

THE ROLE OF ARTIFICIAL INTELLIGENCE IN ADVANCING SUSTAINABLE ACCOUNTING AND CORPORATE TRANSPARENCY

Yustin Nur Faizah

Politeknik NSC Surabaya

faizah.yustin@gmail.com

ABSTRACT

Artificial Intelligence (AI) has increasingly transformed accounting and corporate sustainability reporting in the digital economy. This study examines the role of AI in modern accounting, sustainable accounting, and corporate transparency. Using a literature-based approach, the study finds that AI enhances accounting efficiency, accuracy, and decision-making through automation, big data analytics, machine learning, predictive analytics, and continuous auditing. AI also supports sustainable accounting by improving ESG data processing, environmental monitoring, and sustainability reporting. Furthermore, AI strengthens corporate transparency through real-time reporting, fraud detection, internal control, and regulatory compliance. However, its implementation faces challenges related to algorithmic bias, data privacy, cybersecurity, ethical issues, and greenwashing. Therefore, effective AI governance and regulatory oversight are essential to maximize its contribution to transparent, accountable, and sustainable accounting practices.

Keyword : Artificial Intelligence; Accounting; Sustainable Accounting; Corporate Transparency; ESG.

INTRODUCTION

The development of digital technology in the modern economic era has transformed accounting and corporate sustainability reporting practices. Among the fastest-growing technologies is Artificial Intelligence (AI). The technology has recently been identified as an important tool for improving efficiency, precision, and the quality of decision-making in firms (Li et al., 2023; Khalifa & Albada, 2024). AI is extensively used in accounting to automate financial recording, analyze financial data, detect financial fraud, support continuous audit operations, and enable real-time sustainability reporting (Bose et al., 2023; Qatawneh, 2025). This shows that the digital economy necessitates businesses to be more transparent, accountable, and sustainable in their operations.

Sustainable accounting is now gaining relevance, and thus organizations have been encouraged to incorporate economic, social, and environmental factors in their corporate reporting frameworks (Sisaye, 2021). Sustainable accounting helps firms measure their environmental impact and enhance accountability to stakeholders. In addition, digital technology, including Artificial Intelligence, big data, and blockchain, can make sustainability reporting more effective due to their capabilities in faster data processing (Lodhia et al., 2025).

AI also enables firms to enhance financial transparency and corporate governance. In addition, AI is capable of analyzing information in real-time, improving monitoring efficiency, reducing errors made by humans, and helping to ensure compliance with ESG disclosures (Shaban & Omoush, 2025; N. Rane et al., 2023). Nevertheless, despite having

many benefits, the application of AI also entails numerous difficulties, such as algorithmic biases, cybersecurity threats, data privacy concerns, and growing greenwashing in sustainability disclosures (De Villiers et al., 2024).

These aspects have been taken into consideration for discussing how Artificial Intelligence can be used to enhance sustainable accounting and corporate transparency in the digital economy era. Furthermore, this essay evaluates the potential opportunities and challenges of applying Artificial Intelligence in the corporate reporting system.

DISCUSSION

1. ARTIFICIAL INTELLIGENCE IN MODERN ACCOUNTING

The use of Artificial Intelligence has revolutionized modern accounting procedures, shifting from the traditional manual approach to a more advanced, accurate digital one. Technologies like automation, big data analytics, machine learning, predictive analytics, blockchain integration, and audit technology enable businesses to manage their financial information efficiently, thereby facilitating decision-making in real time (Yi et al., 2023).

AI's key use in accounting involves automation. The use of automation technology enables repetitive tasks such as data entry, invoicing, bank reconciliation, and accounts payable management to be performed with minimal human involvement. Such technology makes operations more efficient, speeds up the reporting process, and

minimizes human errors (Banța et al. 2022;Kommunuri, 2022).

Additionally, the application of big data analytics makes it possible for firms to analyze large amounts of financial data and detect any trends, patterns, and anomalies (Bose et al.,2023). Also, machine learning can help in fraud detection, risk assessment, and financial analysis by making use of prediction algorithms (Udeh et al., 2024). Finally, predictive analytics is used in forecasting financial situations and business risks (Beryl Odonkor et al.,2024).

The use of blockchain technology has also increased transparency and security in accounting information systems because it makes it possible for financial data to be stored in a decentralized and tamper-proof system (Johri.,2025). As far as auditing practices are concerned, the use of AI increases the quality of the audit process through continuous auditing (Kuaiber et al.,2024).

In general, the utilization of Artificial Intelligence plays an important role in enhancing efficiency, transparency, and accountability in modern accounting systems. Thus, Artificial Intelligence becomes a necessary technology for building sustainable accounting systems.

2. ARTIFICIAL INTELLIGENCE AND SUSTAINABLE ACCOUNTING

Artificial Intelligence plays an important role in strengthening sustainable accounting practices by improving the quality of Environmental, Social, and Governance (ESG) reporting. AI enables organizations to collect, process, and analyze sustainability-related data more efficiently and accurately (De Silva et al., 2025).

AI uses real-time monitoring systems that allow organizations to measure carbon footprints, energy consumption, waste management, and environmental risks. Predictive analytics used by AI may help organizations to adopt proactive approaches to ensure sustainable performance in the future (Khan & Gupta., 2025).

Furthermore, sustainability reporting enabled by AI improves accountability and builds trust among stakeholders by enabling firms to disclose their environmental performance more reliably. Hence, AI not only contributes to efficiency but also helps meet sustainable development objectives.

3. ARTIFICIAL INTELLIGENCE AND CORPORATE TRANSPARENCY

Transparency has been considered increasingly crucial in the modern economy due to the rising need for real-time and accurate data regarding corporate performance. With the help of artificial intelligence, organizations can enhance their transparency by incorporating automated

monitoring systems, real-time reporting, and fraud detection tools (Shiyyab et al., 2023).

AI can assist companies to detect unusual transactions, enhance their internal control systems, and comply with financial reporting standards. Moreover, the use of AI in financial analysis generates more meaningful and accurate information for investors, regulators, and the community at large (N. Rane et al., 2023).

Nevertheless, the use of AI technology also raises certain ethical issues relating to privacy, cyber security, algorithmic bias, and even green washing in sustainability reporting (Bonsón et al., 2021;Free et al., 2025). Hence it is necessary for organizations to ensure that there is ethical governance of AI implementation and proper regulatory supervision.

CLOSING

AI has revolutionized the way accounting is done nowadays by making it efficient, accurate, transparent, and sustainable. The combination of different technologies like automation, big data analytics, blockchain, and audit technology helps corporations process information better than before in the digital economy era. AI can not only help in providing financial reports and detecting any fraudulent activity, but it also helps in sustainable accounting through ESG reporting, environmental monitoring, and corporate governance.

In addition to this, AI is very crucial in improving the transparency and accountability of firms towards their stakeholders. This can be achieved by analyzing data faster and in a more accurate manner, which will help firms in providing better information to investors and regulatory authorities as well as society. Nevertheless, even though AI has great benefits, there are many challenges associated with it. All in all, Artificial Intelligence has evolved into a strategic tool for speeding up the change process towards adopting accounting systems that are more transparent, accountable, and sustainable in the digital economy age.

Organizations should strengthen the integration of artificial intelligence within accounting and sustainability reporting to improve efficiency and accountability. Regulators are expected to implement clear policies and an oversight framework for the use of AI in financial and sustainability disclosures. At the same time, educational institutions should equip future accountants with stronger digital skills and knowledge of an AI-driven accounting system. Future researchers are encouraged to explore the long-term impact of AI on sustainable accounting

practices, corporate governance, and stakeholder trust in various industrial sectors.

REFERENCES

- Banța, V. C., Rîndașu, S. M., Tănăsie, A., & Cojocaru, D. (2022). Artificial Intelligence in the Accounting of International Businesses: A Perception-Based Approach. *Sustainability (Switzerland)*, 14(11), 1–12. <https://doi.org/10.3390/su14116632>
- Beryl Odonkor, Simon Kaggwa, Prisca Ugomma Uwaoma, Azeez Olanipekun Hassan, & Oluwatoyin Ajoke Farayola. (2024). The impact of AI on accounting practices: A review: Exploring how artificial intelligence is transforming traditional accounting methods and financial reporting. *World Journal of Advanced Research and Reviews*, 21(1), 172–188. <https://doi.org/10.30574/wjarr.2024.21.1.2721>
- Bonsón, E., Lavorato, D., Lamboglia, R., & Mancini, D. (2021). Artificial intelligence activities and ethical approaches in leading listed companies in the European Union. *International Journal of Accounting Information Systems*, 43(September). <https://doi.org/10.1016/j.accinf.2021.100535>
- Bose, S., Kumar Dey, S., & Bhattacharjee, S. (2023). Big data, data analytics and artificial intelligence in accounting: an overview. In *Handbook of Big Data Research Methods* (pp. 32–51). Edward Elgar Publishing. <https://doi.org/10.4337/9781800888555.00007>
- De Silva, P., Gunarathne, N., & Kumar, S. (2025). Exploring the impact of digital knowledge, integration and performance on sustainable accounting, reporting and assurance. *Meditari Accountancy Research*, 33(2), 497–552. <https://doi.org/10.1108/MEDAR-02-2024-2383>
- de Villiers, C., Dimes, R., & Molinari, M. (2024). How will AI text generation and processing impact sustainability reporting? Critical analysis, a conceptual framework and avenues for future research. *Sustainability Accounting, Management and Policy Journal*, 15(1), 96–118. <https://doi.org/10.1108/SAMPJ-02-2023-0097>
- Johri, A. (2025). Impact of artificial intelligence on the performance and quality of accounting information systems and accuracy of financial data reporting. *Accounting Forum*, 49(5), 1096–1120. <https://doi.org/10.1080/01559982.2025.2451004>
- Khalifa, M., & Albadawy, M. (2024). AI in diagnostic imaging: Revolutionising accuracy and efficiency. *Computer Methods and Programs in Biomedicine Update*, 5, 100146. <https://doi.org/10.1016/j.cmpbup.2024.100146>
- Khan, S., & Gupta, S. (2025). Boosting the efficacy of green accounting for better firm performance: artificial intelligence and accounting quality as moderators. *Meditari Accountancy Research*, 33(2), 472–496. <https://doi.org/10.1108/MEDAR-02-2024-2379>
- Kuaiber, M. Q., Ali, Z. N., Al-Yasiri, A. J., Kareem, A. J., Ali, M. A., & Almagtome, A. (2024). Automation and the Future of Accounting: A Study of AI Integration in Financial Reporting. *2024 International Conference on Knowledge Engineering and Communication Systems, ICKECS 2024*, 1, 1–6. <https://doi.org/10.1109/ICKECS61492.2024.10616967>
- Li, C., Xu, Y., Zheng, H., Wang, Z., Han, H., & Zeng, L. (2023). Artificial intelligence, resource reallocation, and corporate innovation efficiency: Evidence from China's listed companies. *Resources Policy*, 81, 103324. <https://doi.org/10.1016/j.resourpol.2023.103324>
- Lodhia, S., Farooq, M. B., Sharma, U., & Zaman, R. (2025). Digital technologies and sustainability accounting, reporting and assurance: framework and research opportunities. *Meditari Accountancy Research*, 33(2), 417–441. <https://doi.org/10.1108/MEDAR-01-2025-2796>
- Qatawneh, A. M. (2025). The role of artificial intelligence in auditing and fraud detection in accounting information systems: moderating role of natural language processing. *International Journal of Organizational Analysis*, 33(6), 1391–1409. <https://doi.org/10.1108/IJOA-03-2024-4389>
- Rane, N., Choudhary, S., & Rane, J. (2023a). Blockchain and Artificial Intelligence (AI) integration for revolutionizing security and transparency in finance. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.4644253>
- Rane, N., Choudhary, S., & Rane, J. (2023b). Explainable Artificial Intelligence (XAI) Approaches for Transparency and Accountability in Financial Decision-Making. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.4640316>
- Shaban, O. S., & Omoush, A. (2025). AI-Driven Financial Transparency and Corporate Governance: Enhancing Accounting Practices with Evidence from Jordan. *Sustainability*, 17(9), 3818. <https://doi.org/10.3390/su17093818>

- Shiyyab, F. S., Alzoubi, A. B., Obidat, Q. M., & Alshurafat, H. (2023). The Impact of Artificial Intelligence Disclosure on Financial Performance. *International Journal of Financial Studies*, 11(3), 115. <https://doi.org/10.3390/ijfs11030115>
- Sisaye, S. (2021). The influence of non-governmental organizations (NGOs) on the development of voluntary sustainability accounting reporting rules. *Journal of Business and Socio-Economic Development*, 1(1), 5–23. <https://doi.org/10.1108/JBSED-02-2021-0017>
- Udeh, E. O., Amajuoyi, P., Adeusi, K. B., & Scott, A. O. (2024). *The role of big data in detecting and preventing financial fraud in digital transactions*.
- Yi, Z., Cao, X., Chen, Z., & Li, S. (2023). Artificial Intelligence in Accounting and Finance: Challenges and Opportunities. *IEEE Access*, 11(November), 129100–129123. <https://doi.org/10.1109/ACCESS.2023.333338>