Eksplorium *p*-ISSN 0854-1418

Volume 46 No. 2, June 2025: 1127–1133 *e*-ISSN 2503-426X

The Connection between Artificial Intelligence and Blockchain on Accounting and Auditing

Seyyede Masoumeh Hashemian[1*], Behnam karamshahi[2], Saeed Shahabinejad[3]

[1]PhD in accounting from Shahid Bahonar University of Kerman,Iran

Orcid: 0000-0003-3161-8404

masoumehashemian1@gmail.com

[2]Professor assistant of accounting department, Baft higher education complex, shahid bahonar university of Kerman, Kerman, Iran.

Orcid: 0000-0003-0759-043x

Email: behnamkaramshahi@uk.ac.ir

[3]Master of Accounting, Islamic Azad University of Kerman.

Orcid: 0009-0001-4246-401x

Shahabisaeed1365@gmail.com

Article Received: 08 May 2025, **Revised**: 17 June 2025, **Accepted**: 28 June 2025

Abstract: With the development of new technologies, blockchain, as one of the most advanced digital tools, has a significant impact on the field of accounting and financial reporting. This technology, with its unique features such as transparency, data security, immutability and transaction traceability, allows for increased accuracy and reliability of companies' financial reports. This research paper focuses on the impact of artificial intelligence and blockchain on the efficiency and effectiveness of various accounting professions and the audit process. Various analyses and studies have shown that artificial intelligence plays an important role in facilitating the proper functioning of companies and that efficient and effective artificial intelligence can significantly improve the audit process through audit automation. Artificial intelligence also plays an important role in accounting, which leads to improved procedures and decision-making processes in various business areas.This paper uses a qualitative method to provide a good overview of the impact of AI on the audit field and the accounting process. It also addresses research gaps in the area of shortcomings that have not been highlighted by other researchers and provides directions for future studies on the limitations of AI in the audit process and the accounting profession.

Keywords: Artificial Intelligence, Blockchain, Accounting, Audit

Introduction

In recent decades, new technologies such as artificial intelligence (AI) and blockchain have brought about extensive developments in various fields, especially in accounting processes. By increasing the speed, accuracy, and transparency of financial data processing, these technologies have played a significant role in improving the quality of reporting, reducing human errors, and increasing information security. Using machine learning algorithms, artificial intelligence is able to automatically perform analytical tasks, predict financial trends, and even perform intelligent audits. On the other hand, blockchain technology, with its decentralized and immutable structure, has enabled the creation of transparent, secure, and intermediary-free ledgers, thus reducing the traditional role of financial intermediaries (Soheila Ghanbari, 2024).In recent decades, the advancement of modern information and communication technologies has had a wide impact on accounting and financial reporting practices. One of the most innovative technologies in this field is blockchain technology, which has attracted

widespread attention from researchers, financial managers, and accountants due to its unique features, such as decentralization, data immutability, transparency, and high security. As a distributed ledger, blockchain enables the recording and storage of transactions in a way that makes it virtually impossible to manipulate or delete information. This feature plays an important role in increasing the transparency of accounting processes and preventing financial errors or fraud. On the other hand, the security of financial information has always been one of the main concerns of organizations.The use of advanced cryptographic algorithms in blockchain prevents unauthorized access and illegal changes, thus increasing the level of public trust in financial reporting (Mehdi Maleki, 2025). Artificial intelligence plays an important role in implementing audit methods, as well as facilitating sound decision-making by accountants and maximizing the use of technology through the ability to think fundamentally, as well as access to more relevant and reliable financial information. Artificial intelligence can be defined as a combination of equipment and software as an alternative to human intelligence in order to deal with various complex problems using similar diagnosis and reasoning to human experts. Artificial intelligence uses an expert system and machine intelligence instead of human intelligence.Artificial intelligence, through the integration of emerging technologies such as blockchain and big data, has led to widespread changes in the accounting sector in facilitating the reduction of distortions and errors in accounting information as well as enhancing auditing by providing large-scale automated auditing in a desirable manner that has led various large accounting firms to integrate AI in the efficient and effective execution of their auditing and accounting processes (Zhang, Yingying and Xiong, Feng and Zi, Yi and Fan, Xuan and Gu, Haifeng. (2020)). This technology has played a significant role in facilitating the improvement of available financial information, which leads to efficient and sound decision-making by accountants (Ben Ghanem, H. and Aref, A.M. (2016).With the use of artificial intelligence, the scope and focus of the auditor has expanded beyond the information contained in the financial statements, and the use of emerging technologies provides better tools for financial reporting for accountants and for auditing financial statements by auditors.

Artificial intelligence, through the process of deep learning, leads to the automation of tasks and provides a tool for checking the accuracy of financial reports by the machine, which helps to review all accounts and the supporting evidence for each account, and therefore allows for error detection, which leads to the publication of more reliable financial statements.

Research Background

Ziba Abdollahi and Saeeda Ghaffari conducted a study in 2025 AH entitled Application of Digital Technologies for Process Automation in Leasing Companies. The aim of this research is to develop an innovative algorithm for using digital technologies to automate processes in leasing companies. The article examines the contradictions between traditional ways of doing business and the opportunities offered by modern digital technologies. First, the impact of digitalization on the leasing industry is described, and then it relies on an integrated approach to implementing innovative solutions with special attention to key aspects of using digital technologies in leasing companies from the perspective of organizing employee performance and their development according to the prism of process automation, routine, strengthening digital skills, flexibility to change, increasing motivation and participation.Based on the research conducted, it can be concluded that there is a need for a comprehensive digital ecosystem in leasing companies that emphasizes the use of blockchain, artificial intelligence, Internet of Things and virtual reality technologies. The proposed algorithm aims to increase flexibility, customer focus and efficiency of the leasing business. The specific examples analyzed in the article demonstrate the diversity of process automation approaches in leasing organizations. They confirm the effectiveness and positive effects of implementing digital advances to increase operational efficiency and improve customer experience. This research will be useful for managers and specialists of leasing companies, developers of FinTech solutions, as well as researchers in the field of digital transformation of the financial sector (Ziba Abdollahi and Saeeda Ghaffari, 2025).Iman Sagbhat conducted a study in 2025 AH entitled Comparative Study of the Impact of Digital Currencies on Banking Models and Monetary Policies with a Qualitative Approach. This study selected and analyzed reputable international scientific sources and specialized articles with the aim of analyzing how different banking systems deal with digital currencies and their consequences on monetary control mechanisms. The findings show that digital currencies, especially in the form of decentralized structures, can lead to a reduction in the role of

central banks in monetary policymaking and weaken traditional financial supervision. At the same time, some countries are trying to prevent its negative effects on economic stability by using solutions such as launching a national cryptocurrency or smart regulation, while using the technological capabilities of this field.The results of this study can be useful for economic policymakers, financial institutions and researchers in the field of modern banking in designing adaptive models for the digital economy (Iman Sabbat, 2025).

In 2025, Hojjatollah Bahmani conducted a study entitled "Investigating the Role of Blockchain Technology in Preventing Money Laundering in Cyberspace." The purpose of this study is to investigate the role of blockchain technology in preventing money laundering in cyberspace. This study was completed using a descriptive-analytical method based on external Internet and library resources.Based on the studies conducted and the results obtained, blockchain technology plays a significant role in preventing money laundering in cyberspace through accurate documentation of each transaction, the possibility of complete traceability of the origin, funds, real-time alerts for suspicious activities, analysis of transaction patterns, calculation of risk scores for transactions, continuous updating of risk assessments, cross-checking capabilities for unauthorized changes, ensuring data integrity and immutability, maintaining consistent regulatory standards, and using decentralized authentication systems (Hojjatollah Bahmani, 2025). In 2024, Habibollah Sabki Zhand conducted a study entitled The Impact of Blockchain Technology on the Transparency and Accuracy of Companies' Financial Reports. The purpose of this study is to examine the effect of blockchain on the transparency and accuracy of financial information and how to improve the trust of shareholders, managers, and regulatory institutions.The research method was applied and used field data analysis from leading companies in blockchain implementation. The findings show that the use of blockchain reduces financial reporting errors, prevents fraud and data manipulation, and increases the speed of access to financial information for management decisions. Also, the transparency achieved by this technology leads to increased trust among investors and shareholders and provides auditors and regulatory bodies with the ability to closely examine financial flows. The results of this research can be a practical guide for companies and financial institutions to improve the quality of financial reporting and improve accounting standards (Habibollah Sabki Zhand, 2024).Neda Heydarizadeh in 2024 published a study entitled Investigating the Role of Emerging Technologies (Blockchain, Artificial Intelligence, Big Data) in Improving the Security of Financial Information in Digital Payment Supply Chains. This research is of an applied-developmental type and was conducted with a mixed approach. In the first stage, a systematic literature review and content analysis of domestic and foreign research was conducted. In the second stage, field data was collected through questionnaires and interviews with experts in the fields of information technology and finance and analyzed using the structural equation modeling method. The findings showed that blockchain has the greatest impact on the integrity and transparency of financial data, artificial intelligence plays a key role in confidentiality and threat detection, and big data has been able to improve the accessibility and prediction of financial risks.Also, the analyses showed that the combination of these three technologies leads to synergy and the creation of a comprehensive framework to cover all aspects of financial information security. Based on the results, it is recommended that financial organizations and organizations active in the digital supply chain invest in technological infrastructure, especially in the combination of these three technologies, to create a comprehensive framework for protecting financial data. In addition to developing the scientific literature, the research findings will also have practical applications for managers, policymakers, and technology developers (Neda Heydarizadeh, 2024).

Literature Review Methods

This research paper mainly focuses on an integrated review with the aim of analyzing the impact of AI on the auditing process and accounting decision-making. Qualitative research uses primary and secondary data sources of information for the literature review and is well integrated to provide all the information required for this research work.

Research Parameters

The authors have defined the research parameter as the data that can be collected from the target population, whereby the data collection is based on AI and this type of data is attributed to various audit reports and annual accounting financial statements of various businesses and companies.Search terms and phrases used in the article

•Artificial Intelligence

•Blockchain

•Audit Process

•Accounting Profession

Databases and Search Engines Used in the Article

•Indian Institute of Management Database (Library Assistance)

• Google Scholar

•ResearchGate

Literature Review

Artificial intelligence has played a vital role in improving the performance of auditing and accounting and has the potential to expand the capabilities of the accounting process in a significant way. (McGuigan, N. and Gio, A. 2019). Knowing how to use various accounting programs and software can lead to significant improvements in various operations including auditing and even accounting decision-making. The management accounting decision-making process can be enhanced by using artificial neural networks such as soft computing and artificial neural networks. (Mirzaei, Mehdi and Jamshidi, Mohammad and Hojatpour, Yousef.(2017) This literature review provides a critical, comparative, and contrasting review of the literature regarding artificial intelligence (AI) and the audit process as well as accounting decision making.

The role of artificial intelligence in predicting financial distress in audit processes

Artificial intelligence plays an important role in predicting financial distress that may occur in the audit process. The audit process is described as a tool to identify any distortions in the financial statements of companies, and artificial intelligence is described as the integration of emerging technologies to improve the efficiency and effectiveness of business operations. Hansen, J.V. (1992) argues that machine learning models have a significant impact in modeling various predictions and decisions in the audit process, through which financial distress that may occur in financial statements can be reduced.In contrast, Chang, S. and Huang (2020) authors have emphasized that financial distress can be overcome in the audit process by using big data techniques, which include binary model and life test methods such as the 54-factor financial index and corporate governance models to predict financial distress in the company, and the results show that the variables selected in the prediction process performed well. (Chang, S. and Huang, 2020).

The Impact of Artificial Intelligence on Audit Evidence and Ethical Decision Making

Audit evidence is an important key information that auditors look for when auditing a company's financial statements and provides assurance to auditors that the information is fairly presented in the financial statements. Ivey, M., Brown-Labord, H. and Miklos (2020) documented the importance of developing effective and practical governance over the methodology of using AI in such a way that ethical decision-making can be achieved, therefore, by establishing appropriate audit cases, it is evident that auditing is capable of making ethical judgments and decisions about financial statements. (Ivey, M., Brown-Labord, H. and Miklos, 2020) Conversely, Al-Sayed, Saleh and Al-Aroud, Shaher (2021) and Zayed, Lena, and Thamatokari, (2021) supported the impact of AI on audit evidence and decision-making in cases stating that there is a need to develop skills and knowledge with appropriate actions by auditors so that ethical decision-making can be assessed in obtaining audit evidence. While

Sanchez Medina, E., J., Blazquez-Santana, Alonso (2019) criticized the ethical aspects and raised the conditions that auditors, after obtaining audit evidence of financial statements, do not act ethically in providing an opinion and, in order to prevent the bankruptcy of the audited companies, provide an opinion different from that presented in the statements, so they finally suggested that various tools should be used to track the auditor's behavior in the context of the opinions provided and detect any dishonesty.

Artificial Intelligence and Internal Audit Control System

The internal audit control system can be referred to as the process of providing internal assurance about the operational, financial and compliance efficiency and effectiveness of a company.The use of neural networks has led to better assessment of audit risk through the integration of artificial intelligence and can even lead to less time to complete the audit process and improve the opinions and suggestions provided by auditors to the company. Friedlob, J.T. and Lydia. Shleifer (1999) suggested that internal auditors should be concerned with the development of fuzzy logic to track uncertainties in daily operations. Shim, J.K. and Rice, (1988) emphasized that artificial intelligence, especially expert systems, play an important role in preparing internal and external financial reports effectively and efficiently, which leads to better performance in audit planning and internal control performance.

Artificial Intelligence and Accounting Systems

Accounting systems can be described as a mechanism for tracking multiple transactions made in a particular company over a given period to maintain the company's transaction data. Wang Pinuwattana, N., Ferguson, C. and Bowen (2000) developed a framework of task technology along with a model to establish the relationship between tax and AI on users, which provided evidence of the positive impact of accounting systems on auditors in solving problems and ensuring a fair and just opinion on audited financial statements. In support of the developed framework on the positive impact of AI on the audit process, Termidi, M.B., Razlan, A.H.A., Rosselli, M.A.M., Rooney, R.A. and Alizan, (2018) and Syed Maudodulhaq (2014) confirm that accounting systems along with AI and machine learning lead to significant results in the accounting process as it uses AI-based accounting system (ALIAS) in improving the accounting and auditing process to maintain better financial records.It is predicted that accounting systems will soon replace human labor, shifting the dependency from humans to machines through the implementation of robotic process automation, which will lead to increased effectiveness and efficiency of the audit and transaction process, thereby ensuring automation of internal audit control and financial reporting. A critique was made by Sutton, Steve and Holt, Matthew and Arnold, Vicky (2016) in which they emphasized the issues created by the implementation of accounting systems and artificial intelligence in accounting practices and its potential to disrupt the accounting profession in the long run, as humans are replaced by machines and robots. (Sutton, Steve and Holt, Matthew and Arnold, Vicky. (2016).

Research Gaps

Previous research has focused on demonstrating the impact of artificial intelligence on the audit process and accounting decision-making.However, research papers by Taramidi, M.B., Razlan, A.H.A., Rosselli, M.A.M., Rooney, R.A. & Alizan, N.K.S (2018) and Syed Maududul Haq (2014) only focused on the positive aspects of AI-integrated accounting systems in accounting and auditing practices but did not mention the threats that these accounting systems pose, which is one of the major gaps that needs to be addressed and researched. Furthermore, Hansen, J.V., McDonald, J.B. & Stace, J.D. (1992) did not address the shortcomings that accounting firms will face if there is an error in forecasting financial statements, which is a major area that needs critical research so that no harm or loss occurs to businesses and companies. Considerable research is needed to address these gaps in the future to examine the threats to accounting systems and forecasting financial information.

Research Questions

• What are the shortcomings related to AI and audit processes?

• To what extent does the implementation of AI affect the role of auditors?

Sub-Questions

• What are the disadvantages of using AI in assessing audits?

• What are the major shortcomings of AI in the context of internal audit control?

• To what extent does AI affect accounting decision-making?

• What opportunities can accounting systems offer accountants in their profession?

Research Objective

This research aims to understand and examine the shortcomings and shortcomings related to the application of AI in auditing and accounting decision-making processes.Conclusion

This research examined the impact of AI on auditing and decision-making process and proved that AI has a positive impact on auditing and accounting decision-making processes such as implementing accounting systems and using AI to improve the efficiency and effectiveness of company operations. AI facilitates the automation of various accounting tasks and operations, which leads to timely and reliable decision-making, thus eliminating the possibility of human errors. Most developed and developing countries are ready to adopt AI in their companies to enhance their performance and even during the recruitment process, more preference is given to individuals who have IT skills so that they can easily adapt to the use of AI while performing auditing and accounting tasks.Artificial intelligence is essential in the auditing and accounting decision-making process because it leads to better performance and increased business and company potential.

Sources:

[1] Abdollahhi, Ziba and Ghaffari, Saeede, 2025, The Application of Digital Technologies to Automate Processes in Leasing Companies, The 12th International Conference on Management, Accounting, Banking and Economics of Iran, Mashhad, https: / / civilica.com / doc / 2359451

[2] Adhikari, P., & Jnr, F. B. (2025). Evolving trends in accounting, auditing, and tax practices among US firms: The impact of AI and technological advancements.

[3] Ali, S. M., Hasan, Z. J., Hamdan, A., & Al-Mekhlaf, M. (2022, March). Artificial intelligence (AI) in the education of accounting and auditing profession. In *International Conference on Business and Technology* (pp. 656-664). Cham: Springer International Publishing.

[4] Almufadda, G., & Almezeini, N. A. (2022). Artificial intelligence applications in the auditing profession: a literature review. *Journal of Emerging Technologies in Accounting*, *19*(2), 29-42.

[5] Bahmani, Hojjatollah, 2025, Investigating the role of blockchain technology in preventing money laundering in cyberspace, First International Conference on Scientific Studies in Humanities, Management and Law, https: / / civilica.com / doc / 2355525

[6] Ghanbari, Soheila, 2025, The Impact of New Technologies such as Artificial Intelligence or Blockchain on Accounting Processes, Seventh National Conference on Professional Research in Psychology and Counseling with a Teacher's Perspective, Minab, https: / / civilica.com / doc / 2364424

[7] Gökoğlan, K., Sevim, H., & Kılıç, S. (2025). Digital Transformation and Artificial Intelligence-Assisted Auditing: The Role of Technology in Internal Audit Processes in 2025. *Dynamics in Social Sciences and Humanities*, *6*(1), 25-33.

[8] Han, H., Shiwakoti, R. K., Jarvis, R., Mordi, C., & Botchie, D. (2023). Accounting and auditing with blockchain technology and artificial Intelligence: A literature review. *International Journal of Accounting Information Systems*, *48*, 100598.

[9] Hasan, A. R. (2021). Artificial Intelligence (AI) in accounting & auditing: A Literature review. *Open Journal of Business and Management*, *10*(1), 440-465.

[10] Heidarizadeh, Neda, 1403, Investigating the role of emerging technologies (blockchain, artificial intelligence, big data) in improving the security of financial information in digital supply chains, 4th International Conference on Computer Engineering, Electrical Engineering and Technology, Hamadan, https: / / civilica.com / doc / 2355236

[11] Malaki, Mehdi, 2024, Evaluating the effect of blockchain on transparency and security of accounting information, https: / / civilica.com / doc / 2368442

[12] Munoko, I., Brown-Liburd, H. L., & Vasarhelyi, M. (2020). The ethical implications of using artificial intelligence in auditing. *Journal of business ethics*, *167*(2), 209-234.

[13] Sabki Zhend, Habibullah, 2024, The impact of blockchain technology on the transparency and accuracy of companies' financial reports, The First International Conference of Talent and Culture-Building Teachers in the Development of Technical and Vocational Education and Work-related Knowledge on the Path to Sustainable Development, https: / / civilica.com / doc / 2359257

[14] Sabqat, Iman, 2025, A Comparative Study of the Impact of Digital Currencies on Banking Models and Monetary Policies with a Qualitative Approach, The First International Conference on Scientific Studies in Humanities, Management and Law, https: / / civilica.com / doc / 2355508

[15] Supriadi, I. (2024). The audit revolution: Integrating artificial intelligence in detecting accounting fraud. *Akuntansi dan Teknologi Informasi*, *17*(1), 48-61.

[16] Zemankova, A. (2019, December). Artificial intelligence in audit and accounting: Development, current trends, opportunities and threats-literature review. In *2019 International Conference on Control, Artificial Intelligence, Robotics & Optimization (ICCAIRO)* (pp. 148-154). IEEE.