

# Critical Analysis of the Impact of Blockchain Technology and Artificial Intelligence Integration in Accounting Information Systems (AIS)

## **Abstract**

*The integration of Blockchain technology and Artificial Intelligence (AI) into Accounting Information Systems (AIS) is reshaping financial reporting, auditing, and decision-making. AI, through machine learning and deep learning techniques, enables automation, predictive analytics, and enhanced decision-making, while Blockchain ensures security, transparency, and immutability in financial transactions. These technologies drive digital transformation in financial institutions by improving operational efficiency and fraud detection in financial systems. However, challenges such as regulatory compliance, data privacy, scalability, and implementation costs persist. This study critically examines the impact of Blockchain technology and AI on AIS, analyzing their benefits, challenges, and future implications for accounting professionals and financial institutions. The findings suggest that while Blockchain technology and AI enhance AIS efficiency and security, successful adoption requires addressing technological, ethical, and regulatory concerns.*

**Keywords:** Blockchain Technology, Artificial intelligence, AIS

## **1. Introduction**

The accounting information system (AIS) is undergoing rapid transformation driven by the adoption of advanced technologies such as Blockchain technologies and Artificial Intelligence (AI) (Daniel et al., 2024). Making companies' systems digital has enabled them to adopt new technological tools to simplify business processes and transform business models to innovate their operations because they can increasingly access advanced computing power and large databases (Hongdan et al., 2023). Blockchain technology and AI are among the most disruptive technologies shaping the digital transformation landscape of the 21<sup>st</sup> century (Adu et al., 2025). Through deep learning (DL) and machine learning (ML) techniques, AI enables systems to learn from data, automate decision-making processes, and optimize operational efficiency; meanwhile, blockchain offers a decentralized, immutable ledger that ensures data security, transparency, and tamper resistance (Adu et al., 2025). These innovations change organizations and individuals greatly, with blockchain specifically providing the foundation for what Tapscott and Euchner (2019) call an Internet of value that will fundamentally reshape society and its business (Hongdan et al., 2023). These innovations are being leveraged to tackle critical issues such as fraud detection, operational inefficiencies, and the demand for greater transparency in financial transactions. As digital finance expands, the need for more secure and efficient transaction methods has become increasingly urgent (Daniel et al., 2024). While these technologies have traditionally evolved in separate trajectories, their combination presents significant opportunities to address critical issues such as data privacy, security, and trust in digital systems (Adu et al., 2025).

The financial and accounting aspects of the organization are some of the most crucial aspects that reflect the extent of its performance and effectiveness. Systems usually adopt all the tools and resources that guarantee access to strong accounting and financial information capable of clarifying the organization's position and the degree of its control over the market (Firas Hashem & Rateb Alqatamin, 2021). Organizations usually aim to reach a market share higher than their counterparts and, accordingly, adopt all the tools and strategies to bring them to that level of

performance that will maximize their market share, control it, and push it forward. As a means, organizations implement many strategies, including developing their technological systems, trying to use machines more than people, controlling their financial deposits, evaluating employee performance, and trying to maximize profitability over production costs (Firas Hashem & Rateb Alqatamin, 2021).

Blockchain and artificial intelligence (AI) are widely recognized as technologies with the potential to fundamentally transform and innovate across multiple industries and sectors. While the term blockchain truly began to captivate the global tech community in 2008 through the launch of the Bitcoin cryptocurrency by Satoshi Nakamoto, the fundamental principles and concepts it is based on have been in practice since the 1980s (Dhanasak et al., 2024). Blockchain, now regarded to be the fifth pillar of the IT revolution, is expected to become the foundational technology of the next-generation Internet. Since Nakamoto set the groundwork for what would become blockchain technology in 2008, the banking, financial, insurance, education, health care, and government sectors have been using blockchain technology to the extent that 10 % of the global GDP will be recorded and stored on blockchain by 2027 (World Economic Forum, 2015). PricewaterhouseCoopers (PwC) (2020) estimates that blockchain could boost global GDP by 1.76 trillion US dollars by 2030. Deloitte's 2020 global blockchain survey indicates that organizations are more committed than ever to implementing blockchain in their business (Deloitte, 2020). With blockchain's growing maturity, innovators are discovering new opportunities to create value and enhance trust and resilience to digital transformation by combining blockchain with other technology forms, especially AI (Hongdan et al., 2023).

This paper aims to explore the synergy between Blockchain and AI, examining how their combination can transform financial transactions by improving accounting information systems. By investigating the potential of these technologies working together, this study aims to provide a deeper understanding of how AI can enhance Blockchain's verification processes and how Blockchain can further improve the transparency and reliability of AI-driven accounting information systems.

## **2. Literature Review.**

This review overviews using blockchain as a new accounting tool to achieve secure, shared, verified, and consensus-driven record-keeping to improve transparency and trust in accounting.

### **2.1 Accounting Information Systems**

(Sari et al., 2019) defined accounting information systems as a set of interrelated elements, tools, procedures, devices, and software that would interact together to solve financial data analysis, control, and supply when needed. (Tjahjadi and Soewarno, 2019) believe that accounting information systems consist of a set of elements, which are:

**a. Human Resources:** This is the intellectual capital (employees) who have the expertise necessary to complete the accounting work and understand it and the ability to read and analyze it in a way that serves the decision-making process in the organization.

**b. Material Resources:** This refers to the computer hardware, systems, software, and physical tools that are used during the process of analyzing accounting data, such as storage media, computer clouds, databases, and related inputs and outputs.

**c. Financial Data:** It is the primary and most important part, and it refers to the financial data that is entered into the systems for analysis, classification, and processing and then presented as information that serves decision-makers. The importance of AIS lies in its ability to primarily regulate accounting work for organizations regardless of their size (Elsharif, 2019). In other words, AIS plays a crucial role in managing financial performance of an organization no matter the size, and it helps in defining the current and future situation of the organization from a financial perspective (Al-Hashimy et al., 2019). This helps in the process of decision-making as it aids decision makers in making decisions that are related to the outcomes of AIS. This way, all risks measures can be taken into consideration, which facilitates the process of reaching organizational excellence (Hariyati et al., 2019).

## **2.2 Definition of Blockchain**

Blockchain can be described as a type of distributed ledger technology (DLT) or a type of financial technology (FinTech) (Hongdan et al., 2023). Blockchain is inherently a decentralized and distributed system designed to facilitate Peer-to-Peer communication among participating nodes (Bhumichai et al., 2024). Blockchain is also viewed by others as a sequential database or a giant spreadsheet that surpasses the classical financial ledger by recording transactional information, secured by cryptography, and governed by a consensus mechanism (Hinings et al., 2018; Yermack, 2017). ICAEW (2018) refers to blockchain as an accounting technology for transferring the ownership of assets and maintaining a ledger of accurate financial information, where the constancy of a ledger derives from trust in the system that drives the record-keeping. Blockchain technology, characterized by its decentralized and immutable ledger system, has revolutionized the way transactions are carried out and recorded in the financial industry (Adu et al., 2025). The immutability of Blockchain technology ensures that all transaction data is tamper-proof, making it an ideal solution for industries where trust and security are paramount.

### **2.2.1 Blockchain in accounting**

Accountancy organizations, namely, ICAEW, the Association of Chartered and Certified Accountants (ACCA), the Chartered Institute of Management Accountants (CIMA), the Chartered Institute of Public Finance and Accountancy (CIPFA), and the International Federation of Accountants (IFAC), all publish reports on their websites relevant to blockchain technology. For example, Deloitte, EY, KPMG, and PwC lead the initiative to incorporate blockchain into their businesses to cater for changing customer demands for blockchain transactions (O'Neal, 2019). Accordingly, Deloitte formed its Rubix division and launched a blockchain plug-and-play product (Leung, 2016; Palmer, 2019); EY introduced a blockchain analyzer platform to support audit teams' reconciling data; PwC released cryptocurrency auditing software and updated its Halo tool for auditing, and KPMG has been working with Guard time, Microsoft, R3, and Tomia to produce blockchain-based services (O'Neal, 2019). Tan and Low (2019) argue that blockchain technology affects the database engine of the accounting information system (AIS) by digitalizing current paper-based validations. The technology can securely store accounting data such as accounts

payable and accounts receivable (Dai and Vasarhelyi, 2017) and can increase the efficiency of accounting for transactions (ICAEW, 2018). (Deloitte, 2017) and (McWaters et al., 2016) identify ways in which blockchain technology addresses current accounting challenges. It can simplify operations, reduce transaction-settlement time and counterpart risk, minimize fraud, and improve regulation and capital liquidity.

### **2.3 Artificial Intelligence Overview.**

Artificial intelligence enables machines to simulate human intelligence and problem-solving capabilities (Bhumichai et al., 2024). AI has become integral to risk management in financial operations. By analyzing historical data, AI models can predict potential risks, offering insights that help financial institutions make more informed decisions (Adu et al., 2025). Artificial intelligence took off in the fifties of the twentieth century when the scientist "Alan Turing" made what is called today the Turing Test to evaluate and classify the intelligence of computers (Firas Hashem & Rateb Alqatamin, 2021). (He et al., 2019) viewed artificial intelligence as one of the scientific efforts in facilitating human life by teaching machines to simulate human mental abilities and the way they work, thus mastering human skills through the machine and giving the human mind the opportunity to think and be creative in other matters, including problem solving and develop various plans and strategies.

#### **2.3.1 Artificial Intelligence in Accounting**

Artificial intelligence appears in the accounting field in the form of computerized documents, audits, and tax processes, in addition to many methods of fraud prevention. Accounting artificial intelligence has gained a lot of attention due to its ability to give accountants an opportunity to provide added value to accounting operations (Chukwudi et al., 2018). (Ionescu, 2019) stated in Firas Hashem & Rateb Alqatamin (2021). That the importance of accounting artificial intelligence lies in its ability to allow decision makers to carry out decision-making processes in an easy and smooth way by focusing on their duties and leaving the opportunity for artificial intelligence to do automated things, in other words, instead of individuals wasting their time in data entry, analysis, organization, and to update them, this matter is left to smart systems while individuals focus on duties that require a human touch such as interpreting and analyzing outputs, matching

them with reality and making decisions based on them, which make accountants more efficient and productive. From the point of view of Damerji and Salimi (2021), the role of artificial intelligence represented in allowing accountants to access the basics of different systems in addition to dealing with complex numbers and reducing the burden of accounting work by reducing the repetition of tasks and thus making smart financial decisions

## **2.4 The Integration of Blockchain Technology and Artificial Intelligence**

A recent article published by IBM suggests,

*“If decisions and associated data points are recorded via transactions on a blockchain, the inherent attributes of blockchain will make auditing them much simpler. Blockchain is a key technology that brings trust to transactions in a network; therefore, infusing blockchain into AI decision-making processes could be the element needed to achieve the transparency necessary to fully trust the decisions and outcomes derived from AI.” (Hongdan et al., 2023, p. 5 ).*

ICAEW (2018) argues that blockchain and other automation trends like machine learning will lead to better transactional-level accounting being done automatically. In this study, AI refers to the use of deep learning, machine learning and technologies that simulate human minds, which offer accountants a new means of augmenting their processes, adding to their computer-assisted tools and techniques. Machine learning can assist auditors in recognizing and applying patterns, deriving algorithms based on those patterns, and refining them based on feedback. AI can help auditors review documents efficiently by detecting anomalies and better evaluating risk. Auditors can use AI technologies to review general ledgers, tax compliance, audit work papers, data analytics, fraud detection, and decision-making (Munoko et al., 2020). Blockchain on the other hand, delivers trust and confidence in AI-based processes by enriching trust in their data, models, and analytics (Cuomo, 2020), and enables a more agile and precise auditing model that automates assurance (Dai and Vasarhelyi, 2017) and thus strengthens auditing. Auditing professions can benefit from AI technology by comparing corresponding accounting entries in blockchains recorded by each of the trading parties. This procedure is relatively easy because blockchain data is traceable and auditable.

In a review of previous literature by (Askary et al., 2018) on the role of artificial intelligence in increasing the reliability of accounting output, the researchers concluded that artificial intelligence has not proven its ability to avoid the risks associated with accounting systems, justifying this with the idea that, in the end, no matter how accurate the systems are, the inputs are what controls the outputs, and if the inputs are inaccurate, it is natural that the outputs are unreliable and weak. On another level, the study proved that the accounting artificial intelligence contributed significantly to reducing the percentage of losses associated with producing false and inaccurate accounting information, which helps senior management to make better accounting and financial decisions due to the quality and efficiency of the outputs of the accounting systems.

A study by Hamadneh et al. (2021) aimed to determine the impact of artificial intelligence on the consistency, reliability, and accuracy of financial data analysis. By adopting the experimental exploratory approach, data were collected from 172 accountants and financial employees in all hotels located in the Aqaba Special Economic Zone. By analyzing the data of the study based on SPSS, the study concluded that artificial intelligence in the accounting systems used in the hotels under study contributed significantly to increasing the reliability and consistency of the accounting output of these hotels, and their information and financial statements became more accurate. To determine the importance of artificial intelligence in the accounting field and the role of smart elements in improving accounting output. And by reviewing the previous literature, the Nagano and da Costa Moraes concluded that reliance on artificial intelligence systems and their introduction in accounting work contributed to reaching more accurate, effective and efficient reports, and the quality of accounting information was higher than that intelligence-based accounting information systems Artificial intelligence was able to provide useful information on demand, and its outputs were understandable, relevant, reliable and comparable (Nagano and da Costa Moraes, 2013).

The integration of AI and Blockchain has garnered considerable attention in recent years as a powerful combination for enhancing the security and transparency of financial transactions (A. Fitriawijaya and T. Jeng, 2024). The existing literature suggests that AI algorithms can be utilized to automate and enhance the verification processes of Blockchain networks (H. Y. N. Heri, 2024). By integrating AI's data analysis capabilities, Blockchain systems can optimize the validation of



transactions, ensuring that fraudulent activities are detected more efficiently (Kumar et al., 2023). Additionally, reinforcement learning models have been employed to optimize the decision-making processes in AI-driven smart contracts, allowing these systems to dynamically adjust to new transaction conditions without human intervention (Li et al., 2023). Decision trees have been utilized to validate transaction integrity before entry into the Blockchain ledger, ensuring only verified data is recorded (Z. Kedah, 2023). This detailed explanation of algorithms and models not only clarifies their application but also showcases the sophistication of the technology integration (Daniel et al., 2024).

#### **2.4.1 Blockchain adds trust to AI-enabled accounting information systems**

The prominent purpose of using blockchain technology for keeping accounting records is to create trust (Smith, 2019) and a trust network with or without a trusted party involved (FRC, 2018). Blockchain collects validated pieces of information about the amount of a transaction, who it was paid to, and by whom, then hashes and adds the block to the existing chain (Fanning and Centers, 2016). Combining hash algorithms, private and public keys, and decentralized ledgers are what make blockchain powerful in modern Internet use (Hughes et al., 2019) because its immutability, traceability, and visibility enable participants to view fully encrypted synchronized transactions (Deloitte, 2016; PwC, 2018). The distributed network, digital signature, and consensus validation rules have made blockchain secure and reliable (Boillet, 2017). According to the Financial Reporting Council, the trust derived from blockchain occurs because records are tamper-resistant and immutable, stemming from their being distributed and hashed. Like fingerprints, hashes are unique since every change, regardless of how minor, when adding information, causes the hash to change from one unique identity to another because such changes mean its block is no longer the same. The consensus mechanism makes gaming blockchain difficult (FRC, 2018). The unique blockchain hash features offer a source of trust to create resilience (Deloitte, 2016). Additionally, the technology can boost information auditability and transparency (Ølnes et al., 2017).

#### **2.5 Theoretical perspectives of the study**

This review studies the impact of blockchain and AI in accounting information systems using both stakeholder and agency theories. This study relied on two conditions: that network participants

are honest and that raw data from either public or private chains is put into blockchains. It then explores how blockchain and AI tools were adopted in accounting information systems to ensure trust in financial information. This involved lessening information asymmetry and enabling value to be created for CEOs, managers, shareholders, accountants, auditors, investors, policymakers, and other stakeholders to make commitments collectively and collaborate about them.

### **2.5.1 Stakeholders Theory**

The theory advocates for an open and inclusive relationship with all stakeholders, including managers, directors, investors, employees, other companies, service providers, the government, and society at large (Freeman, 1994; Freeman, 1984). Stakeholder theory acknowledges that firms are part of a larger social system, and decisions cannot be made in isolation (H. Han et al., 2023). Vasarhelyi (2012) argues that the accounting literature has predominantly focused on how users interpret financial reporting standards and market effects, but it fails to address the diverse stakeholders with varying information needs under the current model. He suggests that accounting should transition to a more disaggregated approach to disclosing information, a perspective that has garnered widespread support (Moll and Yigitbasioglu, 2019; Yermack, 2017). Dai and Vasarhelyi (2017) propose a blockchain-enabled accounting ecosystem where managers, accountants, business partners, and investors can actively collaborate to verify transactions and empower organizations to serve broader interests. Given the distributed nature of blockchain technology, which can enhance inclusivity, this review contends that it represents a valuable means of fostering collaboration and interaction among diverse individuals within its extensive networks. Together with the use of AI technology, firms can promote an open and inclusive corporate culture to sharpen decision-making using multi-party verified and shared blockchain data (H. Han et al., 2023).

### **2.5.2 Agency theory perspective**

In accounting research, agency theory seems to be the standard approach to emphasize “the conditions of uncertainty that lead to potential information asymmetries between the executives who manage the firm and external investors” (Walker, 2013:448).

Since Jensen and Meckling (1976) extended Berle and Means's (1932) work and theorized the principal-agent relationships, corporate governance scholars have explored various internal and external monitoring and control mechanisms. The internal governance mechanisms primarily focus on boards of directors, board composition, board size, board independence, ownership structure, and managerial incentive mechanisms, whereas the external governance mechanisms cover issues related to the external market, laws, and regulations (H. Han et al., 2023). Information asymmetry has created ethical risks that triggered many global financial scandals. Accounting information systems need to mitigate information asymmetry in the interest of transparency and accountability. Therefore, this review argues that using blockchain and AI can provide a new technological means of controlling and monitoring accounting information to reduce information asymmetry and agency problems. This occurs because blockchain enables shared, verified, and consensus data, and AI detects anomalies. Additionally, smart contracts automate procedures that can also reduce managerial manipulation and opportunistic behavior.

### **3. Methodology**

#### **3.1 Research Design**

This study employs a qualitative research approach, focusing on an in-depth analysis of existing literature related to the integration of Blockchain and Artificial Intelligence (AI) in accounting information systems. The qualitative design is chosen to explore and synthesize various perspectives from varied scholars regarding the impact of Blockchain technology and AI on enhancing accounting information systems.

By reviewing these theoretical insights, this research aims to provide a nuanced interplay of how these technologies can work together to transform accounting information systems.

#### **3.2 Data Collection**

The effectiveness of Blockchain and AI integration in enhancing accounting information systems relies heavily on a robust data collection process. To ensure comprehensive insights, this study gathers data from scholarly academic journals from various reputable sources, which include ResearchGate, Google Scholar, Academia.edu, Science Direct, etc.

#### 4. Challenges and Limitations

Integration of blockchain and AI, currently in a rather early phase, presents numerous benefits and challenges. This section discusses the significant challenges and limitations related to this integration, addressing how they impact various aspects of technology and accounting information systems below:

- i. Privacy: Public ledgers in cryptocurrencies lack privacy due to their open-access nature, even though they offer data security and authentication. Conversely, private blockchain ledgers employ cryptographic methods and access control algorithms to secure data but potentially limit the data available for AI processing (Bhumichai et al. 2024). Balancing transparency with privacy is crucial but not straightforward. Future research should concentrate on designing privacy policies that support transparency, enforcing policies to address privacy issues, and developing effective user authentication techniques
- ii. System scalability: Current well-known blockchain systems, like Bitcoin and Ethereum, have limited transaction capacities, which are insufficient compared to the needs of applications like smart grids. Solutions like sharding and sidechain aim to improve blockchain efficiency by facilitating transactions outside the main chain and revamping consensus algorithms (Bhumichai et al., 2024). Blockchain scalability, determined by data storage and transaction rates, often conflicts with the storage needs of AI algorithms for training data and transactions.
- iii. System governance: Managing blockchain systems with multiple users poses governance challenges: Who administers and maintains the systems, deploys nodes, creates smart contracts, resolves disputes, selects oracles, and operates off-chain activities? These questions open research opportunities for developing effective governance models (Bhumichai, 2024)
- iv. Operational challenges, such as the cost and time associated with integrating new systems into existing infrastructure, are also prevalent (H. Han et al., 2023).

- v. Additionally, there are regulatory challenges concerning data privacy and compliance, especially given that many jurisdictions are still developing legal frameworks for AI and Blockchain technologies.

Understanding these challenges is crucial in assessing the overall effectiveness of the integration and identifying potential solutions for future implementations.

## **5. Conclusions**

The integration of Blockchain and Artificial Intelligence has shown significant potential in enhancing the improvement of accounting information systems. AI boosts security through real-time fraud detection, anomaly identification, and predictive analysis, enabling financial institutions to proactively identify and mitigate risks. Blockchain, on the other hand, offers an immutable, decentralized ledger that maintains the integrity and transparency of transaction records. This synergy between Blockchain and AI establishes a robust framework that addresses long-standing security challenges in the financial sector, providing a solution that is both effective and reliable. The practical implications of AI-Blockchain integration for financial institutions are considerable. By merging AI's data processing capabilities with Blockchain's secure infrastructure, institutions can lower fraud rates, improve verification processes, and strengthen compliance with regulatory requirements. Furthermore, this integration streamlines operations, decreasing the reliance on intermediaries and consequently reducing operational costs. Case studies have demonstrated that financial institutions adopting this technology experience measurable improvements in both security and transparency, showcasing the transformative potential of AI and Blockchain for global financial systems. While the advantages are evident, challenges persist, particularly regarding scalability, data privacy, operational challenges, and regulatory adaptation.

The implementation of AI-Blockchain solutions requires substantial investment in infrastructure and regulatory alignment, especially given the evolving nature of digital finance regulations. Future research should focus on exploring scalable solutions and creating supportive regulatory frameworks that can facilitate broader adoption. Overall, the integration of AI and Blockchain represents a promising path forward for achieving more secure and transparent financial

transactions, aligning with global goals for sustainable economic development and robust institutional transparency.

## References

- Bhumichai, D., Smiliotopoulos, C., Benton, R., Kambourakis, G., & Damopoulos, D. (2024). The convergence of artificial intelligence and blockchain: The state of play and the road ahead. *Information*, 15(5), 268. <https://doi.org/10.3390/info15050268>
- Castro, M., & Liskov, B. (1999). Practical Byzantine fault tolerance. *Proceedings of the Third Symposium on Operating Systems Design and Implementation*, 173–186.
- Fitriawijaya, & Jeng, T. (2024). Integrating multimodal generative AI and blockchain for enhancing generative design in the early phase of architectural design process. *Buildings*, 14(8), 2533.
- Han, H., et al. (2023). Accounting and auditing with blockchain technology and artificial intelligence: A literature review. *International Journal of Accounting Information Systems*.
- Hashem, F., & Alqatamin, R. (2021). Role of artificial intelligence in enhancing efficiency of accounting information system and non-financial performance of the manufacturing companies. *International Business Research*, 14(12), 65. <https://doi.org/10.5539/ibr.v14n12p65>
- Heri, H. Y. N. (2024). The effect of fragmentation as a moderation on the relationship between supply chain management and project performance. *ADI Journal on Recent Innovation*, 6(1), 90–101.
- Ifedayo, A. E., Olugbade, D., & Hamid, S. (2025). Integrating artificial intelligence with blockchain: A literature review on opportunities, challenges, and applications. *Blockchain, Artificial Intelligence & Future Research*, 1(1), 52–69. <https://doi.org/10.70211/bafr.v1i1.179>
- Kumar, P., Kumar, R., Islam, A. N., Garg, S., Kaddoum, G., & Han, Z. (2023). Distributed AI and blockchain for 6G-assisted terrestrial and non-terrestrial networks: Challenges and future directions. *IEEE Network*, 37(2), 70–77.
- Li, Z., Kong, D., Niu, Y., Peng, H., Li, X., & Li, W. (2023). An overview of AI and blockchain integration for privacy-preserving. *arXiv Preprint arXiv:2305.03928*.
- Martinez, D., et al. (2024). AI and blockchain integration: Enhancing security and transparency in financial transactions. *International Transactions on Artificial Intelligence (ITALIC)*, 3(1), 11–20. <https://doi.org/10.33050>
- O’Neal, S. (2019). Big four and blockchain: Are auditing giants adopting yet? Retrieved from <https://cointelegraph.com/news/big-four-and-blockchain-are-auditinggiants-adopting-yet>

- PwC. (2018). Blockchain is here. What's your next move? PwC's 2018 survey. Retrieved from <https://www.pwc.com/gx/en/industries/technology/blockchain/blockchain-in-business.html>
- PwC. (2020). Time for trust: The trillion-dollar reasons to rethink blockchain. Retrieved from <https://image.uk.info.pwc.com/lib/fe31117075640475701c74/m/2/434c46d2-a889-4fed-a030-c52964c71a64.pdf>
- Tapscott, D., & Tapscott, A. (2016). The impact of the blockchain goes beyond financial services. *Harvard Business Review*. Retrieved from <https://hbr.org/2016/05/the-impact-of-the-blockchain-goes-beyond-financial-services>
- World Economic Forum. (2023). EU unveils plans for digital euro, promising complete privacy. Retrieved September 28, 2023, from <https://www.weforum.org/agenda/2023/08/digital-euro-is-coming-privacy/>