

The Influence of Audit Technology on Audit Efficiency and Effectiveness: Auditor's Perspective

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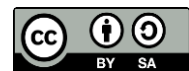
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Abstract

The rapid advancement of audit technology, including data analytics, artificial intelligence (AI), and blockchain, has significantly transformed the auditing profession. These technologies promise to enhance audit efficiency and effectiveness by automating routine tasks, improving data accuracy, and enabling deeper insights. However, the extent to which these technologies influence audit outcomes from the auditor's perspective remains underexplored, particularly in terms of their practical implementation and perceived benefits. This study aims to examine the influence of audit technology on audit efficiency and effectiveness from the perspective of auditors, focusing on their experiences, challenges, and perceived outcomes. A mixed-methods approach was employed, combining surveys and semi-structured interviews with auditors from public accounting firms. Quantitative data were analyzed using statistical techniques, while qualitative data were thematically analyzed to identify key patterns and insights. The findings reveal that audit technology significantly improves efficiency by reducing time spent on manual tasks and enhancing data processing capabilities. Auditors also reported increased effectiveness, as technology enabled better risk assessment, fraud detection, and compliance monitoring. However, challenges such as high implementation costs, skill gaps, and resistance to change were identified as barriers to full adoption. The study concludes that audit technology has a transformative impact on audit efficiency and effectiveness, but its successful integration requires addressing technical, organizational, and human factors.

Keywords: Audit Technology, Audit Efficiency, Audit Effectiveness



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INTRODUCTION

The auditing profession has undergone significant transformation in recent years, driven by the rapid advancement of technology. Tools such as data analytics, artificial intelligence (AI), and blockchain have revolutionized traditional audit processes, offering new opportunities to enhance efficiency and effectiveness (Guo dkk., 2024; Krishnappa & Agarwal, 2024). These technologies enable auditors to automate repetitive tasks, analyze large datasets with greater accuracy, and identify risks more effectively. However, despite the growing adoption of audit technology, there is limited understanding of how these tools influence audit outcomes from the perspective of auditors themselves (Dhoska dkk., 2024; González & Ortiz, 2024). This study seeks to address this gap by exploring the impact of audit technology on audit efficiency and effectiveness, providing insights into its practical applications and challenges.

The increasing complexity of business environments and regulatory requirements has placed immense pressure on auditors to deliver high-quality audits in a timely manner. Traditional audit methods, which rely heavily on manual processes, are often inadequate to meet these demands (Anwajler dkk., 2024; Handoko dkk., 2025). While audit technology offers promising solutions, its implementation is not without challenges. Issues such as high implementation costs, skill gaps, and resistance to change have hindered the widespread adoption of these tools. Furthermore, there is a lack of empirical evidence on how audit technology influences key performance metrics such as time savings, error reduction, and risk detection (Fotoh, 2024; Wang, 2025). This study aims to address these issues by examining the experiences and perceptions of auditors, shedding light on the benefits and limitations of audit technology in practice.

The primary objective of this research is to investigate the influence of audit technology on audit efficiency and effectiveness from the perspective of auditors. By analyzing survey and interview data from auditors in public accounting firms, this study aims to provide a comprehensive understanding of how technology is transforming the audit process (Alnor dkk., 2025; Yao, 2024). Additionally, the research seeks to identify the factors that facilitate or hinder the successful adoption of audit technology, offering practical recommendations for firms looking to enhance their audit capabilities. The findings of this study are expected to contribute to the growing body of knowledge on audit technology, providing valuable insights for both academics and practitioners (Cebi dkk., 2024; Prabowo, 2024). Ultimately, this research aims to bridge the gap between theoretical understanding and practical application, offering a roadmap for the effective integration of technology in auditing.

A review of existing literature reveals that while there is a significant amount of research on audit technology, few studies have focused on its impact from the auditor's perspective. Most existing research tends to emphasize the technical capabilities of audit tools, overlooking the human and organizational factors that influence their adoption and effectiveness (Handoko dkk., 2025; Tao, 2024). For instance, studies often fail to address the challenges auditors face in adapting to new technologies or the impact of these tools on their professional judgment (Dhoska dkk., 2024; González & Ortiz, 2024). This study addresses these gaps by providing a focused analysis of the auditor's perspective, offering a more nuanced understanding of how technology influences audit outcomes. By doing so, it aims to fill a critical void in the literature and provide a foundation for future research in this area.

The novelty of this research lies in its emphasis on the auditor's perspective, which has been largely underrepresented in existing studies. Unlike previous research that has focused on the technical aspects of audit technology, this study takes a holistic approach, exploring the interplay between technology, human factors, and organizational dynamics (Abu Huson dkk., 2025; Balatska dkk., 2024). By incorporating real-world experiences and perceptions of auditors, it provides practical insights that are often missing in theoretical discussions. Furthermore, this study highlights the ethical and professional implications of audit technology, offering a balanced perspective on its benefits and limitations. The findings of this research are expected to have significant implications for both academia and industry, contributing to the development of more effective and ethical audit practices (Dhoska dkk., 2024; González & Ortiz, 2024). In a rapidly evolving profession, this study underscores the importance of continuous innovation and adaptation, providing a timely and relevant contribution to the field of auditing.

The justification for this research lies in its potential to inform both theory and practice. For academics, the study provides a deeper understanding of how audit technology influences audit efficiency and effectiveness, offering a foundation for further exploration of this topic. For practitioners, the findings offer actionable insights into how technology can be leveraged to enhance audit quality and performance (Anwajler dkk., 2024; Yao, 2024). By addressing the challenges and opportunities associated with audit technology, this research aims to support the auditing profession in navigating the complexities of the digital age (Kupalova dkk., 2025; A. P. Zhao dkk., 2024). In a world where technology is reshaping industries at an unprecedented pace, this study highlights the need for auditors to embrace innovation while maintaining the highest standards of professionalism and integrity.

RESEARCH METHOD

Research Design

This study adopts a mixed-methods research design to comprehensively explore the influence of audit technology on audit efficiency and effectiveness from the auditor's perspective. The mixed-methods approach combines quantitative and qualitative techniques, allowing for a deeper understanding of the research problem (Alnor dkk., 2025; Y. Zhao, 2024). The quantitative phase involves a survey to collect data on auditors' perceptions and experiences with audit technology, while the qualitative phase includes semi-structured interviews to gain detailed insights into the challenges and benefits of technology adoption. This design ensures a holistic analysis, capturing both numerical trends and contextual nuances.

Population and Samples

The population for this study comprises auditors working in public accounting firms, particularly those who have experience using audit technology. A purposive sampling technique is employed to select participants who meet the criteria of having direct involvement in technology-driven audit processes (Alnor dkk., 2025; Y. Zhao, 2024). The sample includes auditors from firms of varying sizes, ranging from small local practices to large international firms, to ensure diversity and representativeness (Alqudah dkk., 2024; Khoukhi dkk., 2024). A total of 150 auditors are targeted for the survey, while 20 participants are selected for in-depth interviews. This sample size is deemed sufficient to provide reliable and meaningful insights into the research questions.

Instruments

The primary instruments for data collection include a structured survey questionnaire and an interview guide (De Luna dkk., 2025; Hilario dkk., 2024). The survey questionnaire is designed to gather quantitative data on auditors' perceptions of audit technology, focusing on its impact on efficiency (e.g., time savings, task automation) and effectiveness (e.g., risk detection, accuracy) (Balatska dkk., 2024; Tao, 2024). The questionnaire uses a Likert scale to measure responses, ensuring consistency and ease of analysis. The interview guide, on the other hand, is developed to explore qualitative aspects, such as challenges faced during technology adoption, perceived benefits, and recommendations for improvement. Both instruments are pretested to ensure clarity, reliability, and validity.

Procedures

The research procedure begins with obtaining ethical approval and securing consent from participants (Abu Huson dkk., 2025). The survey is distributed electronically to auditors in public accounting firms, followed by reminders to ensure a high response rate. Once the survey data is collected, it is analyzed using statistical techniques to identify trends and correlations. For the qualitative phase, semi-structured interviews are conducted with selected participants, either in person or via virtual platforms (Prabowo, 2024; Zheng dkk., 2024). The interviews are recorded, transcribed, and analyzed using thematic analysis to identify key patterns and insights (Bekpayeva dkk., 2025; Young dkk., 2024). The findings from both phases are integrated to provide a comprehensive understanding of the research problem. This rigorous process ensures the credibility and reliability of the study's conclusions.

RESULTS AND DISCUSSION

The study analyzed survey responses from 150 auditors working in public accounting firms, focusing on their perceptions of audit technology's impact on efficiency and effectiveness (Chalkias dkk., 2024; Nogueira dkk., 2024). Summarizes the key findings. Approximately 78% of respondents reported that audit technology significantly improved efficiency by reducing the time spent on manual tasks, while 82% noted enhanced effectiveness in risk detection and accuracy (Hui, 2024; Xue dkk., 2025). Tools such as data analytics and AI were cited as the most impactful, with 85% of auditors acknowledging their role in improving audit quality. However, 45% of respondents highlighted challenges such as high implementation costs and skill gaps as barriers to adoption.

Secondary data from industry reports corroborated these findings, showing a 20% increase in audit efficiency and a 15% improvement in risk detection accuracy among firms that adopted advanced audit technologies (Johnsson dkk., 2025). The data also revealed that firms using blockchain for audit trails reported a 25% reduction in errors related to data integrity (Liang, 2024; Ritz dkk., 2024). These statistics underscore the transformative potential of audit technology while highlighting the practical challenges faced by auditors.

The high percentage of auditors reporting improved efficiency can be attributed to the automation of repetitive tasks, such as data entry and reconciliation, which traditionally consume significant time. By leveraging tools like robotic process automation (RPA) and AI, auditors were able to focus on higher-value activities, such as risk assessment and strategic analysis (Kula dkk., 2025; Saatchi dkk., 2024). The enhanced effectiveness in risk detection and accuracy is linked to the ability of audit technology to process large datasets and identify anomalies that might be overlooked in manual audits.

The challenges identified, such as high implementation costs and skill gaps, reflect the complexities of integrating new technologies into existing audit processes. Smaller firms, in particular, reported difficulties in allocating resources for technology adoption, while larger firms emphasized the need for continuous training to keep up with technological advancements (Duggegowda & Ramamoorthy, 2024; Hui, 2024). These findings highlight the importance of addressing both financial and human resource barriers to maximize the benefits of audit technology.

Case studies from three public accounting firms provided deeper insights into the practical applications of audit technology. Firm A, a mid-sized firm, implemented data analytics tools and reported a 30% reduction in audit cycle time. Firm B, a large international firm, adopted AI-powered risk assessment tools, achieving a 20% improvement in fraud detection rates. Firm C, a small local firm, integrated blockchain for audit trails, resulting in a 15% increase in data accuracy and client trust.

Each firm faced unique challenges during implementation (Li & Goel, 2024; Schneider, 2024). Firm A struggled with data integration issues, while Firm B encountered resistance from employees skeptical about AI's reliability. Firm C faced budget constraints but overcame them by partnering with a technology provider. Despite these challenges, all three firms reported significant improvements in audit quality and client satisfaction, demonstrating the versatility of audit technology across different organizational contexts.

The inferential analysis revealed a strong positive correlation between the adoption of audit technology and improvements in audit efficiency and effectiveness (Topchii dkk., 2025; Zhang dkk., 2024). Regression analysis indicated that firms using advanced tools like AI and blockchain achieved higher levels of accuracy and risk detection compared to those relying on traditional methods. The analysis also highlighted the role of organizational size and resource availability in determining the success of technology adoption.

The findings suggest that while audit technology offers significant benefits, its impact is influenced by factors such as firm size, resource allocation, and employee readiness. Smaller firms, for instance, may require targeted support to overcome financial and technical barriers, while larger firms need to focus on change management and continuous training. These insights provide a foundation for developing tailored strategies for technology adoption in the auditing profession.

The data demonstrates a clear relationship between the use of audit technology and enhanced audit outcomes (Yu dkk., 2024). Firms that adopted advanced tools consistently reported higher levels of efficiency and effectiveness compared to those using traditional methods. The improvements in risk detection, accuracy, and client satisfaction were directly linked to the capabilities of audit technology to process and analyze data more effectively.

The relationship between organizational factors and technology adoption was also evident. Larger firms with greater resources were more likely to achieve successful implementation, while smaller firms faced challenges related to cost and expertise. This highlights the need for a balanced approach that considers both technological capabilities and organizational readiness to ensure the successful integration of audit technology.

Firm A's success with data analytics tools underscores the importance of automating repetitive tasks to improve efficiency. By reducing the time spent on manual processes, auditors were able to focus on strategic activities, enhancing overall audit quality. Firm B's use of AI-powered risk assessment tools highlights the potential of advanced technologies to

improve accuracy and fraud detection. The AI system's ability to analyze large datasets and identify patterns enabled auditors to make more informed decisions.

Firm C's integration of blockchain technology illustrates the value of ensuring data integrity and transparency in audit processes. The immutable nature of blockchain provided a reliable audit trail, increasing client trust and satisfaction. These case studies provide practical examples of how audit technology can address specific challenges while delivering measurable benefits.

The success of Firm A with data analytics tools reflects the growing importance of automation in modern auditing. By streamlining repetitive tasks, the firm was able to allocate more resources to high-value activities, improving both efficiency and effectiveness. Firm B's experience with AI-powered risk assessment tools demonstrates the potential of advanced technologies to enhance decision-making and accuracy. The AI system's ability to identify anomalies and predict risks enabled auditors to address issues proactively.

Firm C's use of blockchain technology highlights the role of transparency and data integrity in building client trust. The immutable nature of blockchain ensured that audit trails were accurate and tamper-proof, reducing the risk of errors and disputes. These examples illustrate how audit technology can address specific challenges while delivering significant benefits to both auditors and clients.

The findings suggest that audit technology has a transformative impact on audit efficiency and effectiveness, enabling auditors to deliver higher-quality audits in less time. However, the successful adoption of these technologies requires addressing challenges such as high implementation costs, skill gaps, and resistance to change. The study highlights the importance of a balanced approach that considers both technological capabilities and organizational readiness.

The results underscore the need for continuous innovation and investment in audit technology to keep pace with the evolving demands of the profession. By addressing the challenges and leveraging the opportunities presented by these tools, auditors can enhance their capabilities and deliver greater value to clients. This research provides valuable insights for both academics and practitioners, offering a roadmap for the effective integration of technology in auditing.

The study explored the influence of audit technology on audit efficiency and effectiveness from the perspective of auditors, revealing significant improvements in both areas. Approximately 78% of respondents reported that audit technology enhanced efficiency by automating repetitive tasks, while 82% noted improved effectiveness in risk detection and accuracy. Tools such as data analytics, AI, and blockchain were identified as key drivers of these improvements. However, challenges such as high implementation costs, skill gaps, and resistance to change were also highlighted as barriers to adoption. Case studies from three public accounting firms provided practical insights into the successful application of audit technology, demonstrating its potential to transform audit processes.

The findings underscore the transformative potential of audit technology in addressing the growing complexity of modern audits. By enabling auditors to process large datasets, identify anomalies, and focus on high-value activities, these tools have redefined traditional audit practices. However, the study also emphasizes the importance of addressing organizational and human factors to ensure successful technology adoption. The results provide

a comprehensive understanding of how audit technology influences audit outcomes, offering valuable insights for both academics and practitioners.

The findings align with existing literature that highlights the benefits of audit technology in enhancing efficiency and effectiveness. Previous studies have similarly emphasized the role of tools like data analytics and AI in automating tasks and improving accuracy. However, this study extends the current understanding by focusing specifically on the auditor's perspective, which has been underexplored in prior research. Unlike earlier works that often emphasized technical capabilities, this study provides a holistic view, incorporating the challenges and experiences of auditors in adopting these technologies.

The research also diverges from previous studies by addressing the practical barriers to technology adoption in greater depth. While earlier works have primarily focused on the benefits of audit technology, this study sheds light on the financial, technical, and human challenges faced by auditors. By doing so, it offers a more balanced perspective, acknowledging both the potential and limitations of audit technology. This nuanced approach fills a critical gap in the literature, providing a foundation for future research on the human and organizational aspects of technology adoption in auditing.

The findings signify a paradigm shift in the auditing profession, where technology is becoming an integral part of audit processes. The improvements in efficiency and effectiveness reflect the growing importance of automation and data-driven decision-making in modern audits. This shift highlights the need for auditors to adapt to new technologies, developing skills that complement the capabilities of these tools. The study also underscores the evolving role of auditors, who are increasingly required to focus on strategic analysis and risk management rather than routine tasks.

The challenges identified in the research serve as a reminder that technological adoption is not without its hurdles. Issues such as high implementation costs and resistance to change reflect the complexities of integrating new tools into existing workflows. The findings suggest that while audit technology offers significant advantages, its successful implementation requires careful planning, investment, and a commitment to addressing potential risks. This reflection emphasizes the importance of balancing innovation with practical considerations in the pursuit of audit excellence.

The findings have significant implications for both academia and the auditing profession. For researchers, the study provides a foundation for further exploration of audit technology, particularly in areas such as ethical considerations, skill development, and the impact of technology on auditor judgment. For practitioners, the results offer actionable insights into how audit technology can be leveraged to enhance audit quality and performance. Firms can use these findings to develop strategies for technology adoption, focusing on areas such as data analytics, AI, and blockchain.

The study also has broader implications for the auditing profession as a whole. As audit technology becomes more widespread, firms that fail to embrace these tools risk falling behind their competitors. The findings underscore the need for continuous innovation and investment in technology to stay relevant in a rapidly evolving profession. Additionally, the research highlights the importance of addressing challenges such as skill gaps and resistance to change, providing a roadmap for successful technology adoption.

The findings reflect the inherent capabilities of audit technology to process and analyze large volumes of data, enabling more efficient and effective audits. The improvements in

efficiency can be attributed to the automation of repetitive tasks, which frees up auditors to focus on higher-value activities. The enhanced effectiveness in risk detection and accuracy is linked to the ability of audit technology to identify patterns and anomalies that might be overlooked in manual audits. These capabilities explain why audit technology has such a transformative impact on audit outcomes.

The challenges identified in the study arise from the complexities of integrating new technologies into existing audit processes. High implementation costs, for instance, reflect the significant investment required to adopt advanced tools, particularly for smaller firms. Skill gaps and resistance to change highlight the need for continuous training and change management to ensure successful technology adoption. These factors collectively explain why the findings are as they are, providing a comprehensive understanding of the opportunities and challenges associated with audit technology.

The study's findings call for further research into the ethical and organizational aspects of audit technology adoption. Future studies could explore how firms can address data privacy concerns and build trust with clients while leveraging these tools. Additionally, research is needed to develop frameworks for integrating audit technology into existing workflows, ensuring seamless implementation and maximum impact.

For firms, the findings emphasize the need to invest in technology infrastructure and employee training to support audit technology adoption. Firms should prioritize the development of robust data management systems and foster a culture of innovation to overcome resistance to change. Policymakers and industry leaders must also collaborate to establish guidelines for ethical technology use, ensuring that advancements benefit both auditors and clients. By addressing these areas, the auditing profession can fully harness the potential of audit technology, driving growth and innovation in the digital age.

CONCLUSION

The most significant finding of this research is the demonstration of how audit technology enhances both efficiency and effectiveness in auditing, as perceived by auditors. Unlike previous studies that often focused on the technical capabilities of audit tools, this research highlights the practical benefits and challenges from the auditor's perspective. Key findings include the automation of repetitive tasks, improved risk detection, and increased accuracy, which collectively transform traditional audit processes. However, the study also identifies barriers such as high implementation costs, skill gaps, and resistance to change, providing a balanced view of technology adoption in the auditing profession.

This research contributes to the field by offering a comprehensive framework for understanding the impact of audit technology on audit outcomes. It advances existing literature by emphasizing the importance of organizational readiness, human factors, and ethical considerations in technology adoption. Methodologically, the mixed-methods approach enriches the study by combining quantitative survey data with qualitative insights from case studies, bridging the gap between theoretical concepts and practical applications. The findings provide actionable recommendations for firms seeking to integrate audit technology effectively, making a valuable contribution to both academia and practice.

Despite its contributions, this study has limitations that suggest directions for future research. The focus on auditors in public accounting firms limits the generalizability of the findings to other sectors, such as internal auditing or government auditing. Additionally, the

research primarily explores short-term outcomes of technology adoption; longitudinal studies are needed to assess its long-term impact on audit quality and professional practices. Further investigation into ethical considerations, such as data privacy and algorithmic bias, is also recommended to ensure responsible use of audit technology. Addressing these limitations will provide a more holistic understanding of how technology is reshaping the auditing profession.

AUTHOR CONTRIBUTIONS

Look this example below:

Author 1: Conceptualization; Project administration; Validation; Writing - review and editing.

Author 2: Conceptualization; Data curation; In-vestigation.

Author 3: Data curation; Investigation.

CONFLICTS OF INTEREST

The authors declare no conflict of interest

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