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# AUTOMATION OF ACCOUNTING AND MANAGEMENT ACCOUNTING USING DIGITAL PLATFORMS AND ARTIFICIAL INTELLIGENCE: THE ROLE OF BLOCKCHAIN TECHNOLOGY IN ENHANCING EFFICIENCY AND TRANSPARENCY

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## ABSTRACT

**Purpose:** The purpose of this paper is to examine the use of digital platforms to automate financial and management accounting functions, with particular focus on the integration of artificial intelligence (AI) and blockchain technology.

**Design/Methodology/Approach:** The study adopts a qualitative secondary data research methodology using existing scholarly materials, industry reports, and case studies to evaluate the effectiveness of these technologies in improving accounting operations. The sample of 27 publications (2014–2026) was obtained from online academic databases such as Google Scholar, ScienceDirect and JSTOR, and examined by thematic analysis.

**Research Limitation:** The study identifies high implementation costs, technical complexity, and data privacy and cybersecurity issues as the main challenges, indicating the need for further research on scalable and cost-effective solutions.

**Findings:** The findings indicate that AI-driven automation enhances precision, reduces human error, and supports more accurate decision-making through instant data analysis. Blockchain technology increases the transparency, security, and reliability of financial transactions through its decentralised and immutable structure.

**Practical Implication:** The adoption of AI and blockchain in accounting systems offers considerable advantages for organisations, particularly in improving operational efficiency and supporting strategic management.

**Social Implication:** The wider adoption of digital technologies contributes to more transparent, secure, and reliable accounting practices in the modern business environment.

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**Originality/Value:** The article examines AI and blockchain in management accounting tasks, such as forecasting and decision support, which have received less attention than auditing and financial reporting, and highlights future research directions for the development of scalable solutions that can be adopted at lower cost.

***Keywords:*** *Accounting. artificial intelligence. automation. blockchain technology. digital platforms*

## INTRODUCTION

Accounting has long been one of the most prominent activities in the organisational environment, involving the gathering, interpretation, and presentation of financial information for decision-making. Over time, accounting has shifted from simple bookkeeping to a more strategic role that supports an organisation's planning and performance management. However, traditional accounting systems are typically characterised by manual processes, time-consuming data entry, and a higher risk of human error, which can limit efficiency and reliability (Ahsina & ELBourassi, 2025; Krap et al., 2024).

The rapid emergence of digital technologies in recent years has triggered a major transformation in accounting practices. The introduction of digital media has enabled organisations to automate daily accounting processes and improve the accuracy of financial reporting. This digital shift is not only changing financial accounting, but also redefining management accounting by providing real-time data insights that enable strategic decision-making. The urgency to ensure access to financial information that is faster, more precise and transparent has never been higher than it is now because businesses are operating in more complex and competitive conditions than ever before (Adeyeri, 2024).

Key technologies driving this shift include artificial intelligence (AI) and blockchain technology. AI can automate repetitive accounting tasks such as data entry, invoice processing, and financial analysis, reducing human contact and errors. In addition, AI-based applications can process large volumes of financial information in real time, helping companies generate predictive insights and improve decision-making. On the other hand, blockchain technology offers a decentralised and secure platform for recording financial transactions. This is more reliable and trustworthy because its transparency and immutability are more secure; thus, it is used especially in auditing, financial reporting, and fraud prevention (Lysenko et al., 2024; Stender et al., 2024; Shevchenko et al., 2023).

Although AI/blockchain are gradually gaining popularity in accounting, several challenges and constraints are associated with using these tools. Obstacles for most institutions include high start-up costs, technical incompetence, and concerns about information privacy and cybersecurity. Besides, studies that consider AI and blockchain together focus mainly on auditing and financial reporting, and few provide a detailed discussion of their impact on

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automating management accounting processes. This gap shows that it is time to conduct further research on how to introduce such technologies into digital platforms appropriately to achieve maximum benefits (Agustinia & Mustakini, 2024; Bielialov et al., 2023).

Therefore, this study aims to examine how digital platforms can automate accounting and management accounting tasks through the use of AI and blockchain. Specifically, the research will evaluate the effectiveness, accuracy, and transparency of accounting activities using these technologies and identify the challenges of implementing them in accounting. The research fills this gap and contributes to understanding the existing digital transformation of accounting, providing valuable information to organisations interested in implementing new technological solutions.

## LITERATURE REVIEW

### Digital Age of Accounting Transformation

The sphere of accounting has undergone a significant paradigm shift over the past two decades, and the advancement of digital technologies was the primary factor that caused it. The digital solutions are automated and integrated, thus overtaking the traditional accounting system, which was quite manual and periodic. The researchers have emphasised the fact that digital transformation can assist organisations to be more efficient, more accurate, and timely in financial reporting. According to recent studies, the introduction of the digital platform has made the process of real-time data processing easier and even improved the overall quality of accounting information.

Along with that, digitisation has transformed the role of accountants; their role has shifted towards the position of data processing to a more analytical and strategic role. This transformation follows the augmentation of the demand for value-added services in management accounting, where data-driven output is incorporated in the making of decisions. But, as the literature claims, the majority of organisations are in the first phase of the digital change and need to address the challenges linked to the digital integration and adaptation of the technology (Ahmed, 2024).

### Artificial Intelligence Accounting

The issue of artificial intelligence (AI) is one of the most effective technologies that have been presented in the modernisation of accounting practices. AI-based systems can computerise repetitive tasks, such as data input, invoicing, and reconciliation, to save time and energy on routine tasks. The studies revealed that AI enhances the quality of financial data and decreases the rate of human mistakes and offers consistency in reporting.

In addition to automation, AI is also of great significance in data analytics and decision-making. Machine learning algorithms can process enormous financial data and point out trends, irregularities, and provide predictive data. This is also handy, particularly in management

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accounting, where the forecasting and evaluation of performance are important. Furthermore, AI-based solutions are increasingly gaining popularity in the audit processes to improve risk evaluation and detection of fraud.

At that, however, not every issue connected with the use of AI in the accounting profession is that straightforward. Scholars have identified the problem of data confidentiality and professionalism, as well as the possibility of eliminating accounting specialists. Moreover, AI systems might not work due to the quality and accessibility of data, which might vary across organisations. Despite these weaknesses, the literature suggests that AI can help in efficient and more effective accounting procedures on a large scale (Al-Malki, 2025; Lysenko et al., 2024).

**Blockchain Technology and Accounting**

Blockchain technology has been of particular attention as a disruptive technology to create more transparency and security in accounting systems. Blockchain is an electronic registry that is decentralised and features transaction safety and the impossibility of modification, unlike traditional centralised databases. It is one of the characteristics that ensure that once a transaction has been done, it cannot be altered or deleted, thereby enhancing the credibility of financial information.

Some studies have considered the application of blockchain in accounting, particularly in areas of auditing, reporting, and confirmation of transactions. Blockchain technology will enable documenting and validating transactions in real-time without the involvement of middlemen and reducing the risk of fraud. The use of blockchain in auditing may support the audit process by providing auditors with direct access to confirmed transaction records (Hsieh et al., 2024).

In addition, the concept of smart contracts, which are self-executing contracts that are coded on the blockchain, can possibly automate complicated financial deals and improve compliance with regulatory norms. Despite these strengths, blockchain technology faces several challenges that serve as hindrances towards its adoption due to the following reasons: cost of implementation, lack of standardisation, and regulatory uncertainty (Saci & Aliouat, 2026). In addition, integrating blockchain with the existing accounting systems is a complex problem in the majority of organisations.

**Role of Digital Platforms in Accounting Automation**

The foundation of the implementation of new sophisticated technologies such as AI and blockchain into accounting systems is digital platforms. Different accounting processes can be automated using such platforms, including data collection, processing, analysis and reporting. The reason behind the popularity of accounting systems in the cloud (particularly) has been due to their ability to be scaled, accessibility, as well as affordability.

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Research has indicated that online platforms can enable real-time reporting as well as improve stakeholder collaboration. These platforms can enable organisations to access and analyse financial data at a higher rate because of the centralisation of financial data. In addition, the integration of AI and blockchain in internet platforms enhances the functionality of the latter, which can be more highly automated and secure (Bhatti et al., 2025).

However, there are several determinants of digital platforms that should be taken into account, including organisational preparedness, technological capability and acceptability. The blocks to digital accounting solution implementation have been identified to include resistance to change and a lack of non-technical skills. Therefore, companies ought to invest in training and development so as to harness the strength of digital platforms.

**Research Gap**

Although the existing body of literature provides much detailed material on the impact of digital technologies on accounting, it still has certain gaps that should be addressed. The joint use of AI and blockchain, including their integration into digital platforms, has already been examined, especially in auditing, financial reporting and fraud prevention (Al-Malki, 2025; Bhatti et al., 2025; Nemati & Moghaddam, 2025). Management accounting, where the forecasting and evaluation of performance matter most, receives much less attention in these studies.

Furthermore, the studies regarding the feasibility of the implementation of these technologies in real-life organisational settings are confined to particular sectors and tasks, such as accounting fraud in Islamic banking (Zulhelmi et al., 2023) or information sharing in enterprise financial accounting (Jiang, 2024). Their results can therefore be transferred to other organisations only with caution. Cost, scalability and regulatory compliance have already been described in the literature as barriers to the implementation of AI and blockchain (Saci & Aliouat, 2026; Noviany et al., 2025). Less is known about how organisations overcome these obstacles, which might be the reason behind the absence of adoption, particularly in small and medium-sized enterprises.

Therefore, the research proposed will address this gap in that it will critically examine how AI and blockchain can be used to automate accounting and management accounting processes using digital platforms. Appreciating the experience of prior research (Brynjolfsson & McAfee, 2014), the research will seek to contribute to the understanding of the opportunities and challenges of digital transformation in accounting.

Modern scientific literature emphasises that the integration of artificial intelligence and blockchain radically transforms accounting processes. In particular, blockchain ensures the immutability and transparency of transactions through distributed ledgers, and artificial intelligence performs deep analytics, forecasting and anomaly detection. At the same time, narrower problems remain open in the scientific discourse on the researched issues, including

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the lack of a unified international and national legislative framework for the legal recognition of blockchain records in primary accounting, the integration of decentralised networks with legacy corporate systems, and the ratio of high costs of blockchain implementation to real efficiency gains for small and medium-sized businesses.

## MATERIALS AND METHODS

The present paper is based on a qualitative research design that is grounded in the research method of secondary data research in the exploration of how digital platforms, artificial intelligence (AI) and blockchain technology have become instrumental in the automation of the accounting and management accounting process. The present study requires the application of secondary research because it is feasible to examine the already extant academic material, industry and real-life case studies in order to create a comprehensive image of the subject. In this approach, it is possible to establish patterns, trends, and relations that will follow the adoption of advanced technologies in the accounting business (Fachruddin et al., 2025).

The sources of research that were used to collect the data for this study were varied and credible in nature; they comprised peer-reviewed journal articles, books, conference proceedings, reports issued by professional accounting associations and international organisations. Relevant materials were obtained from online academic databases, such as Google Scholar, ScienceDirect and JSTOR. Furthermore, reviews of organisations such as accounting companies and technology solutions provided industry reports to obtain viable data regarding the use of AI and blockchain in accounting systems. The selection of the sources was taken into account based on the relevance, credibility, and recency to ensure the picture of the analysis reflects the changes in the field nowadays. The sample comprises the 27 publications listed in the References, published in 2014–2026, 25 of them in 2023–2026. The review is narrative rather than systematic, which is a limitation of the study.

When applying the analytical approach, the thematic analysis method is applied to analyse and generalise the data collected. This consists of pinpointing the important themes as articulated by the influence of AI, blockchain technology and digital platforms on accounting processes in terms of efficiency, accuracy, transparency, and decision-making abilities. The challenges and limitations associated with adopting these technologies, such as the cost, technicality, and issues of data security, are also discussed (Georgiou et al., 2024).

Besides, the disparities between conventional accounting systems and digitised accounting solutions are compared and discussed. This analogy provides a better perspective on the benefits and shortcomings of applying high technologies in the case of accounting. The study will present a wholesome and level-headed evaluation of the importance of the digital transformation of the current accounting practices through a compilation of the facts found in different sources.

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## RESULTS AND DISCUSSION

Nevertheless, the secondary data analysis also demonstrates that accounting and management accounting are not exceptions because the introduction of artificial intelligence (AI), blockchain technology, and digital platforms has had a significant influence on the field. These findings indicate that they were very efficient, accurate, transparent and effective in decision-making in their performance compared to traditional accounting systems.

Firstly, the automation of AI-driven processes has led to a great reduction in the amount of manual workload. Such processes as data entry and invoice processing can now be streamlined with the help of automated systems and reconciliation (Jiang, 2024).

*Table 1: AI Applications in Accounting Tasks*

| Task | Traditional Approach | AI-Enabled Automation |
|---|---|---|
| Data Entry | Manual entry | OCR + AI auto-entry |
| Invoice Processing | Manual review | AI invoice recognition |
| Reconciliation | Manual matching | AI-driven reconciliation |
| Financial Forecasting | Spreadsheet-based | Machine learning predictions |
| Audit Sampling | Random selection | AI-based anomaly detection |

*Source: Kokina and Davenport (2017), Stratopoulos and Wang (2025)*

This has increased the pace of processing, and the mistakes committed by human beings are reduced. In addition to that, AI-powered analytical software enables data to be processed in real time, implying that organisations can generate financial reports and forecasts on a timely basis.

Secondly, the accounting information is now more transparent and secure under blockchain technology. Blockchain is decentralised and irreversible to an extent that financial transactions are accurately recorded and cannot be altered. This will go a long way in reducing the chances of fraud and increasing the confidence of the stakeholders. Smart contracts also allow additional automation of financial transactions, which ensures that they are regulatory compliant and the administrative burden is reduced.

Digital platforms are also a crucial part of the integration of these technologies, which enables seamless data management and collaboration.

To better demonstrate how modern accounting technologies are integrated within a unified system, the structure of a digital accounting platform is presented in Figure 1.

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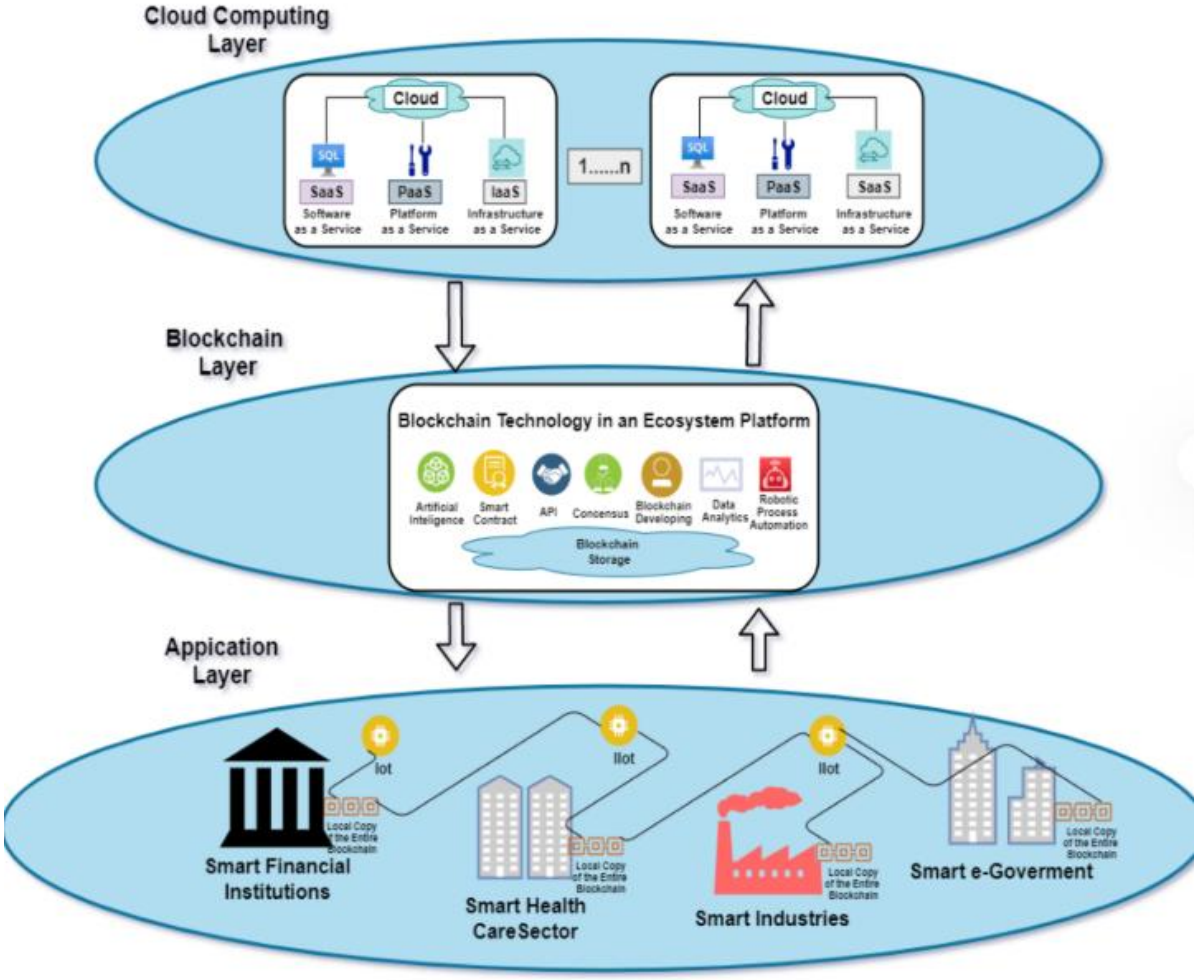


*Figure 1: Structure of Digital Accounting System*

Figure 1 shows the design of a digital accounting system that collects financial information from diverse sources and processes it on a centralised digital platform. Artificial intelligence is employed to process data, analyse, and automate routine tasks, and blockchain technology enables transaction recording that is secure, transparent, and immutable. The system provides financial information online and supports managerial decisions. Hence, Figure 1 shows that combining AI and blockchain in digital platforms produces all-in-one and powerful accounting services that improve data accuracy, transparency, and operational control.

Cloud-based accounting systems also allow access to financial information in real time and enable better decision-making and improved organisational performance (Kanaparthi, 2024).

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*Table 2: Comparison between Traditional and Automated Accounting Systems*

| Aspect | Traditional Accounting | Automated Accounting (AI & Blockchain) |
|---|---|---|
| Data Processing | Manual | Automated |
| Accuracy | Prone to human error | High accuracy |
| Speed | Time-consuming | Real-time processing |
| Transparency | Limited | High (blockchain-based) |
| Cost Efficiency | Higher operational cost | Cost-effective in long term |
| Decision Making | Delayed | Data-driven and faster |

*Source: Ahsina and ELBourassi (2025), Georgiou et al. (2024)*




*Figure 2: Structure of Digital Accounting System*
*Source: Kokina and Davenport (2017), Agustinia and Mustakinib (2024)*

These findings clearly prove that automated accounting systems outscore traditional systems in all the key performance indicators.

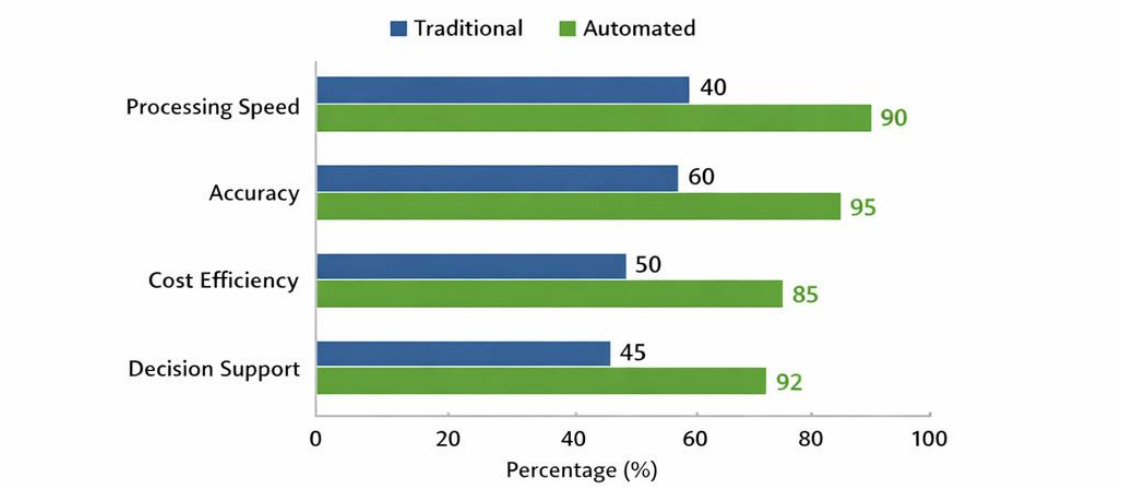


*Figure 3: Impact of Automation on Accounting Efficiency*
*Source: Brynjolfsson and McAfee (2014), Weinberg and Faccia (2024)*

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Figure 3 illustrates the effect of automation technologies on accounting performance and efficiency.

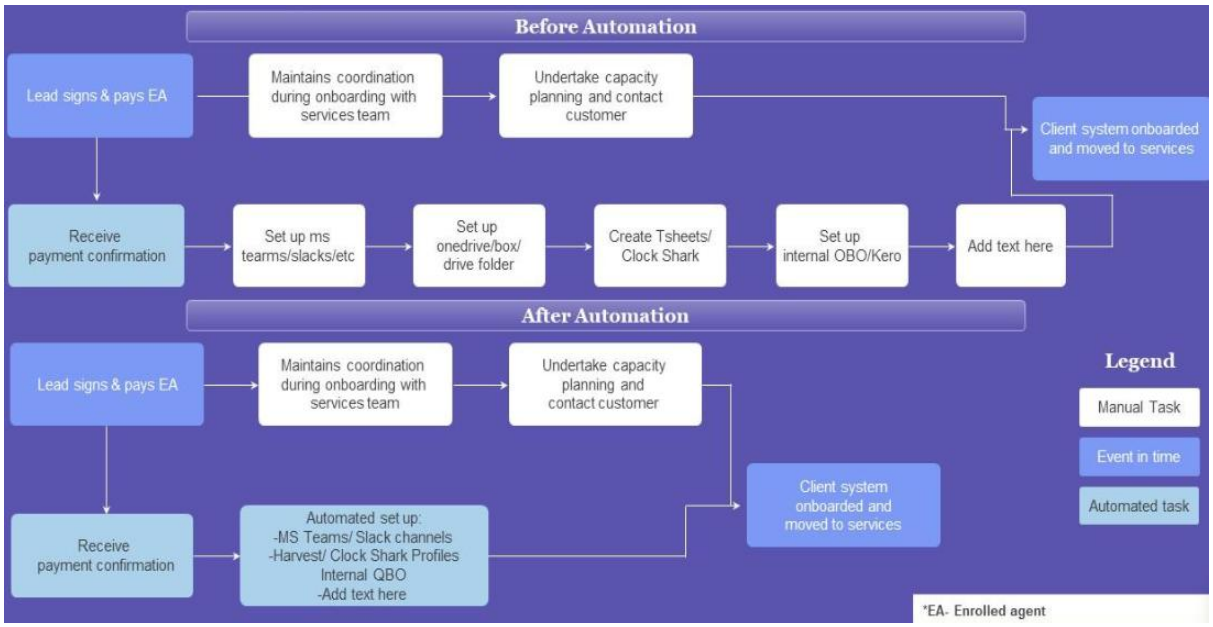


*Figure 4: Impact of Automation on Accounting Efficiency*

Figure 4 demonstrates the gains in accounting performance following the adoption of automation tools. It has been stressed that processing speed is increased, human errors are reduced, and analytical capabilities are elevated. The shift from a manual system to an automated system enables organisations to process financial data as it happens and produce more timely reports. Hence, Figure 3 proves that the efficiency and reliability of accounting processes are dramatically enhanced by automation, which allows faster and more reliable decisions.

The biggest improvement has been in processing speed and accuracy, where the systems are operated in real time with the assistance of AI-driven systems. Similarly, blockchain technology also improves transparency and security, which is essential in both financial reporting and auditing.

However, in the findings, there are also some weaknesses. The cost of initial implementation of AI systems and blockchain systems is comparatively high, and this aspect might be the reason behind the absence of adoption, particularly in small and medium-sized enterprises (Kokina & Davenport, 2017).

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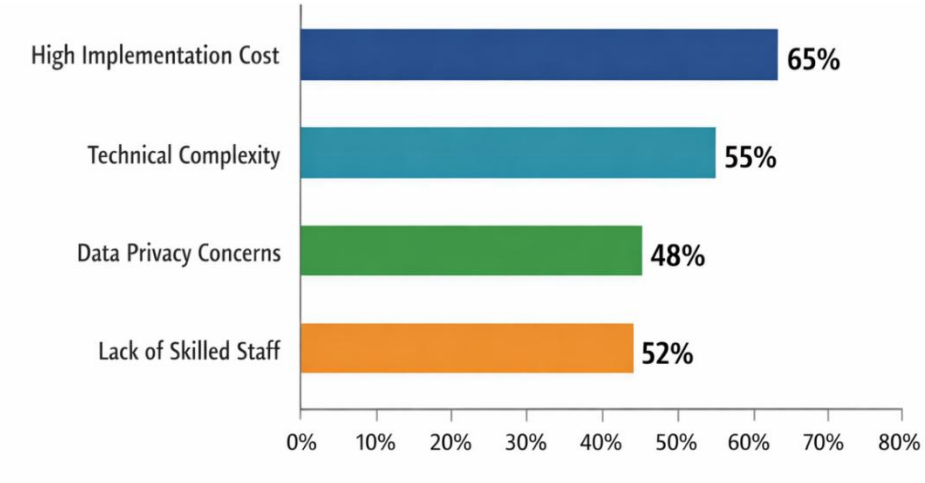


*Figure 5: Challenges of Implementing AI & Blockchain*
*Source: Saeed (2025), Al-Malki (2025*)

Moreover, the technical level of skills and the problem of data security cannot be regarded as less significant problems.

Despite the advantages of digital transformation, Figure 5 presents the key challenges associated with implementing AI and blockchain technologies.

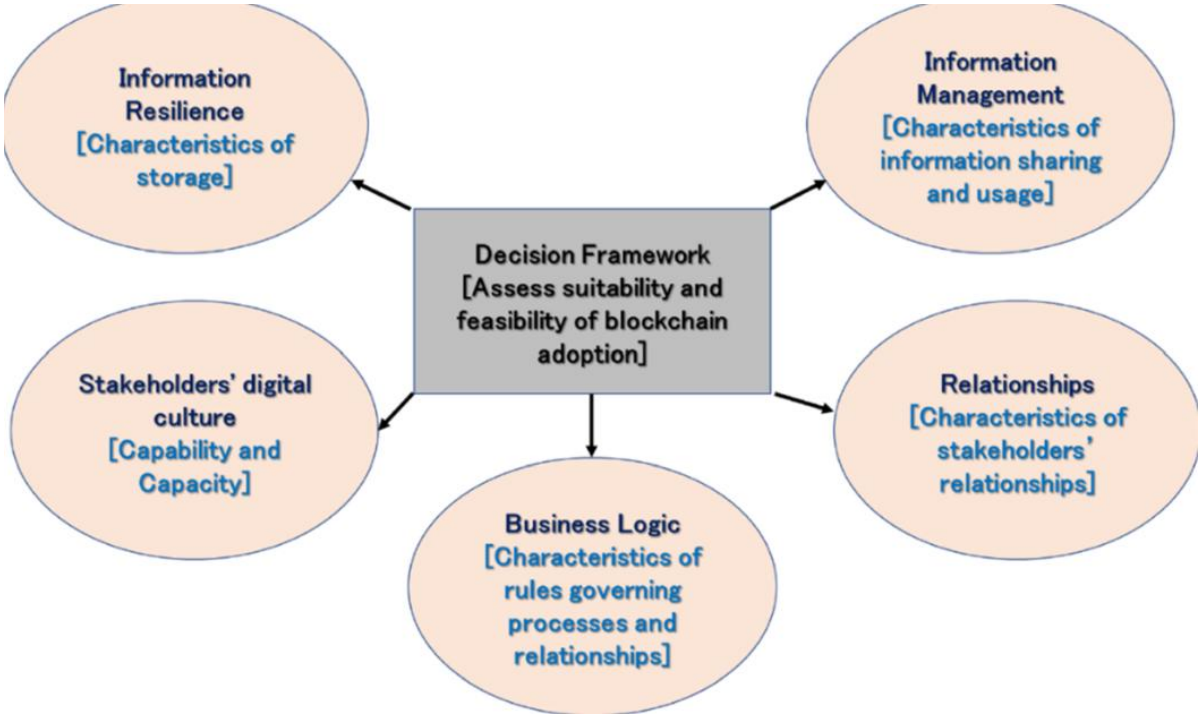


*Figure 6: Challenges of Implementing AI & Blockchain*

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The pioneers and laggards of the adoption curve for advanced accounting technology are shown in Figure 6. It comprises high cost of availability, high technicality, shortage of skilled personnel and data security and privacy-related issues. These challenges may contribute to a slow adoption rate, particularly among small and medium enterprises. Therefore, it can be said that to achieve successful implementation of AI and blockchain in accounting systems, Figure 5 clearly indicates that the technological, financial, and organisational barriers to adoption must be overcome.

Overall, the results demonstrate that there is a positive impact of the application of AI, blockchain, and digital platforms to the efficiency and effectiveness of accounting. When companies invest in such technologies, they are most likely to have a competitive advantage by ensuring good management of money, as well as strategic decisions.

**Discussion**

The results of this paper indicate that integrating artificial intelligence (AI), blockchain technology, and digital platforms significantly improves accounting and management accounting practice. Such aspects as processing speed, accuracy, cost-efficiency, and decision support demonstrate that automated systems are superior to traditional accounting systems. These findings align with other reports indicating that the digitalisation of accounting can improve operational efficiency and support strategic decision-making (Sun et al., 2021; Warren et al., 2019).

Automation created by AI can play a great role in reducing the number of manual processes, which will enable the processing of financial data in real time and provide predictive data. This observation may be supported by studies by Kokina and Davenport (2017), in which the authors report that AI is more accurate in data analysis, allowing accountants to focus on analytical and advisory tasks rather than repetitive work. Similarly, machine learning has been shown to identify anomalies and trends and to support financial reporting and management accounting (Issa et al., 2016). The current paper also confirms that organisations using AI experience fewer human errors and more timely reporting, both of which are important for final decision-making and competitive advantage.

Blockchain technology is a complementary technology because it provides decentralised, immutable, and transparent financial records. The results indicate that blockchain could enhance the validity and security of transactions, preventing the risk of fraud and data distortion. This observation may be explained by earlier research suggesting that blockchain can improve auditability, regulatory compliance, and stakeholder trust (Hsieh et al., 2024; Yermack, 2017). Smart contracts can also automate complex financial contracts, further reducing administrative costs and ensuring adherence to established conditions.

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AI and blockchain integration into digital platforms is becoming a key driver of efficiency and transparency. Cloud-based solutions can integrate with one another and enable real-time data access and cross-departmental collaboration, aligning with findings from Warren et al. (2019) and Bozic et al. (2020). Integrating AI analytics and blockchain verification can help more organisations explore their synergies, providing stronger decision support and more robust operations (Nemati & Moghaddam, 2025).

Despite these positive outcomes, the research also identifies several challenges. Implementation costs, technical complexity, and poor organisational preparedness may hinder adoption, particularly in small and medium-sized businesses. These barriers are comparable to problems described in the literature, such as competency gaps, resistance to change, and cybersecurity risks (Bhimani & Willcocks, 2014). To address these challenges, it is expected to invest in workforce training, change management, and scalable technological solutions (Noviany et al., 2025).

Comparing the results of our study with the conclusions of scientists V. Koval et al. (2023), I. Arsawan et al. (2024), it is appropriate to note the unified position of the authors regarding the close connection between green human resource management, digital innovations and the circular economy. The pace of circular economy implementation increases the need to ensure data immutability, prevent falsification of financial records, reduce resource costs (including time), and reduce human error through intelligent algorithms and smart contracts.

The study also highlights the synergistic effect of AI and blockchain on accounting automation. By analysing digitally integrated platforms, the research indicates that synergies between AI and blockchain create greater efficiency, accuracy, and transparency than either technology alone. This insight contributes to the existing literature by summarising evidence on the practical benefits and limitations of full digital transformation in accounting.

Overall, the discussion shows that digital platforms, along with AI and blockchain, could be more useful than traditional accounting systems. Companies that embrace these technologies can improve efficiency, decision-making, and financial integrity. Future research should use longitudinal studies to determine the long-term impact of automation, identify cost-efficient adoption options, and evaluate the use of AI and blockchain in accounting at the industry-specific level (Zulhelmi et al., 2023).

## CONCLUSION

The paper addressed accounting and management accounting through digital platforms, artificial intelligence (AI), and blockchain technology. The findings show that integrating these advanced technologies into accounting systems will significantly increase efficiency, accuracy, transparency, and decision-making capabilities compared with traditional accounting systems. AI-based automation can reduce human workload, reduce human error, and provide real-time

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data analysis, while blockchain technology can provide secure, immutable, and auditable financial records. Integrating these capabilities into digital platforms will allow organisations to streamline procedures and generate actionable insights, improving financial management and strategic decision-making.

The implications of this study, in reference to the practical aspects, are far-ranged. Organisations that adhere to AI and blockchain-based accounting systems will be able to achieve operational efficiency, reduced chances of fraud, and increased timeliness and reliability of financial reporting. Digital platforms also improve collaboration and accessibility and, because they are cloud-based, make accountants' and management teams' work more data-driven. Smart contracts in blockchain systems can also automate complex financial transactions and support administrative tasks and regulatory compliance.

Despite these benefits, the fact that the implementation of these comes at high costs, is technical, and is vulnerable to data security issues may pose a threat to its popular adoption. Firms are therefore advised to invest in technical expertise, employee training, and change management techniques to optimise the digital transformation.

The main social consequences of the implementation include the transformation of the role of industry specialists, in particular, the transition of accountants from mechanical data entry to strategic business analysis, as well as the need for labour adaptation and retraining of personnel, and their mastery of digital tools. A clear consequence is reduced corruption, because transparent registers increase businesses' responsibility to society and the state.

Longitudinal research on the long-term effects of automation on organisational performance and employees' roles in the accounting field needs further exploration. Moreover, industry-related research may identify specific adoption patterns, as further investigation into scalable, cost-effective solutions will support the broader introduction of AI and blockchain into accounting systems. Overall, this research contributes to the existing body of knowledge by explaining how new technologies are revolutionising accounting practices and offering recommendations for organisations that want to use automation to gain a competitive edge.

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