2528-9705

Journal of Organizational Behavior Research

Vol.: 11, Is.: 4, Year: 2026, Pages: 29-36

https://doi.org/10.51847/6uK0ZcVk6k

Available online

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An Analytical Study for Impacts of Using Information Technology on Auditing Profession: Opportunities and Challenges

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ABSTRACT

This study aims to determine the impact of information technology (IT) on the auditing profession, through analysis the opportunities and challenges for effects of using IT to support auditing carrier. Also, to recognize the major challenges and risks facing the auditing profession when implementing IT technologies. The findings of the study showed that using IT will contribute to support auditing profession through enhancing the ability to determine the risks and identify risks and detect errors or fraud early. It also contributes to deeper understanding for the effects of IT to auditing. The study concluded that there are challenges affecting the application of IT on the auditing profession, including data security and privacy concerns, which necessitate effective cyber security measures, as well as risks associated with electronic systems that increase audit risks. The study also goals to provide guidance to organizations to improve their efforts to adopt modern IT system and enhance their digital environment. The study recommended further investigation into others aspects of IT techniques such as digital twins and the Internet of Things (IoT), and their implications on the Auditing.

Keywords: Information technology, Auditing profession, Risks, Opportunities, Challenges.

Introduction

In the contemporary business environment, the adoption of IT has become an essential requirement for organizations seeking to keep pace with ongoing developments and enhance operational efficiency. Given the numerous benefits offered by IT in supporting organizational processes and improving the quality of information, which in return will have inevitably influence on the external audit processes. This influences stems from the auditor's responsibility to provide an independent and objective opinion regarding the fairness and reliability of organization's financial statements. Due to continuous development and modernization of the auditing profession in response to evolving business environment and increase complexity of economic activities, auditors have been required to adapt their practices to maintain the effectiveness and relevance of audit services. Consequently, the auditing profession has been undergone significant developments in several aspects related to audit procedures and audit quality as result of rapid technology advancements. IT through its tools, techniques, and operational mechanisms, plays a vital role in auditing profession. Its influence is manifested indirectly through its impact on the accounting function and directly through its application within the auditing process itself. As auditing is closely associated with and complementary to accounting, advancements in IT have significantly contributed to improving the efficiency, accuracy, and effectiveness of both accounting and auditing practices.

Received: 08.06.2026 –Accepted: 11.10.2026 –Published: 29.11.2026

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The present study focuses on examining the impact of adopted electronic information systems and digital transformation on traditional auditing approaches. It seeks to explore how these technological developments have reshaped audit practices by introducing a range of challenges, including cybersecurity risks, the limited availability of advanced technical competencies among auditors, and the complexity of verifying the accuracy and reliability of large volumes of digital data. At the same time, the study highlights the opportunities offered by digital technologies to enhance audit efficiency, improve the overall quality of audit outcomes. The significance of this research lies in emphasizing the necessity for the auditing profession to adopt to IT and mitigate risks, particularly within a highly competitive business environment. Such adoption enables auditors and organizations to effectively address emerging challenges and capitalize on available opportunities to achieve greater operational effectiveness. Furthermore, the adoption of IT has a positive impact on the efficiency and effectiveness of the auditing profession by streamlining audit procedures and improving audit quality, despite the challenges associated with technological risks and the need for specialized training.

The research procedures would be as follows: the defining of the concepts for auditing profession and IT will be in section in section 2. Section 3, will include a list of previous studies. The results and discussion will be posted in section 4. the recommendations, in addition to directions for the future research will be in section 5.

Materials and Methods

Auditing Profession

The auditing profession is regarded as a fundamental mechanism for mitigating financial risks and strengthening internal control systems. Its primary objective is to detect errors and fraudulent practices within the financial system, thereby ensuring that financial statements present a true and fair view of entity's financial position. Auditors, in particular, assist to ensure that interested parties including business owners can make appropriate decisions. Moreover, the effectiveness of the auditing process largely depends on the strength of the entity's accounting system and the quality of its internal control procedures. A robust accounting system, supported by effective internal controls, enhances the reliability and accuracy of the financial information on which the external auditor relies. Consequently, this reduces the likelihood of material errors or fraudulent activities and enables the auditor to perform the audit more efficiently by minimizing the time, effort, and costs required to complete the engagement. As a result, the overall effectiveness and quality of the auditor's work are significantly enhanced.

The auditing profession is recognized as a branch of the public accounting profession, encompassing both accounting and auditing practices. It comprises an integrated set of services that are philosophically, practically, and logically interconnected. These services are provided by qualified professional practitioners to perform audit engagements and deliver a wide range of accounting-related services. In addition to statutory auditing, the profession includes advisory, accounting and taxation services offered to both corporate entities and individual clients, thereby supporting informed decision-making, ensuring regulatory compliance, and enhancing the quality and reliability of financial reporting.

Auditing, as it is understood in its contemporary form, can be defined as "professional services that provides an independent and objective opinion on an entity's financial statements by evaluating them based on a recognized set of generally accepted standards that enhances the credibility and reliability of financial information." However, the rapid expansion of the global economy, together with the increasing complexity of corporate structures and business operations, has intensified the demand for transparent and faithful financial reporting to different financial users. These developments are expected to continue as artificial intelligence becomes more widely integrated into the auditing profession. Consequently, auditing is currently undergoing a critical period of transformation, driven by advances in IT and the adoption of innovative managerial and organizational models, which are reshaping traditional audit practices and redefining the role of auditors in the modern business environment. Fundamentally, auditing is the independent and impartial examination of an organization's financial information or financial statements, regardless of its objectives, size, or legal form. The primary purpose of this examination is to provide reasonable assurance regarding the fairness and reliability of the reported financial information. According to the American Accounting Association (AAA), auditing is defined as "a systematic process of objectively obtaining and evaluating evidence

concerning assertions about economic actions and events in order to determine the degree of correspondence between those assertions and established criteria, and to communicate the results to interested users".

The authors agree with the findings of, who describe auditing as a systematic process conducted by an independent and impartial external auditor possessing the necessary academic qualifications, practical expertise, and professional competence. This process involves examining financial statements and accounting records and expressing an objective professional opinion on whether they fairly present the company's financial performance and results of operations for a specified reporting period. The author's opinion is ultimately communicated to the relevant stakeholders through a formal audit report.

Information Technology

IT is widely recognized as a critical factor in enhancing organizational performance across both profit-oriented and non-profit organizations. Its significance lies in its direct influence on the way organizational activities and business processes are executed, enabling greater operational efficiency and reducing the time required to perform administrative tasks. Furthermore, IT plays a vital role in the developments, management, and monitoring of information systems, thereby improving the quality, reliability, and effectiveness of organizational operations and decision- making processes.

IT can be defined as a collection of tools and technologies used to process data and transform it into reliable information. It facilitates the storage, retrieval, and accessibility of information, thereby supporting timely, accurate, and effective decision-making. IT also encompasses the hardware, software, technological tools, communication media, methodologies, and programming systems organizations need to achieve their strategic and operational objectives. These technologies enable organizations to capture, record, process, manage, and retrieve information that serves as the foundation of organizational information systems.

According to Mouzarin and Ben Youssef (2019) IT describe as an integrated set of computers, supporting equipment, software applications, services, and related resources designed to facilitate business processes. Such technologies enhance the generation, storage, accessibility, and sharing of digital information, thereby improving the efficiency and effectiveness of organizational operations. The authors agree with the definition proposed by the IT Association of America (ITAA), which describes IT as the use of computers, communication networks, software applications, and supporting infrastructure to create, process, store, transmit, secure, and manage all forms of electronic data and information. IT encompasses both hardware and software components, as well as the processes associated with their implementation and operation. Within the business environment, IT is primarily employed to facilitate organizational processes and significantly enhance operational efficiency. It also includes a wide range of digital technologies and services, such as the Internet, electronic mail, and cloud computing, all of which contribute to improving organizational performance and information management.

Literature Review

By examining literature from both developed and developing countries, most prior studies indicated that applying IT would have tremendous impacts on the auditing profession. The study by Mohammed *et al*. (2018) primarily aimed to identify the modern approaches, techniques, and tools that can be employed to perform the audit process in light of the rapid advancements in information and communication technology (ICT). The study found that the most appropriate approach for achieving the objectives of the audit process within an IT environment is the adoption of computer-assisted auditing. These include tools that support the analysis of the audited client's software applications, techniques for assessing the logical integrity of the client's electronic systems, and methods that facilitate the execution of substantive audit procedures. The study by, aimed to examine the factors influencing external auditors' acceptance of IT to support their daily auditing activities. The study adopted the Technology Acceptance Model (TAM) and extended it by incorporating organizational, social, and individual factors. The findings revealed that both mediating variables significantly influenced the dependent variables. In contrast, the organizational factor did not affect either mediating variable. The social factor influenced only one mediating variable, whereas the individual factor significantly affected both mediating variables.

The study investigate the impact of artificial intelligence systems and modern IT on improving the quality of external audit process, while also identifying the most important procedures, techniques, and associated risks. The study concluded that the use of various artificial intelligence applications and modern IT by external auditors significantly enhanced audit procedures and techniques, enabling audit tasks to be performed with greater speed and accuracy. Furthermore, these technologies improved auditors' ability to verify the accuracy of transactions with less effort and lower cost. A study conducted by, aimed to investigate the impact of IT on the quality of the external audit process. The findings indicate that the use of IT plays a significant role in strengthening and enhancing the quality of external auditing. It also facilitates the audit process by reducing both the time and effort required, thereby improving audit efficiency. Consequently, this environment requires external auditors to process specialized skills and a high level of professional competence.

Another study by, aimed to examine the level of information technology (IT) adoption among accountants in Jorden and to identify the factors influencing its use. The proposed model investigates the effects of using IT skills, related education and companies' categories on their use. The findings revealed that both IT skills and IT training significantly contributed to external auditors' use of IT. The study further highlighted its contribution to the literature by providing a deeper understanding of the combined effects of IT knowledge and training on technology adoption. In addition, it extended existing knowledge by examining the moderating role of firm classification (Big Four versus non- Big Four firms) in the relationship between IT training and external auditors' use of IT.

The study examined the impact of IT on the role of the external auditor in expressing an independent professional opinion regarding the truthfulness and fairness of financial statements. The study reported several key findings, most notably that a significant relationship exists between the IT employed in accounting information systems and the use of computer-assisted auditing techniques, contributing to the production of reliable financial reports that fairly present the entity's financial position and operating results. Hawas and Ibrahim (2023) conducted a study focused on the impact of IT on reducing audit risk and enhancing the ability to predict and assess such risks. The study showed that there is a taught relationship between the IT and audit risks. IT play a vital role in deduct and reduce audit risks including inherent risks, control risks as well as detection risks. Furthermore, there is an urgent need to apply IT in auditing because there is unique nature of accounting applications has emerged in the light of IT.

The study also conducted the implication of using digital transformation on IT auditing practices, examining the opportunities and challenges facing the organizations globally. The study reveal that applied digital transformation will have a major effected the IT auditing. Apply digital transformation will have many challenges such as, cybersecurity risks, resources constraints as well as regulatory compliance. Therefore, IT auditing plays a significant role to ensure integrity, security in addition to IT system governance and processes. The study also recommended that the necessity of adopted the technological advancements by IT auditing as well as addressing the complex challenges. Mazouzi and Rzigat (2025) examined the impact of IT and its applications on audit procedures and audit quality. The authors argued that the adoption of IT has become essential for economic institutions operating in a rapidly changing and highly competitive business environment. They further noted that the auditing profession, as an integral part of this environment, has been significantly influenced by these developments and is therefore required to modernize its tools and techniques to provide organizations with higher levels of assurance and meet stakeholders' expectations. This is particularly important because auditors are entrusted with expressing an independent and objective professional opinion on the fairness of financial statements and enhancing their credibility. The study also indicted that using IT will reduce time and effort as well as enhance the efficiency and effectiveness of the audit in order to improve the quality of audit. Mohamad *et al*. (2024), also examined the effect of IT on the quality of join audit in the Egyptian environment. The results of the study showed that using the IT will enhance the join audit quality. Through using digital technology, the quality as well as the efficiency and reliability of the audit will be improved. Moreover, it will assist in determination of the misstatement and error. The study also revealed that applying artificial intelligence will assist auditors by saving time in addition to, preparation of periodic reports and the enhance financial reporting quality. We also conducted a study regarding the impacts of IT on internal auditing effectiveness in detective and prevent fraud in Indonesia. The study used IT, quality of internal audit as well as management support and the applications of guidance of internal audit effectiveness to test the influence of internal auditing on prevent and detect fraud. Results

showed that using IT will assist auditors to prevent and determine the fraud in addition to help to minimize the reputational and financial risks of the organizational.

Similar study also conducted by Indriyanto (2023), investigate the effect of IT on the efficiency audit process. Findings of the study reveal that using IT in auditing will enhance auditors' accuracy and efficiency in addition to their responsiveness to business changes. Auditing process will be more transparent and efficient if applied IT since, it helps analyze the big data in addition to monitoring the real time and automation of audit different audit stages. Moreover, IT will improve the security control, audit documentation management as well as processes of electronic documentation.

Results and Discussion

Information technology has profoundly transformed the auditing process, fundamentally changing the way auditors collect, analyze, and interpret data. With the widespread adoption of IT systems across organizations, auditors are required to adapt their audit methodologies to effectively address the demands and the complexities of the evolving digital environment. One of the most significant impacts of IT on the auditing process is the availability of electronic data. Traditional audit approaches, which primarily rely on sampling techniques and manual testing produces, are no longer sufficient to comprehensively assess electronic records. Instead, auditors increasingly employ data extraction tools and advanced analytical software to access and analyze large volumes of data efficiently. This technological shift enables auditors to gain deeper insights into financial transactions, identify patterns and anomalies, and detect potential fraud or errors with greater accuracy and effectiveness (Ibrahim, 2024). Among the most significant advantages and opportunities that IT has introduced to the auditing profession is the substantial improvement in operational efficiency and audit effectiveness. Technologies such as Robotic Process Automation (RPA) and Artificial Intelligence (AI) have enabled auditors to perform routine and repetitive tasks with greater speed, accuracy, and consistency, thereby reducing manual effort and lowering operational costs. In addition, IT has facilitated comprehensive data analysis. Rather than relying solely on sampling techniques, auditors can now utilize big data analytics tools to examine entire datasets, providing more comprehensive insights into organizational activities. This capability enhances risk assessment strengthens audit quality, and improves the early detection of errors, irregularities, and fraudulent activities. Furthermore, digital technologies enhance the accuracy and reliability of audit processes by minimizing human error and improving the precision of financial information, thereby ensuring greater compliance with applicable accounting standards and regulatory requirements. They also contribute to greater transparency and higher-quality financial reporting by providing timely, reliable and comprehensive insights into an organization's financial performance. These capabilities strengthen accountability, support informed decision- making, and enable stakeholders to make strategic decision based on accurate and up-to-date financial information (Mazouzi & Rzigat, 2025). Despite the significant benefits and opportunities that IT offers to the auditing profession, its implementation is accompanied by a number of challenges that may hinder its effective adoption and integration into audit practices. These challenges must be carefully addressed to ensure that the full potential of IT can be realized within the auditing profession. These challenges include concerns related to data security and privacy, as the collection, storage, and processing of large volumes of client's data increase the risk of cybersecurity breaches and potential violations of data protection regulations. Consequently, organizations must implement robust cybersecurity measures to safeguard sensitive information (Azizi *et al*., 2024). Another major challenge is the need for specialized technical expertise. The effective use of advanced technologies requires auditors to possess adequate IT competencies or to collaborate with IT specialists as part of the audit team. In addition, risk associated with electronic systems remain a significant concern, as electronic audit evidence may contain hidden errors or be susceptible to unauthorized alteration and cyberattacks without leaving visible traces, thereby increasing audit risk. Furthermore, ethical and professional considerations play a critical role in the adoption of emerging technologies. Auditors must adhere to established ethical and professional standards when utilizing artificial intelligence and other digital tools, while also ensuring the reliability, accuracy, and integrity of the outputs generated by these technologies (Rachid *et al*., 2019).

Based on the findings of the present study, the researchers' conclusions are consistent with those reported by Amit M. (2024) and Ibrahim (2024), who emphasized that IT has fundamentally transformed the auditing process by reshaping

the manner in which auditors perform their professional responsibilities. The effective application of IT tools and digital technologies enables auditors to improve the efficiency, effectiveness, and overall quality of audit procedures, thereby enhancing the level of assurance provided to stakeholders. At the same time, auditors must remain aware of the challenges associated with the digital environment, particularly cybersecurity threats, data protection issues, and the reliability of electronic audit evidence. Addressing these challenges is essential to maintaining the integrity, credibility, and reliability of audit outcomes in the digital age. Fazlida *et al*. (2025), also conducted study regarding the role of digital technology in enhancing efficiency of the external auditors and their abilities to determine the fraud risks in Malaysia. Findings of the study reveal that using digital technology will have a significant positive impact on external auditors. Auditors who have strong digital technology skills would be abler to provide assessment fraud risks precisely. Also, using digital technology will enhance auditor's competence which as results improve their abilities to make overall IT control evaluation, using IT for audit plans preparations. **Figure 1**, presents the opportunities associated of using IT on auditing profession, including enhancing audit quality, increasing efficiency and productivity, improving risk assessment and monitoring as well as leading to better coverage and collaboration. However, there are some challenges related to using IT on audit profession, such as data security and privacy risks, high costs and investment, in addition to its required more skills. Also, relying only on technology may impair professional judgment.

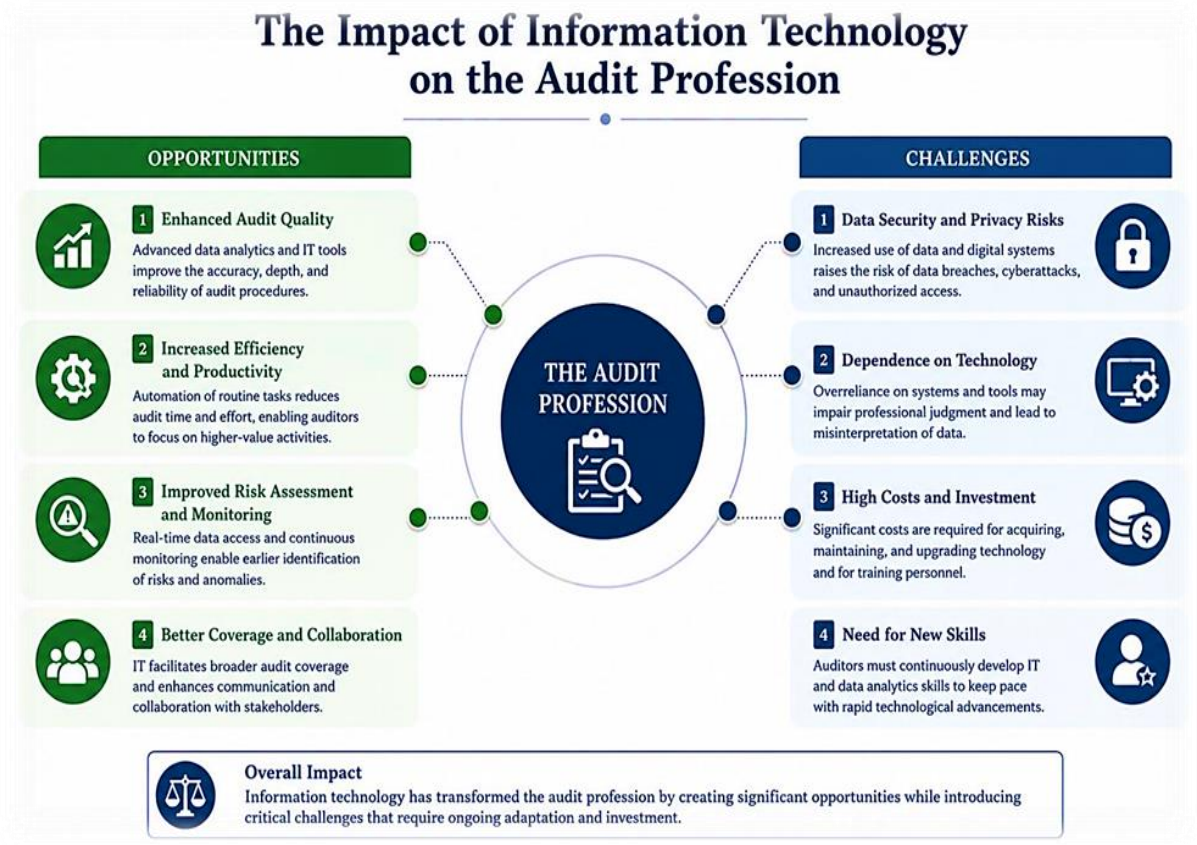


Figure 1. Below summarizes the present framework for opportunities and challenges of using IT on auditing profession

Sources: Authors' elaboration

Conclusion

In light of the rapid technological advancements driven by the Fourth Industrial Revolution, particularly the widespread adoption of IT, and the growing demand for high-quality, timely, and reliable information, it has become

imperative for auditors to embrace these emerging technologies in order to adept to the evolving digital environment. Integrating IT into audit planning and execution enhances the efficiency and effectiveness of audit procedures, thereby improving overall audit quality. Moreover, IT strengthens the auditing profession by improving auditors' ability to identify and assess risks, facilitating the early detection of errors and fraudulent activities, and enhancing that accuracy and reliability of financial information. Despite the substantial opportunities that IT offers to the auditing profession, several challenges and risks continue to hinder its effective adoption. Among the most significant are concerns related to data security and privacy, which necessitate the implementation of robust cybersecurity measures to safeguard sensitive information. In addition, vulnerabilities associated with electronic system and digital audit evidence may increase audit risk if appropriate controls and security mechanism are not effectively implemented. Accordingly, this study recommends that accounting and auditing professionals, as well as researchers and academic institutions, place greater emphasis on emerging information technologies – including Digital Twins, Artificial Intelligence (Al), Blockchain, Data Mining, the Internet of Things (IoT), Big Data Analytics, and Cybersecurity- and further investigate their implications for the accounting and auditing profession. A comprehensive understanding of these technologies and their practical applications will facilitate their successful integration into auditing practices, enhance audit quality, and support the ongoing digital transformation of the accounting and auditing profession.

Acknowledgments: The authors would like to express their gratitude Financial Affairs Department in Mustansiriyah University for them encourage and support.

Conflict of Interest: None

Financial Support: None

Ethics Statement: The research was conducted with ethical standards. The authors confirmed that all sources and data that was used in this study has been conducted from a general publishing official data and has been used only of scientific purposes.

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