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IMPLEMENTATION OF ARTIFICIAL INTELLIGENCE (AI) IN FINANCIAL DATA PROCESSING AND ITS IMPACT ON COMPANY OPERATIONAL EFFICIENCY

Marshanda Propheta[1]

[1]Master of Accounting, University of Jember, Indonesia

Corresponding author: nandaamrin25@gmail.com

Abstract

This article reviews the application of artificial intelligence (AI) in financial data management and its impact on the operational efficiency of companies. In the midst of the advancement of the digital era, information and communication technology has transformed the way companies work with AI as the main catalyst for this transformation. The use of AI in accounting accelerates and refines the financial recording process, enabling faster and more accurate data-based decision making. The results of the study show that the use of AI technology including cloud accounting systems and big data analytics significantly increases the transparency and efficiency of financial reporting. In addition, AI also supports risk analysis and the discovery of new market opportunities, thus providing a positive contribution to the company's financial performance. Thus, AI-based accounting digitalization not only drives operational efficiency but also strengthens the company's competitive position in the increasingly fierce global market..

Keywords: Artificial Intelligence, Operational Efficiency, Financial Data Management, Accounting Digitalization, Accounting System

Introduction

Various industrial sectors have felt the significant impact of advances in information and communication technology. Among these innovations, artificial intelligence (AI) is one of the technologies that is growing rapidly and has a major impact. This technology plays a role as a major driver in digital transformation, helping companies improve operational efficiency, reduce costs and provide more optimal customer service. Over time, advances in information technology have become increasingly rapid and have brought significant transformation to the public sector. In the modern era, almost all activities cannot be separated from the role of technology so that all industries have experienced changes in their internal processes. All business actors are required to adapt to digital innovation.

In today's digital industry era, technological developments are taking place very rapidly and bringing profound changes to various aspects of daily life. Most modern innovations rely on a digital basis and internet access that functions as a central hub in the communication system. Almost all of us have known and used the internet as the main medium for communication and as a source of information (Manurung et al., 2023).

The application of artificial intelligence (AI) in companies makes a major contribution to improving operational efficiency through various approaches. For example, AI (*Artificial Intelligence*) enables supply chain optimization by predicting demand, managing inventory and creating more precise production planning (Arinez et al., 2020). In addition, this technology can automatically detect product defects during the production process, thereby helping to improve output quality (Tran, 2021). AI's ability to analyze big data also supports the implementation of predictive maintenance on company equipment which has an impact on reducing unexpected production downtime (Plathottam et al., 2023). In addition, the use of AI in company processes also increases energy efficiency by optimizing resource use and reducing waste (Daniaty et al., 2022). Automation of production processes using AI also increases productivity and reduces labor costs (Königstorfer & Thalmann, 2020). Thus, AI technology enables companies to improve delivery timeliness, shorten *lead times* and ultimately increase customer satisfaction (Tran, 2021).

In addition to these operational benefits, the implementation of AI also opens up opportunities for companies to find new market gaps, improve marketing strategies and respond quickly to market changes (Hassani et al., 2019). Thanks to the data analysis and prediction capabilities that AI has, it supports smarter and more timely decision-making to increase competitiveness in the market. The integration of AI into company processes not only increases efficiency but also drives product innovation and adaptability to the dynamics of a changing business environment.

Artificial intelligence has become a key technology in various fields due to its ability to mimic human thought processes (Pradani et al., 2021). Its application has had a significant impact on creativity in organizations, improving company performance and changing consumer behavior (Mikalef & Gupta, 2021). In the realm of marketing, the integration of AI into social media has proven to be able to positively influence consumer purchasing intentions. This technology is also utilized in the development of chatbots as interactive tools in the digital era.(Ardiansyah, 2023; Almustaqim & Toscany, 2022) which exemplifies how computers can be trained to perform tasks similar to human capabilities. In addition, AI is increasingly playing a role in supporting the performance of professionals such as accountants by assisting in analysis, prediction and supporting their work processes (Peterson & Kurniawan, 2023). The success of AI applications has also been seen in other sectors such as banking, health and agriculture where this technology is appreciated for its efficiency and effectiveness (Laksono & Candra, 2022; Paramecwari et al., 2022). For example, AI-based risk management in banking has been highlighted for its ability to simplify processes and support decision making.

Not only limited to these fields AI has been applied in various other applications such as classifying plant diseases, diagnosing animal health disorders and optimizing the measurement of electric car battery capacity (Oktaviana et al., 2021; Ramadhan et al., 2021). AI algorithms are also proposed as a solution to overcome the spread of fake news by distinguishing between true information and hoaxes (Chairunnisa et al., 2021). In the world of digital entertainment, the integration of AI in games enhances the user experience especially through interaction with non-player characters.

Improving operational efficiency in companies such as PT. XYZ is a strategic step that not only boosts competitive advantage but also supports improved financial performance. Operational efficiency is measured by how effectively a company optimizes all its assets to generate revenue. In this context, the implementation of *Enterprise Architecture* is an effective solution by designing an information technology system that supports efficient operations so that companies can compete in the Industry 4.0 era (Ridwan, 2022). The case study at XYZ company also highlights that increasing operational efficiency has a positive impact on financial performance (Tania & Abdi, 2023). Optimizing the use of resources, synergy between environmental information disclosure and technological innovation also play a role in increasing profitability (Lumangkun & Leon, 2021). Because the company's operational activities not only affect the internal organization but also the surrounding environment, environmental aspects must be considered in efforts to increase efficiency. The application of technologies such as AI has been shown to support production processes, supply chain planning and equipment maintenance in order to achieve higher efficiency (Lakshmi Aishwarya et al., 2022). However, the application of this technology must be in line with ethical principles in order to comply with applicable standards.

Innovations in the accounting world driven by the digital era have drastically changed the role of professional accountants. Thanks to technological breakthroughs such as artificial intelligence (AI), blockchain and *Cloud Computing,* traditional accounting activities are now transforming into more automated, efficient and strategic processes. Thus, accountants have gained tools that enable in-depth data analysis and the delivery of strategic insights in business decision-making (Zunaidi et al., 2024). For example, AI is able to automate the process of data collection and analysis so that accountants can be freed from routine tasks and focus more on complex aspects such as financial planning and strategic consulting.

Behind the series of advances, the implementation of digital-based accounting information systems also faces quite complex challenges. One of the main problems is related to data security and the increasing risk of cyber attacks along with the digitalization of accounting processes. Companies must be prepared to face potential information leaks, hacking attacks, and the risk of misuse of financial data that can damage the reputation and stability of the business. In addition, adapting to a new system requires a significant investment, both in terms of technology costs and in human resource development. Many companies, especially small and medium enterprises (SMEs), are still constrained in implementing digital accounting systems due to limited funds and lack of technical expertise (Bamidele et al., 2024).

However, the digital era also opens up great opportunities to create a more efficient and innovative accounting information system. The application of artificial intelligence in this system allows automation of audit processes, predictive financial analysis and more targeted risk management. The use of big data analytics also gives companies the ability to gain a deep understanding of financial trends and market behavior, thereby improving the quality of financial planning and business strategy (Ijomah et al., 2024). In addition, the application of cloud technology in accounting helps access data in real time, improves collaboration between departments and provides more flexibility in managing company finances (Keerati-Angkoon, 2024).

Accounting innovation in the digital era also presents a number of challenges. Accountants now have to constantly update their knowledge of the latest technology and hone new skills in order to manage and utilize digital tools optimally. They are required to adapt to the development of accounting regulations and standards that are constantly changing, which require in-depth understanding and proper application in daily activities (Syamil et al., 2023). Given the large volume of sensitive data managed, data security issues are very crucial so that protecting client data must be a top priority amid the increasing threat of cyber attacks. In addition, the

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process of adapting to new technologies is one of the main challenges because many accountants still experience obstacles in continuing to learn and adapt to technology that is always evolving (Aripin et al., 2023).

Behind these challenges also arise valuable opportunities. Automation of accounting processes, for example, can reduce the potential for human error and increase operational efficiency (Zunaidi et al., 2024). Thus , accountants can focus more on strategic tasks such as providing high-value business advice. Overall, accounting innovation in the digital era has transformed the traditional role of accountants to be more dynamic and multifaceted. They are no longer just recording transactions but also acting as strategic analysts, financial advisors and data integrity guardians. With the ability to utilize advanced technology, accountants are able to provide significant added value to organizations and clients, supporting smarter and more sustainable business decision-making (Sudirjo et al., 2024). However, to achieve this, they must continue to be willing to learn, adapt and develop new skills in accordance with the demands of the ever-changing digital era.

By identifying the various innovations and challenges that exist, we can design strategies to improve the efficiency of financial reporting in the digital era. This strategy should include the adoption of the latest technology, improving professional skills and implementing strong data security policies. In this way, the accounting field can adapt to change and take full advantage of the potential of digital innovation so that it becomes more responsive, efficient and relevant in supporting business growth in the ever-evolving digital era (Natalina & Zunaidi, 2023). Previous literature research shows that accounting innovation in the digital era is not only related to the use of technology but also about adapting to new paradigms and emerging challenges.

The scientific contribution of this research lies in its focus on the application of certain technologies that have not been widely explored in the accounting context, such as the use of AI (*Artificial Intelligence*) to improve transparency and security of financial reports. The research problem focuses on the challenges of implementing the technology, for example resistance from accountants who are accustomed to conventional methods or regulatory barriers that have the potential to hinder the adoption of innovation. This research is important because it is expected to provide new insights into ways to improve efficiency in the preparation of financial reports, which is a crucial aspect in realizing transparency and accountability in the business and government environment.

Theoretical studies on this issue include various literature references that discuss the role of information technology in the field of accounting, starting from the use of modern accounting software, the use of big data and *Artificial Intelligence* (AI) for financial analysis to the importance of automation in the accounting process. (Pratolo, 2000) states that information technology plays a crucial role in supporting management accountants in achieving their strategic goals. The study (Rosmala, 2024) also revealed that digital innovation has changed the function of accountants, which previously only focused on recording and reporting, to be more strategic and analytical. This study is expected to produce practical recommendations for accountants and managers on how to optimally utilize technology to develop more effective business strategies.

Methods

This study explores how the implementation of *Artificial Intelligence* (AI) in financial data management and its impact on the operational efficiency of companies. Through a qualitative approach, case studies were conducted on several companies that have implemented digital accounting systems so that the challenges faced and the determining factors for their success can be identified. The main objective of the study is to design practical recommendations that can be adopted by other organizations to improve the operational efficiency of the company. In addition to mapping leading practices in the implementation of *Artificial Intelligence* (AI), this study also provides strategic guidance for companies that want to improve their accounting processes in the midst of digital transformation. The digitization of financial reports produces more timely and accurate information for stakeholders and supports better decision-making and overall improvement of company performance.

Result and Discussions

Contemporary accountants are expected to act as strategic advisors by leveraging data analysis to provide recommendations that improve financial performance and support long-term planning (Salsabila & Rahman, 2023). They also contribute significantly to investment evaluation and risk management, thereby adding value to the organizations they serve.

Digital transformation has not only expanded the work capacity of accountants but also changed their professional goals enabling more strategic contributions within the company (Rosari et al., 2022). However, this change requires continuous skill development and adaptation to new technologies. Accountants must be ready to learn and master the ever-evolving digital tools to stay relevant in a dynamic profession (Perdana et al., 2024). Thus, digital innovation has not only revolutionized the work methods of accountants but also expanded their role in business requiring a proactive and flexible attitude in facing changes in the accounting industry.

To remain effective in the digital age, modern accountants require a variety of competencies. Technical skills such as mastery of accounting software, data analysis and an understanding of accounting principles are key foundations (Nurfianti et al., 2024). They must be able to interpret financial data and use analytical tools to derive insights that support strategic decisions. Good communication skills are also essential so that complex information can be conveyed clearly to a variety of stakeholders.

The ability to work in a team, collaborate across departments and build professional relationships with clients is equally important. Accountants need interpersonal skills and flexibility in a variety of work situations. Time management and the ability to work under pressure are also essential to meet deadlines and high workloads.

In addition, modern accountants must uphold ethics and comply with international financial standards. They need to understand the applicable legal and regulatory framework and ensure that best practices are implemented to maintain the integrity of the profession (Fauziyyah, 2022). Thus, the ideal accountant combines technical, interpersonal and analytical skills to face challenges and take advantage of opportunities in the digital era. They must innovate, adapt and continue to evolve with the dynamics of the accounting industry and the business world (Zunaidi, 2024). Practical work experience also plays an important role in enhancing skills. Working with senior accountants or in multidisciplinary teams provides practical insights in the field (Kesia, 2024). Involvement in financial data analysis and reporting projects strengthens analytical and problem-solving skills.

Communication skills development can be done through public speaking training, writing and hands-on practice in presentations and report writing (Yuhertiana et al., 2020). Interpersonal skills are improved through teamwork, collaboration and active professional networking. To keep knowledge up to date accountants must commit to lifelong learning through industry journals, conferences, webinars, professional association memberships and online courses and current literature.

Significant changes in accounting information systems including in large-scale companies and MSMEs are reflected in the adoption of *Cloud Computing Technology, Big Data Analytics* and *Artificial Intelligence* (AI) for financial data management, thereby drastically increasing the speed, accuracy and ease of access to financial information . *Cloud accounting* provides the ability to monitor financial data in *real time* without being tied to a location, allowing business actors to make data-based decisions faster, as implemented by Gojek through GoBiz which is integrated with Moka POS, presenting automatic transaction recording and financial reporting. By eliminating the need for manual recording that is prone to errors, *cloud -based accounting platforms* also help meet tax regulations and financial transparency, a crucial factor for small businesses to obtain financing from banks or investors.

Although accounting digitization brings efficiency and transparency benefits, data security remains a major challenge. Reliance on *the cloud* and open networks increases the risk of cyberattacks, information leaks and misuse of financial data. The Bukalapak user data leak incident in 2019 due to a security system gap underscores the importance of advanced encryption, multi-factor authentication and proactive threat detection and response mechanisms in accounting information systems to maintain compliance with the Personal Data Protection Act.

Companies are also encouraged to adopt the principle of *zero trust security* where every access must go through strict verification and conduct regular security audits to close gaps that can be exploited by hackers. Thus, the digital accounting system can be protected while building long-term trust with customers and business partners in the complex digital era.

The implementation of AI in accounting systems opens up opportunities for extraordinary efficiency and accuracy in transaction recording automation, financial audits and *real-time risk analysis* based on *big data* . *Machine learning* enables the detection of anomalous patterns, early warnings of fraud and increased regulatory compliance by minimizing human error. BCA, for example, uses AI to detect transaction anomalies and indications of money laundering with high accuracy.

Strict financial regulations drive the evolution of the OJK accounting system requiring public companies to implement integrated digital reporting to ensure compliance with global standards. Since 2021, Telkom Indonesia has implemented IFRS through a modern system that presents accurate, consistent and internationally comparable data. This policy also encourages *cloud* and AI optimization in *real-time reporting* to increase the efficiency of regulatory compliance.

In the education and non-profit sectors, accounting digitization strengthens transparency and accountability in the use of funds. The University of Indonesia has implemented a digital system to record and report research and scholarship budgets, ensuring proper distribution and minimizing misuse. Non-profit organizations utilize digital platforms for donation tracking, auditing and real-time reporting to donors, increasing trust and effectiveness of social programs.

Overall, the evolution of accounting information systems in the digital era through automation, data integration and advanced analytics increases efficiency, transparency and regulatory compliance. To maximize its benefits, companies and institutions need a holistic strategy of infrastructure investment, increased digital

literacy and strict data security policies. Thus, they will gain competitive advantage, more accurate data-based decision making and strong competitiveness at the national and global levels.

Conclusion

Digital accounting innovations have fundamentally changed the way we process and manage financial information. With the advancement of technology, financial reporting is now faster, more accurate and more transparent. This gives stakeholders the ability to conduct in-depth analysis and make decisions based on reliable data. Advanced digital accounting systems integrate *real-time data collection* , minimize human error and present insights through interactive visualizations. In short, digital accounting acts as a key driver of transformation in the financial sector. By leveraging this technology, companies can not only improve operational efficiency but also strengthen their competitiveness on the global stage. As a significant advancement in the evolution of accounting, digitalization will continue to shape the future of the financial industry.

Practically, this study emphasizes the importance of implementing digital accounting information systems for companies to improve operational efficiency and financial transparency. Modern technology not only facilitates recording and reporting but also helps mitigate risks and make strategic decisions. From an academic perspective, this study enriches the understanding of the evolution of accounting information systems in the digital era by exposing trends, challenges and opportunities faced by various organizations.

This research also has policy implications for regulators such as the Financial Services Authority (OJK) and the Ministry of Finance in designing regulations that support the acceleration of accounting digitalization including improving data security and developing inclusive technology infrastructure for companies.

Suggestions

The limitations of this study are first, the data was only taken from Google Scholar, *Publish or Perish articles* for the 2020–2025 period so that other perspectives may not have been reached. Second, this study is based on a literature review without empirical analysis so that the impact of digitalization on company performance has not been measured quantitatively. Third, the focus of the study is more on the global and national picture without exploring specific conditions in certain industrial sectors. Therefore, further research is recommended to conduct empirical studies, both quantitative and in-depth case studies, to directly measure the effect of digitalization of accounting information systems on company performance in various sectors.

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Authors' Bibliography

Marshanda Propheta was born in Banyuwangi, Indonesia, on March 4, 2001. She is currently taking a course at Jember University majoring in Masters in Accounting, Faculty of Economics and Business, Jember University.