijakan, dan hambatan dalam, dan sisi negatif dari implementasi dalam beberapa konteks, seperti penerapan AI generatif dalam manajemen tenaga kerja, *fintech*, dan metaverse industri.
2	Argument by False Analogy: The Mistaken Classification of Bitcoin as Token Money	Alistair Milne (2024)	Tantangan umum terkait penggunaan teknologi digital dalam keuangan, seperti inkonsistensi terminologi dan tantangan hukum serta peraturan terkait sistem *permissionless*.
3	Blockchain based Incentive Mechanism for Environmental, Social, and Governance Disclosure: A Principal-agent Perspective	Yuxiang Niu, Yelin Fu, Xinlai Liu, Arjun Rachana Harish, MingLi, George Q. Huang (2024)	Tantangan dalam konteks penerapan sistem berbasis *blockchain* untuk pelaporan ESG, yang mungkin memiliki kemiripan konseptual dengan tantangan dalam TEA berbasis *blockchain*. Ini termasuk isu kredibilitas data dan perilaku oportunistik, meskipun artikel ini mengasumsikan risiko pengunggahan data yang salah tidak dipertimbangkan.
4	Financial Reporting for Cryptocurrency	Mei Luo, Shuangch en Yu (2024)	kurangnya standar akuntansi yang spesifik, volatilitas nilai aset, ketidakjelasan klasifikasi arus kas, penempatan aset yang tidak mencerminkan likuiditas secara adil, serta kesulitan dalam menentukan nilai wajar untuk aset yang tidak memiliki pasar aktif.
5	Tecnologia Blockchain: Desafios e Oportunidades em Finanças Públicas	Dayani Cristina Ferreira Lopes, Andre Luís de Castro, and Leticia Xander Russo (2024)	Biaya operasi teknologi *blockchain* masih tinggi dalam jangka pendek dan visibilitas manfaatnya terbatas dalam jangka panjang, yang menjadi penghalang populasi teknologi.
6	Auditing with Smart Contracts	(Rozario & Vasarhelyi, 2018)	Meskipun *smart contract* mengurangi risiko penipuan atau kesalahan manusia, bukti anekdotal seperti kegagalan DAO menunjukkan bahwa *smart contract* dapat diatasi sebagai akibat dari kode yang salah, sebagai akibatnya, ini adalah tantangan yang harus dipertimbangkan dalam implementasi *smart contract*.
7	Innovation Imperatives of Global Financial Innovation and Development of Their Matrix Models	Nataliia Savchuk, Tetiana Bludova, Dmytro Leonov, Olena Murashko, Nataliia Shelud'ko (2021)	Berbagai isu persaingan dalam *FinTech*, seperti kurangnya standar regulasi yang jelas, akses terhadap data dan teknologi, serta dampak algoritma. Artikel ini juga membahas tantangan yang muncul dari inovasi keuangan secara umum, termasuk risiko terhadap stabilitas keuangan dan kebutuhan penyesuaian dalam operasional bank sentral dan kerangka regulasi.
8	The Impact of Blockchain Technology on International Trade and Financial Business	Slatvinska Valeria, Demchenko Vitaliia, Tretiak Kateryna, Hnatyuk Rostyslav, Yarema Oleg (2022)	Implementasi *blockchain* memerlukan sumber daya keuangan, tenaga kerja, dan waktu yang cukup. Selain itu, masalah keamanan dapat muncul pada tahap pencatatan informasi ke dalam *blockchain*.

9	The Differential Impact of Corporate Blockchain-Development as Conditioned by Sentiment and Financial Desperation	Iulia Cioroianu, Shaen Corbet, Charles Larkin (2021)	*Blockchain* meningkatkan keamanan transaksi tetapi juga berisiko disalahgunakan. Pengumuman terkait *blockchain* memengaruhi persepsi pasar, mendorong perubahan harga saham, terutama pada perusahaan spekulatif. Teknologi ini berdampak secara teknis dan ekonomi dalam dinamika keuangan.
10	Eu Search for Regulatory Answers to Crypto Assets and Their Place in the Financial Markets' Infrastructure	(Ferreira & Sandner, 2021)	Kurangnya kepastian hukum, perlindungan investor yang lemah, potensi penipuan. Berbagai pendekatan regulasi di berbagai negara.

Source: Article Analysis

The implementation of blockchain technology in accounting and financial reporting faces various technical, regulatory, and institutional challenges. The potential transparency and efficiency offered by blockchain are often hampered by the imperfections of smart contracts, the lack of relevant audit and accounting standards, and the minimal involvement of public accountants in the design and audit processes of blockchain-based systems. The inflexibility of smart contracts and difficulties in revising audits can reduce the effectiveness of real-time transparency promised by this technology. On the other hand, various fundamental issues such as information asymmetry, inconsistencies in digital terminology, and legal uncertainty—especially in permissionless systems—further complicate widespread blockchain adoption. In the context of ESG-based reporting, which has characteristics similar to blockchain-based Triple-Entry Accounting (TEA) systems, challenges include data credibility, potential opportunistic behavior, and the risk of uploading inaccurate information, although this aspect is often overlooked.

Table 5. The accounting profession's adaptation to the use of blockchain technology in the triple-entry accounting system to support financial report transparency

No.	Judul Artikel	Peneliti & Tahun	Temuan
1	From Sensors to Standardized Financial Reports: A Proposed Automated Accounting System Integrating IoT, Blockchain, and XBRL	Mohamed Nofel, Mahmoud Marzouk, Hany Elbardan, Reda Saleh and Aly Mogahed (2024)	Diperlukan resistensi terhadap adopsi sistem baru dan kebutuhan pelatihan komprehensif bagi akuntan, terutama selama masa transisi teknologi. Artikel ini menekankan pentingnya keterlibatan akuntan sejak awal perencanaan serta perlunya antarmuka pengguna yang sederhana untuk input manual yang tidak dapat diotomasi oleh perangkat IoT.
2	Decentralized Finance (DeFi) Assurance: Early Evidence	Thomas Bourveau, Janja Brendel, Jordan Schoenfeld (2024)	Adaptasi profesi akuntan terhadap teknologi *blockchain* masih lambat, terutama dalam audit *smart contract* yang kini lebih banyak dikuasai oleh firma teknis non-CPA. Hambatan utama meliputi kurangnya keahlian teknis, belum adanya standar audit yang jelas, dan persepsi risiko yang tinggi. Meski demikian, beberapa firma besar seperti PwC mulai merespons dengan mengakuisisi keahlian teknis. Untuk beradaptasi, akuntan perlu memahami sistem baru seperti TEA, terlibat dalam teknologi yang kompleks, dan mendefinisikan ulang peran penjaminan di era *blockchain*.
3	How Do Innovative Improvements in Forensic Accounting and Its Related Technologies Sweeten Fraud Investigation and Prevention?	Hossam Haddad, Esraa Esam Alharasis, Jihad Fraij, Nidal Mahmoud Al-Ramah (2024)	Akuntan harus terus memperbarui keterampilan dan pengetahuan mereka untuk mengikuti tren yang muncul, yang meliputi pelatihan khusus dalam analisis data, forensik digital, dan teknologi *blockchain*. Mereka perlu menyesuaikan kemampuan, alat, dan metodologi mereka dengan industri yang terus berubah dan mengikuti perkembangan terbaru.
4	National Standards of Accounting And Reporting in The Era of Digitalization of The Economy	Khaled Ahmad Haroun Alhasana & Anas Mohammad Mousa Alrowwad (2022)	Perlunya adaptasi profesi akuntan terhadap digitalisasi dan teknologi serta tantangan dalam akuntansi dan audit aset kripto.

5	The Effect of Blockchain Technology As a Moderator on the Relationship Between Big Data and The Risk of Finansial Disclosure (Analytical Study in The Egyptian and Iraqi Stock Exchange)	Khaled Abdel Sabour & Abbas Al Waeli (2023)	Departemen akuntansi dan audit global di bursa efek tersebut telah diarahkan untuk membangun proyek dan program transformasi digital serta penerapan teknologi *blockchain* yang berkontribusi pada pengembangan pengungkapan keuangan. Hal ini penting agar akuntan beradaptasi dengan teknologi digital untuk meningkatkan kualitas dan transparansi informasi keuangan.
6	Accounting for Bitcoin and Other Cryptocurrencies under IFRS: A Comparison and Assessment of Competing Models	David Procházka (2018)	Teknologi *blockchain* telah mengubah persepsi tentang sistem moneter dan akan kemungkinan berdampak pada cara transaksi akuntansi dapat dicatat dan diverifikasi.
7	Applicability of Blockchain Technology in Securities Settlement	Jānis Bauvars (2021)	Akuntan dan Central Securities Depositories (CSD) yang bisa menjadi pengelola jaringan atau node validator, bank sentral sebagai node untuk penyelesaian kas, perlu mengintegrasikan sistem internal mereka dengan lapisan aplikasi *blockchain*.
8	Digital Innovation and Sustainable Accounting Practices: A Systematic Literature Review Through the Governance Context	Faizah Alsulami (2025)	Perlunya akuntan untuk meningkatkan kompetensi digital mereka. Selain itu, artikel ini juga menyatakan bahwa digitalisasi mengurangi waktu yang dihabiskan untuk tugas-tugas rutin, sehingga memberikan pilihan layanan yang lebih fleksibel. Akuntan juga perlu berkonsentrasi pada fleksibilitas, keterbukaan terhadap pembelajaran, dan kapasitas untuk menerapkan keterampilan dalam menghadapi tantangan baru. Hal ini menunjukkan bahwa akuntan dan profesional keuangan perlu beradaptasi dengan meningkatkan keterampilan digital dan fleksibilitas mereka.
9	The Role of Digitalization in Business and Management: A Systematic Literature Review	Esther Calderon-Monge & Domingo Ribeiro-Soriano (2024)	Digitalisasi mendorong para profesional untuk bergerak melampaui batas-batas pekerjaan mereka. Dengan demikian, muncul contoh-contoh situasi di mana batas-batas antar profesi menjadi kabur. Salah satu contoh yang mengungkapkan hal ini diberikan oleh Arnaboldi dkk. (2017), yang menunjukkan bagaimana spesialis pemasaran media memasuki bidang akuntansi dan memimpin dalam pengelolaan jaringan sosial
10	Accounting For Digital Assets	(Jackson & Luu, 2023)	Penilaian dan memahami dengan jelas fitur-fitur yang berbeda dari aset spesifik yang mereka miliki ketika menentukan perlakuan akuntansi yang tepat untuk kepemilikan aset digital perlu dilakukan dan regulator perlu bertindak cepat untuk mempertahankan kepercayaan investor, kreditor dan pemerintah untuk memastikan bahwa laporan keuangan terus menyajikan representasi yang akurat atas posisi keuangan dan kinerja mereka.

Source: Article Analysis

Technical challenges also arise from limitations in the classification and measurement of digital assets, including value volatility, unclear cash flow placement, and difficulties in determining fair value for assets without active markets. Additionally, the high implementation costs of blockchain and the limited long-term visibility of benefits become significant barriers to broader adoption. Although smart contracts are considered capable of reducing the risk of fraud or human error, cases like The DAO failure show that code errors can still be exploited and become serious security loopholes. In the competitive FinTech landscape, the lack of uniform regulatory standards, limited access to data and technology, and the influence of algorithms create new dynamics that can impact financial stability. Therefore, blockchain not only demands adjustments in accounting and auditing practices but also requires reforms in regulatory structures, investor protection, and institutional readiness to support sustainable and responsible digital

transformation. The accounting profession currently faces significant challenges in responding to technological advancements, particularly the adoption of blockchain technology and the digitalization of financial systems. Slow adaptation, especially in auditing smart contracts, has opened a space for dominance by non-CPA technical firms because accountants are still constrained by minimal technical expertise, the absence of established audit standards, and high-risk perception. To overcome these challenges, strong resistance to change and comprehensive training for accountants are needed, especially during the technology transition period. The involvement of accountants from the initial stages of digital system planning is crucial, including in designing user interfaces that allow manual input for data that cannot be automated by IoT devices. Adaptation also includes understanding new systems like Triple-Entry Accounting (TEA), skills in complex technology, and redefining the assurance role in the blockchain ecosystem. As the use of digital assets and smart contracts increases, accountants are required to continuously update their competencies through training in data analysis, digital forensics, and blockchain technology. Challenges in the accounting treatment of crypto assets also require a deep understanding of the unique characteristics of each digital asset, as well as active collaboration with regulators to ensure financial reporting remains accurate and reliable. On the other hand, digitalization offers efficiency opportunities by automating routine tasks, thereby encouraging accountants to focus on value-added services, work flexibility, and cross-disciplinary collaboration.

This phenomenon is beginning to blur traditional professional boundaries, where the role of accountants can now overlap with other fields such as information technology and digital marketing. Accountants also have the potential to play strategic roles as validator nodes or network managers in blockchain systems together with Central Securities Depositories (CSD) and central banks, meaning integration of internal systems with the blockchain application layer is crucial. Therefore, comprehensive adaptation, enhancement of digital capacity, and strengthening of cross-disciplinary collaboration are primary requirements for the accounting profession to remain relevant and capable of meeting the needs for transparency and reliability of financial information in the technological era.

CONCLUSION AND RECOMMENDATIONS

The SLR research on 30 articles (2017-2025) concludes that blockchain has the potential to enhance the reliability, integrity, and transparency of financial reports through secure, real-time recording, and the use of smart contracts and Triple-Entry Accounting (TEA) for efficiency and automation of accounting processes. Distributed Ledger Technology (DLT) as the foundation of blockchain also offers similar benefits by providing an immutable and collectively verified recording system. Furthermore, blockchain allows audits to be conducted continuously and prevents data manipulation from the outset. However, to realize this potential broadly, standardization of blockchain regulations globally is needed so that accuracy, reliability, and compliance with financial reporting principles can be guaranteed across various jurisdictions.

This research primarily discusses the concepts and potential of blockchain technology in enhancing financial report transparency, while real implementation in Indonesia is still very limited. In the real world, the application of this technology still faces various obstacles, such as high initial costs, limitations in infrastructure and technical expertise, and resistance from traditional institutions that are not yet ready to adapt. Additionally, regulatory uncertainty related to the use of blockchain in accounting practices is also a major challenge, due to the lack of a firm legal framework and audit standards. Another limitation is the scarcity of literature and academic articles that thoroughly highlight the application of Triple-Entry Accounting (TEA), both theoretically and empirically, especially in the context of financial reporting. This complicates the development of practical guidelines that can be used as a reference by accounting professionals and regulators in adopting this technology effectively.

Future research is recommended to focus more on empirical studies regarding the implementation of blockchain technology and Triple-Entry Accounting (TEA) in accounting practices, particularly in Indonesia. Field studies involving case studies at companies or institutions that have attempted to adopt this technology will be very helpful in understanding practical challenges and implementative solutions. Furthermore, further research needs to examine the development of audit standards and regulatory frameworks suitable for supporting

blockchain adoption in financial reporting. Given the minimal literature that specifically discusses TEA, the development of academic studies that deepen the technical aspects, benefits, and limitations of TEA in both local and global contexts is also greatly needed. Thus, future research can provide concrete contributions to the development of clearer and more applicable implementation guidelines and regulations.

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