

The Role of Information Technology in the Accounting Revolution

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Article Info:

Article History:

Received: 2025-02-24

Revised: 2025-03-21

Accepted: 2025-04-09

Keyword:

Information Technology,
Accounting, Accounting
Information Systems,
Digitalization, Audit.

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Paper Type:

Research Paper



Abstract:

Purpose:

The development of information technology has brought significant changes in the world of accounting. Digitalization of accounting processes through the use of computer hardware and software allows financial data processing to be faster, more precise, and more accurate. Information technology-based accounting information systems not only improve the efficiency and quality of financial reports but also strengthen strategic decision-making in organizations.

Methodology:

This study uses a literature review method to analyze the role of information technology in the accounting revolution. This method was chosen because the focus of the study is to explore and synthesize various existing findings and theories regarding the influence of information technology on accounting practices and the transformation of the accounting profession in the digital era.

Findings:

Technological advances open up new opportunities for the accounting profession, such as computer-based audits and information systems consulting. However, these changes also require increased capacity and competence of human resources to be able to adapt to rapid technological developments.

Implication:

Thus, the role of information technology becomes very vital in driving the accounting revolution towards more modern, effective and adaptive practices to the challenges of the digital era.

INTRODUCTION

The development of information technology has become a major catalyst in fundamentally changing the landscape of the accounting profession. Digital transformation, marked by the presence of computers, accounting software, and integrated information systems, has revolutionized processes that were previously carried out manually to become automated and efficient. Systems such as Accounting Information System (AIS), Management Information System (MIS), Decision Support System (DSS), and Executive Information System (EIS) are now the backbone of financial data management and decision making in various organizations.

Accounting automation has a significant impact on the efficiency and accuracy of financial reporting. The use of accounting software can drastically reduce human error, speed up the data entry process, and ensure consistency and accuracy in financial reporting. In addition, digital technologies such as cloud computing and big data analytics enable real-time access to financial data, so that the analysis and decision-making process can be carried out faster and more precisely. It not only increases productivity but also expands the role of accountants from mere transaction recorders to strategic partners in the organization (Accounting Automation, 2023).

On the other hand, advances in information technology also present new challenges, such as data security issues and the need to adapt to ever-evolving regulations. Technologies such as blockchain offer solutions by providing greater transparency and security in recording transactions, but also require accountants to continue to improve their technological competencies and understand the cyber risks that may arise. In addition, online collaboration between accountants and clients is becoming increasingly common, facilitating the efficient exchange of information and documents and encouraging the creation of more flexible work models.

This transformation not only impacts operational efficiency but also strengthens the strategic function of accounting as a provider of relevant and reliable information for managerial decision making. Modern accounting now plays an important role in planning, controlling, and evaluating organizational performance through the use of ever-evolving information technology. Thus, advances in information technology have opened up new opportunities while requiring accountants to adapt and continue to develop their competencies in order to remain relevant in the digital era.

Information Technology and Accounting Information Systems (AIS). Information Technology (IT) is a collection of technologies that include various hardware, software, communication networks, and data storage systems designed to manage, process, and distribute information electronically. IT plays an important role in various aspects of modern life, including in the world of business and accounting. With the advancement of technology, data processing that was previously done manually can now be done automatically, quickly, and accurately. It allows companies to manage large volumes of data with higher efficiency and reduce the risk of human error. In addition, IT also supports the integration of various business functions through connected systems, thus facilitating coordination and data-based decision making.

In the context of accounting, the application of IT is realized through the Accounting Information System (AIS). AIS is a system specifically designed to collect, process, classify, and present accurate, relevant, and timely financial information. This information is very important for management in planning, controlling, and making strategic decisions. AIS not only records financial transactions, but also provides reports and analysis that help identify the company's financial performance and support regulatory compliance. With an IT-based AIS, the accounting process becomes more efficient, transparent, and reliable, so that companies are able to increase their competitiveness and responsiveness to changes in the dynamic business environment. In addition, AIS can also be developed to accommodate non-financial reporting needs, such as environmental and social aspects, which are now increasingly important in the context of business sustainability.

Accounting Transformation through Information Technology. The revolution in the world of accounting has occurred significantly along with the rapid advancement of information technology. This digital transformation changes the accounting process that was previously done manually and separately into an automated, integrated, and more efficient process. One of the main innovations driving this change is the implementation of cloud computing, which allows financial data to be accessed in real-time from various locations and devices. With fast and flexible data access, finance teams can work collaboratively without being hampered by geographical or time constraints. It not only increases productivity but also accelerates decision-making based on accurate and up-to-date data. In addition, cloud computing also offers better data security with an automatic backup system and protection against data loss, so that the risk of errors and loss of information can be minimized.

In addition to cloud computing, automation in accounting through specialized software such as QuickBooks, Xero, and SAP has revolutionized the way companies manage the process of recording, reconciling, and reporting finances. This software is able to reduce human errors that often occur in manual processes, such as data input errors or incorrect calculations. With automation, the process of recording transactions becomes faster and more accurate, while financial data reconciliation can be done automatically and periodically without the need for intensive manual intervention. Furthermore, this system allows for more transparent and easily accessible financial reporting by stakeholders, thereby improving the quality of the information presented. This accounting transformation through information technology not only optimizes operational efficiency but also provides strategic added value for companies in facing increasingly dynamic and complex business competition (FEB Teknokrat, 2025).

Increasing Accuracy and Efficiency. The use of information technology (IT) in accounting brings significant changes in terms of increasing the accuracy of financial reports. By using a computerized accounting information system, the risk of human error that often occurs in the manual recording process can be drastically minimized. Errors such as incorrect data input, incorrect calculations, or lost documents can be avoided because

the system automatically processes and validates incoming data. In addition, IT allows data integration from various sources in real-time, so that the information produced is more accurate, complete, and reliable. It is very important to ensure that financial reports accurately reflect the company's financial condition and can be used as a basis for accurate decision-making.

The use of IT can improve operational efficiency in the accounting process. Automation of routine tasks such as recording transactions, reconciling accounts, and preparing financial reports reduces the time and effort required for financial staff to complete administrative work. Thus, accounting staff can allocate more time and resources to conduct in-depth analysis and support strategic decision-making that impacts the growth and sustainability of the company. In addition, the efficiency gained through the use of IT also allows companies to respond to business changes more quickly and flexibly, while reducing operational costs associated with time-consuming and error-prone manual processes. Thus, the integration of IT in accounting not only improves data quality but also strengthens the role of the accounting function as a strategic partner in company management.

The Role of Artificial Intelligence (AI) and Big Data. The development of artificial intelligence (AI) technology has brought about a significant revolution in the fields of accounting and information systems. AI has begun to be applied to automate various complex tasks that previously required a lot of time and human effort, such as big data analytics, anomaly detection, and complex tax planning. With AI's ability to process and analyze very large amounts of data quickly and accurately, accountants can now gain deeper and more comprehensive insights. AI is able to recognize hidden patterns in data that are difficult to detect manually, thus helping to identify financial risks, business opportunities, and potential fraud more effectively. It not only improves the efficiency of the accounting process but also strengthens the company's internal control and strategic decision-making functions.

The integration of AI with big data technology enables companies to manage and analyze data from various sources in real-time, including environmental, social, and economic data relevant to sustainability reporting. The use of AI in processing big data provides a competitive advantage because companies can respond to market and regulatory changes more quickly and precisely. For example, in the context of sustainability reporting, AI can help process carbon emissions, energy use, and waste data automatically to produce accurate and reliable reports. Thus, the role of AI and big data not only supports operational efficiency but also strengthens the accountability and transparency of companies in running sustainable businesses (Bureau of Student Talent and Career Development, 2024).

Blockchain for Transparency and Security. Blockchain technology has emerged as a major innovation in the world of accounting and finance, particularly in enhancing the transparency and security of transaction recording. Blockchain is a decentralized and encrypted digital recording system, where each transaction is recorded in interconnected blocks that cannot be unilaterally changed. With these characteristics, blockchain is able to reduce the risk of fraud, data manipulation, and recording errors that are often challenges in traditional accounting systems. The adoption of blockchain in accounting allows companies to create a transparent and independently verifiable transaction track record by all related parties, thereby increasing stakeholder confidence in the integrity of financial information.

Blockchain also supports process automation through smart contracts, which are digital contracts that automatically execute agreements based on agreed conditions. In the context of financial and sustainability reporting, smart contracts can be used to ensure that reported environmental and social data meet certain standards before being published. It not only speeds up the reporting process but also minimizes the risk of errors and data manipulation. With the security and transparency offered by blockchain, companies can increase the credibility of their financial and sustainability reports while meeting the increasingly stringent regulatory demands of today's digital era. Blockchain implementation ultimately helps create a more trustworthy and sustainable business ecosystem.

Data Security and Information Integrity. In the increasingly advanced digital era, data security has become a very crucial aspect for companies, especially in managing sensitive and strategic financial information. Information technology offers various advanced security solutions, such as data encryption, which ensures that stored and transmitted information can only be accessed by authorized parties. In addition, a two-factor authentication mechanism is also implemented to strengthen the user identity verification process before gaining access to the system. These steps not only protect data from cyber threats such as hacking, malware, and identity theft, but also keep data intact and free from unauthorized changes (data integrity). Thus, companies can ensure that financial reports and other information generated by the accounting information system are accurate, reliable, and free from manipulation.

Strong data security also plays a vital role in building trust between companies and their stakeholders, including investors, regulators, and customers. In the context of sustainability reporting and environmental accounting, data protection becomes increasingly complex as it involves various types of non-financial information that must be accounted for transparently. Therefore, companies need to adopt comprehensive security policies and continuously update information security technologies to be able to deal with evolving threats. In addition, employee training on the importance of data security and security procedures is also an integral part of maintaining the integrity of the company information as a whole.

Impact on the Accounting Profession. The development of information technology has fundamentally changed the way the accounting profession works. Although many routine and administrative tasks that were previously done manually have now been automated by IT systems, the role of accountants has not disappeared, but has undergone a significant shift. Accountants today focus more on strategic and consultative functions, where they use data analysis capabilities to interpret information generated by the system. Thus, accountants act as business partners who assist management in making decisions based on accurate and relevant data. They are also responsible for identifying trends, risks, and opportunities that can affect the overall performance of the company.

Along with the changing role, the competency demands for accountants are also increasing, especially in terms of mastery of information technology. Accountants are required to understand various accounting software, Enterprise Resource Planning (ERP) systems, as well as analytics and big data technologies that are now an integral part of the reporting and audit process. The ability to optimally utilize IT innovations allows accountants to provide greater added value to the company, such as increasing business process efficiency, ensuring regulatory compliance, and strengthening internal control. Therefore, the development of technological competency is a top priority in today's accounting profession education and training in order to be able to face challenges and opportunities in the digital era.

Accounting Information System as a Pillar of Digital Transformation. Accounting Information System (AIS) plays a crucial role in the era of digital transformation that is currently taking place in various industrial sectors. With its ability to integrate financial data comprehensively and automate various accounting processes that were previously carried out manually, AIS enables companies to increase operational efficiency significantly. This automation not only speeds up the process of recording and reporting finances, but also reduces the risk of human error that can impact the quality of information. In addition, centralized data integration makes it easier for companies to access financial information in real-time, so that management can respond to market changes more quickly and precisely. The speed and accuracy of this information are very important in data-driven decision making, which is the main foundation in a modern business strategy that is adaptive and responsive to the dynamics of the external environment.

SIA serves as a liaison that strengthens coordination between departments within the company. With an integrated system, various business units can share information transparently and efficiently, thus minimizing information silos that often-become barriers to communication and collaboration. It allows for the development of a more holistic and coordinated business strategy, where each department can align its goals and activities in accordance with the overall direction of the company. In addition, SIA also supports deeper performance analysis,

allowing companies to identify opportunities for improvement and mitigate risks proactively. Thus, SIA is not only a financial recording tool but also a key pillar in digital transformation that drives innovation, efficiency, and business sustainability in today's digital era.

Hypothesis. The application of information technology, especially accounting information systems, has brought significant positive impacts in the accounting revolution. This technology improves operational efficiency by accelerating data processing and reducing dependence on manual methods that are prone to errors. In addition, the use of information technology also improves the accuracy of financial reporting, resulting in more reliable and timely data. Thus, information technology not only simplifies routine tasks but also enables the accounting process to run more effectively and efficiently.

Baihaqi Ammy's research (2024) confirms that the use of managerial accounting information systems and information technology in general has a significant positive effect on managerial performance. It is especially evident when the system is supported by an effective internal control system, which functions as a risk monitoring and control mechanism. The integration of technology in accounting information management allows managers to obtain more accurate and real-time data, so that they can make more appropriate and strategic decisions. Thus, the role of accountants has shifted from merely recording transactions to becoming strategic partners in organizational decision-making.

In addition, the adoption of artificial intelligence (AI) in accounting information systems further strengthens the digital transformation in this field. According to Sanjiwani et al. (2024), AI is able to improve the ability of accountants to process and analyze big data more effectively. This technology enables the recognition of complex patterns and the detection of anomalies that are difficult to do manually, thereby strengthening the accuracy and reliability of data analysis. Thus, digital transformation not only changes the way accountants work but also expands their role to become strategic partners who are able to provide high-value insights and recommendations for organizations. Therefore, information technology has a strong positive influence on the accounting revolution. H1: Information Technology has a positive influence on the Accounting Revolution.

METHODS

This study uses a literature review method to analyze the role of information technology in the accounting revolution. This method was chosen because the focus of the study is to explore and synthesize various existing findings and theories regarding the influence of information technology on accounting practices and the transformation of the accounting profession in the digital era.

The data used are secondary data obtained from various reliable sources, such as scientific journals, textbooks, articles, and academic publications relevant to the topic of accounting revolution and information technology. The literature period reviewed includes research from the last year to the last decade to provide a comprehensive picture of current developments and future trends (Jamal, 2023; Safri, 2025).

Data analysis was conducted descriptively and reflectively, by connecting various previous research findings to identify patterns, opportunities, and challenges faced in the application of information technology in the field of accounting. In addition, this study also includes a critical analysis of existing literature to explore research gaps and provide strategic recommendations for the development of the accounting profession in the era of the industrial revolution 4.0 and 5.0 (Ale Candra Iswanto & Wahjono, 2019; UNAIR News, 2018; Ministry of Research and Technology, 2018, in Behind the Scenes of Accounting and Technology, 2020).

This approach allows researchers to understand phenomena holistically in real-life contexts, without conducting primary data collection such as surveys or interviews, thus focusing more on the synthesis of existing theories and empirical findings.

RESULTS AND DISCUSSION

The development of information technology has brought fundamental changes in accounting practices, significantly changing the way financial data is processed, analyzed, and reported. One of the main roles of information technology is the digitization of accounting data processes that enable information processing to be faster, more precise, and more accurate. With the help of special hardware and software, especially computers, modern accounting information systems (AIS) are able to produce high-quality and strategic financial reports to support managerial decision making (Halimah, Zuroida, & Djasuli, 2023). This digitization not only improves operational efficiency but also drastically reduces human error, thereby improving the accuracy of the data that forms the basis of financial reporting (Smith & Adams, 2020).

In addition to efficiency and accuracy, information technology also plays an important role in increasing the security and transparency of accounting data. The implementation of blockchain technology, for example, allows for the recording of transactions that cannot be changed and can be verified by all related parties, thereby increasing the trust and integrity of financial reports. In the era of Industry 4.0, technological advances such as the Internet of Things (IoT), artificial intelligence (AI), and cloud computing are further strengthening the accounting function by providing real-time data and predictive analysis that support accountants' tasks more effectively. This technology not only accelerates the accounting process but also opens up new opportunities for the accounting profession to transform into information system consultants and auditors based on digital technology (Jiem, 2024).

Furthermore, advances in information technology have had a positive impact on internal control and fraud prevention in public sector accounting. Computer-based information systems enable early detection of transaction anomalies and strengthen monitoring mechanisms, thereby reducing the risk of financial reporting irregularities. In addition, the use of AI in data processing and financial analysis increases work productivity and efficiency, and supports more precise and faster strategic decision-making (LPPM Binabangsa, 2024). Thus, information technology is not only revolutionizing traditional accounting practices but also expanding the role of accountants in facing the increasingly complex challenges of the digital economy.

However, this transformation also requires an increase in the competence and skills of accountants to be able to operate and utilize technology optimally. Research shows that accountants must master digital technology and data analysis to remain relevant in this digital era. Therefore, continuous education and training are very important to ensure that the accounting profession is able to adapt to technological changes and meet the demands of the modern industry.

Overall, the role of information technology in the accounting revolution is very strategic and multifaceted. This technology increases the efficiency, accuracy, transparency, and security of accounting data, while opening up new opportunities for the development of the accounting profession and improving the quality of financial reporting. The implementation of technologies such as AI, blockchain, and cloud computing is key to facing challenges and taking advantage of opportunities in the digital era, thus encouraging the development of more modern and highly competitive accounting (Smith & Adams, 2020; Jiem, 2024).

CONCLUSION

This study confirms that the application of information technology, especially through accounting information systems, has had a very significant impact on the accounting revolution. The digital transformation that has occurred in this field is not only focused on increasing efficiency and accuracy in financial reporting, but also fundamentally changing the role of accountants to be more strategic and consultative. With modern accounting software supported by advanced technologies such as artificial intelligence (AI) and blockchain, accountants can now process and analyze data in a much more effective and efficient manner. It allows them to make faster, more precise, and data-based decisions, which are very important in today's competitive and dynamic business environment. Thus, information technology not only accelerates the accounting process but also expands the scope of accountants' functions in the organization.

While these technological advances bring many benefits, changes in accounting practices also demand increased competence and adaptation from professionals in this field. Accountants must be prepared to face new challenges that arise, such as increasingly complex data security issues, the risk of information leakage, and regulations that continue to evolve along with technological advances. It is important for organizations to not only invest in the implementation of cutting-edge technology but also to develop human resource capacity through relevant training and education continuously. With these efforts, organizations can ensure that the potential of information technology can be utilized optimally to support optimal and reliable accounting performance.

Thus, the accounting revolution driven by information technology focuses not only on improving operational efficiency but also on increasing the strategic value of the accounting function in supporting broader business objectives. This transformation opens up significant new opportunities for the accounting profession to play a more active role in decision-making and strategic planning for companies. Accountants are now not just transaction recorders, but strategic partners who provide valuable insights and data-based recommendations to advance organizations in the digital era. Therefore, the role of accountants is becoming increasingly important and irreplaceable in facing the challenges of modern, complex and dynamic business.

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