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Improving Auditor Competence and Audit Quality Through Artificial Intelligence Moderation in Modern Financial Statement Digitization

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ABSTRACT

This research seeks to explore how the digitization of financial statements influences auditor competence and audit quality, alongside examining the moderating effect of Artificial Intelligence (AI) in this context. In the face of today's intricate business landscape, the auditing field must continually embrace new technologies to uphold precision and effectiveness. Employing a quantitative methodology, this study utilizes the Partial Least Squares-Structural Equation Modeling (PLS-SEM) analysis technique. Data were gathered through purposive sampling methods via questionnaires from 132 auditors employed at Public Accounting Firms (KAP) in the West Java area. The findings reveal that digitizing financial reports can substantially enhance both auditor competence and audit quality. Furthermore, AI usage has been shown to have a direct positive influence on these aspects. A key discovery of this study is that AI significantly moderates and bolsters the link between financial report digitization and auditor competence. However, AI does not significantly moderate the connection between digitization and audit quality. This suggests that audit quality is not solely reliant on technology but is also shaped by other elements such as human expertise, quality control, and adherence to audit standards. This study adds to the digital audit literature by emphasizing the significance of balanced technology integration in developing nations.

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Introduction

The rapid evolution of digital technologies and the increasing complexity of the global business environment have fundamentally transformed the auditing profession. In today's data-driven economy, auditors are expected not only to maintain traditional competencies but also to adapt to emerging technologies that enhance audit efficiency, accuracy, and reliability. Among these technologies, artificial intelligence (AI) has emerged as a key driver of innovation in auditing, enabling auditors to process large volumes of financial data, detect anomalies, and support decision-making processes with greater precision. Consequently, the integration of digital tools into financial reporting and auditing practices has become essential for maintaining audit quality in modern organizations.

The digitalization of financial statements represents a significant shift from conventional, manual reporting systems to automated, technology-driven processes. This transformation enables real-time data processing, improved transparency, and enhanced accessibility of financial information. Digital reporting standards, such as eXtensible Business Reporting Language (XBRL), have further facilitated the standardization and comparability of financial data, allowing auditors to perform more comprehensive and efficient analyses. Prior research has consistently demonstrated that digitalization enhances auditors' technical capabilities, strengthens risk assessment procedures, and ultimately improves audit quality. In addition, the use of advanced technologies such as big data analytics, blockchain, and AI has contributed to the development of more sophisticated audit methodologies, including continuous auditing and full-population testing.

Despite these advancements, audit failures continue to occur across various jurisdictions, including in developing countries such as Indonesia. High-profile financial scandals, such as those involving Jiwasraya, Garuda Indonesia, and Bank Century, highlight persistent challenges related to auditor judgment, professional skepticism, and ethical decision-making. These cases suggest that while digital technologies can improve audit processes, they do not automatically guarantee high-quality audit outcomes. Human factors, including auditor competence, experience, and professional integrity, remain critical determinants of audit quality. Therefore, understanding how technological advancements interact with human competencies is essential for improving the effectiveness of auditing practices.

Existing literature has largely focused on the direct impact of digitalization on audit performance, often emphasizing its positive effects on efficiency and accuracy. However, relatively limited attention has been given to the role of artificial intelligence as a moderating factor in this relationship. In particular, there is a lack of empirical research examining how AI influences the extent to which financial statement digitalization affects auditor competence and audit quality. While some studies have explored the adoption of AI in auditing, they tend to treat AI as an independent variable rather than considering its potential to strengthen or weaken the impact of other technological developments. This represents a significant gap in the literature, as the effectiveness of digitalization may depend on the extent to which AI is integrated into audit processes.

Furthermore, most prior studies have been conducted in developed economies, where technological infrastructure, regulatory frameworks, and professional training systems are relatively advanced. As a result, the findings of these studies may not be fully applicable to developing countries, where resource constraints, limited technological readiness, and varying levels of auditor expertise may influence the adoption and effectiveness of digital technologies. In such contexts, the integration of AI into auditing practices may face additional challenges, including insufficient training, regulatory uncertainty, and resistance to technological change. Therefore, there is a need for context-specific research that examines the role of AI in enhancing audit performance within developing economies.

This study aims to address these gaps by examining the impact of financial statement digitalization on auditor competence and audit quality, while also investigating the moderating role of artificial intelligence in these relationships. Unlike previous studies that treat AI primarily as a tool, this research conceptualizes AI as a moderating variable that can influence the strength and direction of the relationship between digitalization and audit outcomes. By doing so, this study provides a more nuanced understanding of how technological and human factors interact in shaping audit performance.

The theoretical framework of this study is grounded in Disruptive Innovation Theory and the Technology Acceptance Model (TAM). Disruptive Innovation Theory explains how emerging technologies, such as AI, can fundamentally change existing processes and create new opportunities for improving efficiency and effectiveness. Meanwhile, TAM provides insights into how users perceive and adopt new technologies, emphasizing the importance of perceived usefulness and ease of use in influencing technology acceptance. By integrating these theoretical perspectives, this study offers a comprehensive approach to analyzing the adoption and impact of digital technologies in auditing.

Empirically, this study focuses on auditors working in Public Accounting Firms (PAFs) in West Java, Indonesia. This region provides a relevant research setting due to its significant economic activity and increasing demand for high-quality auditing services. Moreover, the diversity of firms operating in this region, ranging from small to large accounting firms, allows for a more comprehensive analysis of how digitalization and AI adoption vary across organizational contexts. By examining these dynamics in a developing country setting, this study contributes to the existing literature by providing insights that are more representative of global auditing practices.

This research seeks to advance the understanding of digital transformation in auditing by exploring the interplay between financial statement digitalization, artificial intelligence, auditor competence, and audit quality. By highlighting the moderating role of AI, this study not only contributes to the academic literature but also provides practical implications for accounting professionals, firms, and regulators seeking to enhance audit performance in the digital era.

Literature Review

Financial Statement Digitalization

The digital transformation of financial reporting involves shifting from manual or partially manual systems to digital formats that utilize technology for the automatic and real-time processing, storage, and analysis of financial data(Werner et al., 2021). This transformation not only changes the appearance of reports but also restructures accounting information into machine-readable data, thereby laying the foundation for continuous auditing and real-time assurance through auditors' direct access to financial information (Eulerich et al.,2025). Standards for digital reporting, like XBRL, improve the clarity, comparability, and dependability of financial statement disclosures, thus enhancing the value of information for stakeholders in their decision-making processes(Al-Okaily et al.,2024). From the perspective of Information Processing Theory, decision quality improves when information is available quickly and systematically organized, confirming the benefits of digitization in the audit environment (Scarton et al., 2025). Additionally, Digital Transformation Theory emphasizes that digital technology enhances organizational process efficiency and information quality, enabling the implementation of more advanced analytical audit procedures (Xin et al.,2024).

Artificial Intelligence

Artificial Intelligence (AI) refers to a computer system that can execute cognitive functions like learning, recognizing patterns, making predictions, and making decisions, which are usually carried out by humans (Peng et al., 2023). In the field of auditing, AI is utilized for various advanced functions, including anomaly detection, fraud prediction, automated risk assessment, and intelligent sampling. The use of AI is driving a shift in auditing practices from traditional sampling-based approaches to full population-based auditing, resulting in a more comprehensive and accurate auditing process (Hu et al., 2023). According to the technology acceptance model, auditors' views on how beneficial and user-friendly AI is play a role in its adoption(Roy et al., 2025). Moreover, the Augmented Intelligence Theory highlights that AI is intended to augment auditors' professional skills rather than replace them. By automating routine tasks, AI allows auditors to concentrate on more intricate professional judgments (Peng et al., 2023). The implementation of machine learning by the Big Four firms shows that AI improves the ability to detect misstatements and anomalies, while also increasing audit efficiency and quality. Thus, AI enables auditors to shift from routine work to high-value-added assessment-based activities (Hu et al., 2023).

Auditor Competencies

Auditor competency is a combination of knowledge, technical skills, experience, and professional capabilities that enable auditors to carry out the audit process effectively in accordance with professional standards. This competency includes technical skills, professional skepticism, analytical skills, and an understanding of ethics as described by the International Federation of Accountants (IFAC) (Ya Hui Chen et al., 2023). Theoretically, auditor competency can be explained through Human Capital Theory, which states that investment in education and experience improves individual professional performance (Kucharčíková et al.,2023). In addition, Audit Expertise Theory emphasizes that experienced auditors have a more organized knowledge structure, enabling them to perform the audit process more effectively and accurately (Gold et al.,2024). In the digital environment, auditor competencies have evolved beyond traditional capabilities to include mastery of data analysis, knowledge of information technology auditing, and artificial intelligence-based decision-making skills. Therefore, developing auditor competencies through technological capability enhancement is an important part of strengthening the quality of modern auditing.

Auditor Quality

Audit quality refers to the likelihood that auditors can identify and disclose significant inaccuracies in financial statements, which is affected by their independence, skill, and the efficiency of audit procedures(Brewster et al., 2021). According to Agency Theory, quality audits help mitigate conflicts of interest between management and company owners, while Assurance Theory highlights the role of audits in boosting the credibility of financial information. In the digital age, the quality of audits is increasingly shaped by the use of technologies like continuous auditing, comprehensive data testing, and predictive risk analytics, which enhance the precision and effectiveness of the audit process (Chen, et al.,2022). Data analytics and artificial intelligence (AI) have been shown to enhance auditors' capabilities in uncovering fraud by enabling more comprehensive data examination and spotting irregularities in transactions (Lokanan & Maddhesia, 2024). This technology also expands the scope of examination from sampling methods to testing the entire data population, thereby reducing the risk of audit errors and increasing the objectivity and effectiveness of financial statement oversight (Barr-Pulliam et al., 2021).

Hypothesis Development

Based on a comprehensive theoretical review and the research paradigm framework described earlier, this study develops a series of hypotheses that describe the relationship between the main variables (Maulana et al., 2025). These hypotheses are designed to indicate the direction and magnitude of the expected influence, which will be verified through empirical testing to obtain systematic and reliable scientific evidence.

H1: Financial Statement Digitization has a positive effect on Auditor Competence.
H2: Financial Statement Digitization has a positive effect on Audit Quality.
H3: Artificial Intelligence has a positive effect on Auditor Competence.
H4: Artificial Intelligence has a positive effect on Audit Quality.
H5: Artificial Intelligence strengthens the effect of Financial Statement Digitization on Auditor Competence.
H6: Artificial Intelligence strengthens the influence of Financial Statement Digitization on Audit Quality.

To test the conceptual model, an internal model was created that explains the relationship between audit quality (Y2) and financial statement digitization (X), with AI (Z) acting as a moderator and auditor competence (Y1) acting as a mediator. R-square and Q-square were used to test the model fit, which measures how well the model predicts endogenous latent variables. To ensure that the study indicators have a strong relationship with their latent variables, the external model evaluation approach uses composite reliability, convergent validity, and discriminant validity tests (Ghozali, 2018;Setiadi, 2026). A deeper understanding of how digitalization and AI regulate the relationship between auditor competence and audit quality in Indonesia is expected as a result of this method.

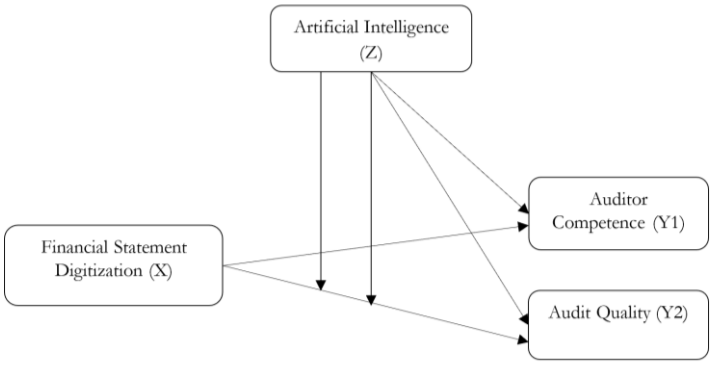

Figure 1. Research Model

Method

This research employed quantitative methods and statistical analysis to examine the causal link between the variables under investigation (Sugiyono, 2019). The research sample was chosen through purposive sampling, with the primary criterion being that auditors possessed a minimum of two years of experience in projects involving the digitization of financial statements using artificial intelligence (AI). The research sample consisted of 132 respondents, in accordance with the Morgan and Krejcie formula. The study's variables included the digitization of financial statements as the independent variable (X), with auditor competence (Y1) and audit quality (Y2) serving as the dependent variables. Additionally, there was a moderator variable (Z), which could either enhance or diminish the connection between the independent and dependent variables, specifically artificial intelligence (Hair et al., 2021).

Data was gathered using a questionnaire featuring a five-point Likert scale, where participants were asked to evaluate statements about digitization, auditor skills, and the application of artificial intelligence (AI) in auditing. The study employed SmartPLS software to analyze the connections between variables in the structural model, utilizing Structural Equation Model-Partial Least Squares (SEM-PLS) analysis to assess these relationships(Ghozali & Latan, 2020). This method was chosen because it does not require multivariate normal data distribution and can handle research models with many variables. The data distribution, mean values, and variability of the collected data were described using descriptive statistical analysis. The evaluation of the model involved utilizing an internal model to assess how well the model fits and an external model to examine its validity and reliability.

Results and Discussion

Respondent characteristics, including age, gender, length of service, and highest level of education, are summarized from the collected research data.

Table 1. Respondent Demographics

Description	Category	Number	Percentage
Age	18 - 24 years	27	20.45
	25 - 34 years	64	48.48
	35 - 44 years	27	20.45
	> 44 years old	14	10.61
Total		132	100.00
Gender	Male	60	45.45
	Female	72	54.55
Total		132	100.00
Education Final	Diploma	24	18.18
	Bachelor	86	65.15
	Master's Degree	17	12.88
	Doctorate	5	3.79
Total		132	100.00
Duration of employment	< 2 years	41	June 31
	25 years	65	49.24
	> 5 years	26	19.70
Total		132	100.00

Based on the demographic data of respondents in Table 2, the majority of respondents were in the 25–34 age range (48.48%), indicating that most auditors were in the early to mid-stage of their professional careers and were likely to be more adaptive to digital technology. In terms of gender, female respondents dominated (54.55%), indicating high involvement of female auditors in the digitization of financial reports.

In terms of education, the majority of auditors have a Bachelor's degree (65.15%), followed by a Master's degree (12.88%), Diploma (18.18%), and Doctorate (3.79%), indicating that the majority of respondents have sufficient educational backgrounds to understand the audit digitization process and artificial intelligence integration.

Based on work experience, most respondents had 2–5 years of experience (49.24%), followed by less than 2 years (31.06%), and more than 5 years (19.70%), indicating that most auditors involved in this study were in a phase of professional development where they were beginning to explore and adopt new technologies in auditing. These characteristics of the respondents indicate that the digitization of financial reporting and the integration of artificial intelligence are likely to be supported by young auditors who have adequate educational backgrounds and are at a stage in their careers that allows them to more easily adapt to technological innovations in the field of auditing.

Table 2 shows a summary of the validity and reliability tests. All questionnaire items were declared valid because they had a factor load above 0.6. The latent variables in this research were deemed reliable, as the AVE exceeded 0.5, and both the Cronbach's Alpha and Composite Reliability values surpassed 0.7(Setiadi et al., 2025).

Table 2. Validity and Reliability Tests

Variable	Item	External Factor	Cronbach's Alpha	Composite Reliability	Average Extracted Variance (AVE)
Financial Statement Digitization	DoF1	0.825	0.963	0.964	0.661
	DoF2	0.819			
	DoF3	0.836			
	DoF4	0.847			
	DoF5	0.829			
	DoF6	0.789			
	DoF7	0.800			
	DoF8	0.793			
	DoF9	0.823			
	DoF10	0.786			
	DoF11	0.843			
	DoF12	0.773			
	DoF13	0.831			
	DoF14	0.774			
	DoF15	0.827			
Artificial intelligence	AI1	0.754	0.935	0.937	0.606
	AI2	0.781			
	AI3	0.747			
	AI4	0.769			
	AI5	0.805			
	AI6	0.836			
	AI7	0.732			
	AI8	0.741			
	AI9	0.796			
	AI10	0.787			
	AI11	0.807			
	AC1	0.813	0.946	0.948	0.675

Variable	Item	External Factor	Cronbach's Alpha	Composite Reliability	Average Extracted Variance (AVE)
Auditor Competency	AC2	0.902			
	AC3	0.794			
	AC4	0.872			
	AC5	0.788			
	AC6	0.828			
	AC7	0.833			
	AC8	0.859			
	AC9	0.767			
	AC10	0.747			
Auditor Quality	AQ1	0.834	0.966	0.967	0.662
	AQ2	0.833			
	AQ3	0.806			
	AQ4	0.796			
	AQ5	0.737			
	AQ6	0.836			
	AQ7	0.889			
	AQ8	0.763			
	AQ9	0.859			
	AQ10	0.864			
	AQ11	0.820			
	AQ12	0.850			
	AQ13	0.752			
	AQ14	0.766			
	AQ15	0.777			
	AQ16	0.814			

Table 3 shows that the evaluated variables have good construct reliability and high internal consistency. The Cronbach's alpha values demonstrate a high level of internal consistency, with figures ranging from 0.935 to 0.966, both of which surpass the recommended threshold of 0.7. Additionally, Composite Reliability confirms stable reliability, as it exceeds 0.9 across all constructs. The Average Variance Extracted (AVE) values, which assess convergent validity, indicate that the constructs effectively account for indicator variance, as they surpass the minimum required limit of 0.5, ranging from 0.606 to 0.675. These findings affirm the measurement model's consistency and reliability.

A summary of the hypothesis testing results is presented in Table 3 below:

Table 3. Hypothesis Testing

Variable	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	t-statistic (|O/STDEV|)	P-value
Financial Statement Digitization → Auditor Competency	0.720	0.730	0.068	10,655	0.00

Variable	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	t-statistic (|O/STDEV|)	P-value
Financial Statement Digitization → Auditor Quality	0.642	0.644	0.081	7,948	0.000
Artificial Intelligence → Auditor Competency	0.318	0.301	0.095	3.34	0.001
Artificial Intelligence → Auditor Quality	0.322	0.320	0.103	3.135	0.002
Artificial Intelligence × Digitalization of Financial Reports → Auditor Competency	0.442	0.423	0.090	4.909	0.000
Artificial Intelligence × Financial Statement Digitization → Auditor Quality	0.113	0.108	0.074	1.528	0.127

According to the hypothesis test results in Table 9, the digitization of financial reports significantly enhances both auditor competence (β = 0.720, p = 0.000) and audit quality (β = 0.642, p = 0.000). Furthermore, artificial intelligence (AI) plays a crucial role in significantly boosting audit quality (β = 0.322, p = 0.002) and auditor competence (β = 0.318, p = 0.001). The moderation analysis reveals that AI significantly strengthens the link between digital financial statement reporting and auditor competence (β = 0.442, p = 0.000), but it does not enhance the connection between digital financial statement reporting and audit quality (β = 0.113, p = 0.127). These findings suggest that both AI and the digitization of financial statements are essential for improving auditor competence and audit quality; however, the moderating effect of AI on audit quality remains unproven.

Table 4. Research Hypothesis Test Results

	Hypothesis	Information
H1	Financial Statement Digitization has a positive and significant effect on Auditor Competence	Supported
H2	Financial Statement Digitization has a positive and significant impact on Audit Quality	Supported
H3	Artificial Intelligence has a positive and significant impact on Auditor Competence	Supported
H4	Artificial Intelligence has a positive and significant impact on Audit Quality	Supported
H5	Artificial Intelligence moderates the impact of financial statement digitization on auditor competence	Supported
H6	Artificial Intelligence Moderates the Impact of Financial Statement Digitization on Audit Quality	Not supported

This research investigates how artificial intelligence (AI) influences the connection between digital financial statements and both auditor competence and audit quality. Aligning with earlier studies that highlight the necessity for auditors to become proficient in AI, blockchain, and big data analysis to enhance efficiency and precision, the results indicate that the digitization of financial statements notably boosts

auditor competence and audit quality(Nazar et al.,2023). Digitization reduces human error and improves transparency in financial reporting by facilitating real-time access and analysis of monetary data (Pizzi et al.,2024). In addition, electronic financial disclosure strengthens anomaly detection and facilitates compliance with international accounting standards, thereby contributing to overall audit quality (Huy & Phuc, 2023). However, cybersecurity threats and technology training needs are also serious aspects of the digital transition of audit practices.

These findings also reinforce the conclusion that AI significantly improves auditor competence and audit performance, as AI automates most tasks, accelerates consistency in fraud identification, and allows auditors involved in the audit process to focus on strategic and important decision-making processes (Sheikh et al.,2023). AI also makes it easier for auditors to understand complex financial information with fewer errors and, consequently, higher efficiency (Dalimunthe, 2021). Furthermore, this study also found that AI effectively mediates the effect of financial statement digitization on auditor competence and confirms previous findings emphasizing the importance of AI in improving the accuracy of digital audit analysis and decision-making (Rahman & Ziru, 2022). However, AI does not have a significant impact on the effects of digitization quality, and therefore, although AI improves auditor efficiency, its direct impact on audit quality in a digital environment may be limited by algorithm transparency, compliance with laws and regulations, and technological readiness (Prem & Shree, 2024). These results imply that AI needs to be well integrated into the digital audit framework to maximize benefits without conflicting with ethical and regulatory requirements.

The results of this research suggest that the shift to digital financial reporting significantly enhances auditor proficiency and the quality of audits. The move from conventional to digital reporting formats compels auditors to adapt by mastering analytical tools and honing their ability to handle extensive data sets. These findings are in line with previous research by Rahman & Ziru (2022), which found that the level of client digitization and the digital expertise of public accounting firms have a strong positive correlation with improved audit quality. Auditors who are well-versed in the digital reporting landscape can detect anomalies, trends, and risks of material misstatements more swiftly and precisely, leading to significantly more accurate and pertinent audit results. Furthermore, the integration of Artificial Intelligence (AI) has been shown to directly enhance auditor proficiency and the quality of audits. AI facilitates the automation of repetitive administrative and routine tasks, allowing auditors to dedicate more time and resources to complex audit areas, risk evaluation, and advanced analytical considerations. These findings are supported by research from Qader & Cek(2024) and Prem & Shree (2024), which states that the implementation of advanced technologies such as AI in the audit process can significantly reduce the risk of human error and enable comprehensive testing of the entire data population, no longer limited to traditional sampling methods.

The most crucial and interesting findings of this study lie in the analysis of the moderating effect. AI has been proven to significantly moderate and strengthen the relationship between financial reporting digitization and auditor competence. In other words, when the digital reporting ecosystem is combined with AI tools in accounting firms, auditors are exponentially required to improve their technological literacy and cognitive skills in order to operate this technology optimally. On the other hand, this study found that AI does not significantly moderate the relationship between financial reporting digitization and audit quality. This provides a fundamental insight that audit quality ultimately cannot depend entirely on the level of technological automation advancement. Audit integrity and outcomes still depend heavily on intrinsic human factors, such as professional skepticism, professional judgment, the implementation of good internal quality control systems in public accounting firms, and strict compliance with Public Accounting Professional Standards (SPAP). AI serves as a highly efficient support tool, but it is not a substitute for human reasoning and ethical judgment. This confirms that in developing countries, the integration of

modern technology must always go hand in hand with the development and strengthening of human resource capacity.

Conclusion

The findings of this research suggest that converting financial statements into digital formats positively and significantly enhances both auditor competence and the quality of audits. As audits become more digital, auditors become more adept at utilizing audit technology, leading to improved audit outcomes. Artificial intelligence (AI) also plays a crucial role in boosting auditor competence and audit quality by enabling more precise data analysis, detecting anomalies, and minimizing human errors. Additionally, AI significantly bolsters the connection between financial statement digitization and auditor competence, indicating that auditors using AI-enhanced digitization systems quickly gain technical skills in managing technology-driven audit data. However, the study also reveals that AI does not significantly influence the relationship between financial statement digitization and audit quality, suggesting that factors like auditor expertise, quality control, and adherence to relevant audit standards are more critical in determining the effectiveness of digitization on audit quality.

This research is subject to several limitations. Firstly, it concentrates solely on Public Accounting Firms (PAFs) located in West Java, which means the findings may not be directly applicable to other regions or different organizational types. Secondly, the study employs a quantitative approach and does not delve into factors that might affect the role of AI in enhancing audit quality, such as the organizational culture or the auditors' willingness to embrace new technology. To gain a deeper understanding of how auditors incorporate AI into their auditing practices, it is suggested that future research should adopt a qualitative approach and broaden the geographical focus. Additionally, further exploration is necessary to examine other factors, such as regulatory frameworks, auditor training, and the extent of technology utilization in the auditing field, which could reinforce the connection between the digitization of financial reporting and audit quality.

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