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The role of information technology in enhancing cybersecurity and audit quality for external auditors in public accounting firms

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Abstract
This research examines the role of information technology in enhancing cybersecurity and audit quality among external auditors within Public Accounting Firms in Jakarta. Utilizing a qualitative approach, data were collected through semi-structured interviews with three external auditors from three distinct Public Accounting Firms, complemented by observation and documentation. The findings reveal that information technology plays a crucial role in improving efficiency, accuracy, and speed in the audit process, enabling rapid access to client financial data, automating accounting processes, and implementing analytical software to identify anomalies and risks. Regarding cybersecurity, auditors implement data encryption, multi-factor authentication, role-based access controls, and regular system resilience testing to protect client data from cyber threats, while also conducting security policy assessments in accordance with applicable regulations such as ISO 27001 and GDPR. Furthermore, audit quality is influenced by auditor competence, independence, experience, and adherence to professional standards, with substantive testing procedures and risk-based approaches being essential for maintaining quality. The integration of information technology, robust cybersecurity measures, and auditor professionalism mutually reinforce each other to enhance overall audit quality in Public Accounting Firms operating in the digital era.

Keywords: Information technology, cybersecurity, audit quality, external auditor, public accounting firm

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Abstrak
Penelitian ini mengkaji peran teknologi informasi dalam meningkatkan keamanan siber dan kualitas audit di kalangan auditor eksternal di Kantor Akuntan Publik di Jakarta. Dengan menggunakan pendekatan kualitatif, data dikumpulkan melalui wawancara semi-terstruktur dengan tiga auditor eksternal dari tiga Kantor Akuntan Publik yang berbeda, dilengkapi dengan observasi dan dokumentasi. Temuan menunjukkan bahwa teknologi informasi memainkan peran penting dalam meningkatkan efisiensi, akurasi, dan kecepatan dalam proses audit, memungkinkan akses cepat ke data keuangan klien, mengotomatiskan proses akuntansi, dan menerapkan perangkat lunak analitik untuk mengidentifikasi anomali dan risiko. Terkait keamanan siber, auditor menerapkan enkripsi data, otentikasi multi-faktor, kontrol akses berbasis peran, dan pengujian ketahanan sistem secara berkala untuk melindungi data klien dari ancaman siber, serta melakukan penilaian kebijakan keamanan sesuai dengan peraturan yang berlaku seperti ISO 27001 dan GDPR. Lebih lanjut, kualitas audit dipengaruhi oleh kompetensi auditor, independensi, pengalaman, dan kepatuhan terhadap standar profesional, dengan prosedur pengujian substantif dan pendekatan berbasis risiko yang penting untuk menjaga kualitas. Integrasi teknologi informasi, langkah-langkah keamanan siber yang kuat, dan profesionalisme auditor saling memperkuat untuk meningkatkan kualitas audit secara keseluruhan di Kantor Akuntan Publik yang beroperasi di era digital..

Kata Kunci: Teknologi informasi, keamanan siber, kualitas audit, auditor eksternal, kantor akuntan publik

1. Introduction

The modern digital era has become a primary driver of information technology (IT) development worldwide. The rapid advancement of information technology has spread across every country, profoundly influencing societal progress and national development. As technology continues to evolve without boundaries, its role in shaping contemporary life becomes increasingly significant (Setiyawan et al., 2020). However, this digital transformation also presents vulnerabilities that cybercriminals can exploit. Organizations must ensure their technological solutions are secure against digital attacks by implementing encryption protocols, authentication mechanisms, and access controls to protect data and networks from unauthorized access and malicious activity.

Cyberattacks have increased dramatically, compelling business organizations to comprehensively address cybersecurity threats and develop mitigation strategies. These attacks generally aim to evaluate, alter, or replace digital information; extort monetary gains; or disrupt normal business processes. Effective cybersecurity involves techniques designed to safeguard data and networks from unauthorized access and malicious activities such as data theft and destruction (Saeed et al., 2023).

In the Indonesian context, integrating information technology into cybersecurity and audit quality for external audits emphasizes the adoption of advanced technologies and regulatory frameworks to enhance audit effectiveness. The implementation of information technology, particularly e-Audit systems, has proven crucial for improving audit quality by enabling auditors to manage data more efficiently and respond to evolving business environments (Sabriady et al., 2023). Furthermore, regulatory bodies

play an essential role in establishing standards that ensure audit integrity and security, especially within the technology sector (Maryani et al., 2023).

However, the reality is that information technology has not been fully implemented in audit processes within Public Accounting Firms (KAP). Technological developments present challenges and risks related to data security, workforce displacement, and access inequality. These issues require attention from Public Accounting Firms, particularly regarding auditor training in accordance with Indonesian Institute of Accountants (IAI) guidelines (Ayu et al., 2022).

The technology sector focuses on researching, developing, and implementing technological solutions to meet the needs of individuals, businesses, and society at large. This sector plays a vital role in enhancing efficiency, accuracy, and transparency within Public Accounting Firms (Apriadi et al., 2024). Modern technology enables KAP better to manage audit, accounting, and consulting processes while meeting increasingly complex regulatory demands. The technology sector's contribution to KAP is evident in areas such as sustainability auditing, where technological applications transform traditional approaches into modern methodologies (Firmansyah et al., 2024) Additionally, KAP's data security measures protect clients' financial information from cyber threats. In the technological landscape, technology serves as the foundation of the Industrial Revolution 4.0, integrating physical systems with digital capabilities (Oktareza et al., 2024).

External auditors play a crucial role in detecting potential fraud within organizations. They are required to conduct in-depth analyses of financial statements when fraud indicators emerge. If irregularities are discovered, external auditors must report them to the relevant company or organization (Maghfiroh et al., 2024). To perform these duties effectively, auditors must adhere to public accounting standards and the applicable code of conduct (Bulutoding et al., 2021). Auditors possessing sharp analytical skills, information technology knowledge, and maintaining independence can produce more objective, high-quality audits that benefit the audited entities (Febriani & Kuntadi, 2024). Consequently, this helps clients identify weaknesses in their systems that could potentially threaten data security while improving the efficiency of financial reporting processes.

Alongside rapid technological advancement, Public Accounting Firms increasingly rely on IT systems for operational efficiency. While progress in information and communication technology offers numerous benefits, it also introduces new threats to individual and organizational data security and privacy (Repi & Irwan, 2024). Therefore, implementing privacy policies is necessary, as not all privacy aspects have been consistently applied. Public Accounting Firms tend to transition fully toward digital technology, with IT serving as a safeguard for client data security, particularly sensitive financial information. Robust cybersecurity systems help KAP maintain data integrity and confidentiality, thereby enhancing client trust.

Previous research has discussed how digital technology has transformed our activities and information-sharing methods. Despite providing numerous advantages, this transformation brings significant challenges, including digital inequality, cybersecurity concerns, and the need for new auditor competencies (Oktareza et al., 2024) However, disagreement exists regarding suggestions that technological auditing using AI devices may gradually replace humans or external auditors in professional service sectors (Nguyen et al., 2024). External auditors must develop cybersecurity skills to manage cyber risks effectively. Research shows that their performance in cybersecurity tasks improves with openness to experiences and declines under stress. Additionally, strong digital technology skills are crucial for improving the efficiency of fraud risk assessment (Y. Li et al., 2023; Mohd Razali et al., 2025). Hence, continuous training in advanced data

analytics and cybersecurity is essential for auditors to enhance their effectiveness in this domain (Raj et al., 2024).

Audit quality is often perceived differently by practitioners and researchers. For instance, audit partners may view audit quality as an economic concept focused on service quality and compliance with standards, in contrast to traditional academic definitions (Sulaiman, 2023). The relationship between audit quality and value creation is particularly significant in emerging markets, where auditor competence and independence are crucial for improving financial performance (Fossung & Valery, 2022). Findings indicate that most Public Accounting Firms in Indonesia have leveraged technology to enhance audit quality through improved efficiency and risk evaluation capabilities (Bakri et al., 2023). Respondents' recommendations provide practical guidance for Indonesian Public Accounting Firms seeking to maximize their technology utilization (Bakri et al., 2023).

The importance of this research lies in examining the role of Information Technology in cybersecurity and audit quality for external auditors in Public Accounting Firms. Furthermore, KAP can serve as a strategic partners for companies in their efforts to enhance organizational sustainability (Indadihayati & Hariyanto, 2023). By incorporating technology, this research aims to provide the public with valuable knowledge on cybersecurity and audit quality for external auditors. This study is expected to guide the proper utilization of information technology to protect client data, ultimately enhancing the effectiveness of external auditors in Public Accounting Firms and benefiting relevant stakeholders.

2. Theoretical background

Agency Theory

Agency theory, grounded in economic theory, describes the relationship in which principals guide agents to perform efficiently. This theory is useful for resolving problems between principals and agents by engaging an independent third party—the auditor. Audit quality becomes an essential element in economic decision-making processes (Sabriady et al., 2023). The relevance of agency theory to the current research can be examined through its objective of analyzing the audit report quality produced by auditors in Public Accounting Firms in Jakarta. When principals delegate tasks to agents, agents have the right to obtain more information than principals, potentially leading to fraudulent behavior. Consequently, the presence of auditors can serve as a mediator when problems require resolution through professional skills to enhance financial report quality via audit activities (Hartanto, 2024). This mediating role helps align the interests of both parties and reduces information asymmetry, ultimately contributing to higher-quality financial reporting.

Audit Quality

Audit quality represents a crucial aspect that can influence financial statements, making them more reliable as a basis for decision-making (Abimanyu & Suhartini, 2023). Audit quality can be achieved when auditors possess adequate competence. Competence assists auditors in conducting audits effectively; the higher the auditor's competence, the better the audit quality. In other words, the auditor's competence level significantly influences audit quality, enabling auditors with higher competence to effectively and efficiently identify misstatements in financial reports during the audit process (Kartika & Agus, 2019). Auditors provide opinions based on financial statements and events from the past

to the present. This helps auditors formulate high-quality opinions on company performance. Auditors with strong organizational commitment demonstrate loyalty to their organization and contribute to producing high-quality audits (Mardika & Suartana, 2019). Audit quality encompasses multiple dimensions, including auditor independence, professional skepticism, adherence to auditing standards, and the accuracy of audit opinions. High-quality audits enhance stakeholder confidence in financial reporting and contribute to more efficient capital markets.

Information Technology and audit quality

Although information technology developments provide numerous conveniences for business actors, digitalization advancements also create new challenges in audit implementation (Sabriady et al., 2023). Auditors examining companies that utilize information technology must conduct comprehensive reviews. Before implementing IT, auditors need to test system risks and limitations. The application of technology in Public Accounting Firms can serve as a tool that assists with every task, affecting both individual and organizational responsibilities. Technological advancements require auditors to abandon traditional audit procedures that rely on printed documents. Therefore, KAP must adapt to IT developments as effectively as possible. Information technology refers to the collection of components, including technology, data, processes, and involved parties. Furthermore, Information Technology strengthens supervisory controls by adding tracking systems to audit activities, enhancing transparency, and supporting better monitoring of the implementation of audit procedures (Sabriady et al., 2023). Digitalization technology represents an enhancement of hardware and software built on existing technologies over time. It assists humans in creating, managing, and utilizing knowledge through voice, data, and video applications.

Several studies reveal that high-quality IT enhances data accuracy, completeness, and security, which are critical for auditors who rely heavily on data quality (Shan & Wang, 2024). The use of information system technology positively influences both cybersecurity and audit quality, leading to more reliable and transparent financial reporting (Johan et al., 2025). IT tools and methods help automate data collection procedures, reducing the manual effort required in audits and thereby increasing efficiency (Gupta et al., 2025; Shan & Wang, 2024). The integration of emerging technologies such as AI, blockchain, and cloud computing in auditing processes enhances real-time assurance, fraud detection, and evidence integrity (Juneja et al., 2025).

Cybersecurity and audit quality

Cybersecurity refers to activities that protect digital data within computer systems from various threats, attacks, or illegal access that could compromise data and information security within a network (Wahib et al., 2022). This encompasses protecting systems from unauthorized access, preventing malicious threats, and ensuring data privacy, security, and integrity. Cybersecurity capabilities focus on three primary actions: (1) data manipulation (data falsification), (2) data theft, and (3) eliminating system accessibility for legitimate users (Wahib et al., 2022). Cybersecurity has become increasingly critical in this interconnected digital era (Oktareza et al., 2024). Many organizations adopt the Cybersecurity Framework from the National Institute of Standards and Technology (NIST) for cybersecurity risk management; however, these standards lack cost-benefit analysis (Saeed et al., 2023). Therefore, the implementation of the security policy needs improvement, as not all policy aspects have been consistently applied (Jauhari et al., 2024). In the context of Public Accounting Firms, cybersecurity is essential for protecting

sensitive client financial information from unauthorized access and cyber threats. As KAP increasingly adopts digital technologies, robust cybersecurity measures become fundamental to maintaining client trust and ensuring data integrity throughout the audit process.

When cybersecurity services are provided alongside audit services, a subsequent cybersecurity incident can negatively affect investors' perceptions of the auditor's competence and independence, thereby reducing perceived audit quality. Investors are particularly sensitive to potential independence issues in these situations, which may reduce their willingness to invest (Perols & Murthy, 2021, 2025). Additionally, firms that experience cybersecurity breaches often incur higher audit fees due to increased audit risk. However, these incidents do not necessarily result in a decline in audit quality. In fact, auditors typically respond by enhancing their substantive testing and audit efforts to mitigate the heightened risk, thereby improving audit quality indicators, such as fewer financial restatements and reduced abnormal accruals (H. Li et al., 2024; Rosati et al., 2022).

External audit and audit quality

External auditors are professional auditors who offer services to the general public, particularly in auditing financial statements prepared by their clients. Parties utilizing company financial information, such as investors, government agencies, and the general public, rely on external auditors to produce unbiased and independent information (Maghfiroh et al., 2024). External auditors play a vital role in maintaining the transparency and integrity of financial information presented to the public. This function is considered essential because external auditors serve as independent intermediaries between company management and external stakeholders, including investors and regulators. External auditors are responsible for providing objective opinions regarding the conformity of financial statements with applicable accounting standards.

The independence of external auditors is crucial for ensuring audit quality. When auditors are independent, they can provide unbiased opinions on financial statements, which is essential for maintaining trust and credibility (Dikuua et al., 2023; Hartadi, 2016; Senan & Sharma, 2017). However, long-term relationships between auditors and clients can threaten this independence and may lead to a decline in audit quality. To address this issue, many organizations implement mandatory rotation rules for auditors (García Blandón & Argilés Bosch, 2013). Additionally, the competence and expertise of external auditors play a significant role in determining audit quality. Auditors who possess greater skills and experience are generally more effective at detecting fraud and errors, resulting in more reliable audits (Mashayekhi & Mohammed, 2025; Pratiwi et al., 2019). Ongoing professional development and the integration of advanced technologies, such as artificial intelligence and big data, can further enhance auditors' capabilities and improve audit quality (Nacer et al., 2024). In summary, external audits contribute to higher audit quality through their independence, auditors' competence, effective collaboration with audit committees, adherence to regulatory standards, and the adoption of advanced technologies.

3. Methods

This research employs a qualitative approach to gain an in-depth understanding of the role of information technology in data security and audit quality for external auditors in Public Accounting Firms (Kantor Akuntan Publik/KAP). The qualitative approach was chosen because it enables researchers to explore phenomena holistically, understand

participants' perspectives in their context, and capture rich details that cannot be revealed through quantitative approaches (Creswell, 2015). Specifically, this research uses a case study approach to examine how information technology influences data security practices and audit quality within the external audit context (Hendryadi et al., 2025).

Data collection was conducted through three complementary techniques: semi-structured interviews, observation, and documentation. Interviews were conducted with three external auditors from three different Public Accounting Firms in the Jakarta area. The first informant, with the initial "T," is a junior auditor working at a KAP in North Jakarta; the second informant, with the initial "D," is a junior auditor at a KAP in South Jakarta; and the third informant, with the initial "A," is a senior auditor at a KAP in South Jakarta. This combination of informants from junior and senior levels was chosen to obtain diverse perspectives from varying levels of experience and responsibility. In addition to interviews, researchers observed audit practices and technology use at the research locations, where permitted by the KAPs, and collected documentation, including audit procedures, firm policies, and relevant digital device documentation related to information technology implementation and data security.

Informant selection was conducted using purposive sampling based on specific criteria: having at least 1 year of auditing experience, direct involvement in audits using information systems, experience with digital audit tools and data security considerations, and willingness to participate and share experiences openly. Selecting three informants from different KAP locations enables cross-site comparison while maintaining sufficient depth of analysis for this qualitative research.

Data obtained from interviews, observations, and documentation were analyzed using several qualitative analysis techniques. Content analysis was used to systematically examine interview transcripts and documents to identify patterns, themes, and categories related to the role of information technology in data security and audit quality. Comparative analysis was applied to compare findings from various data sources, both between informants with different experience levels, between interview data and documentation, and across different KAP locations, enabling the identification of consistencies, differences, and unique contextual insights. Descriptive analysis was used to provide a comprehensive description and interpretation of how information technology functions in data security and contributes to audit quality for external auditors in Public Accounting Firms. This analysis process follows the interactive model which consists of three concurrent activities: data condensation, data display, and conclusion drawing and verification.

To ensure the validity and credibility of findings, this research implemented several strategies. Triangulation was conducted using data from interviews, observations, and documentation, and involved multiple informants to cross-check the information obtained. Member checking was carried out by returning interview summaries to informants to verify the accuracy of the researcher's interpretations. Peer debriefing involved discussing preliminary findings with colleagues to obtain alternative perspectives. Additionally, the researcher maintained an audit trail by recording in detail all research procedures and analytical decisions made during the research process.

4. Results and discussion

The role of information technology in public accounting firms

Qualitative interviews with external auditors provided deeper insights into the role of information technology in Public Accounting Firms (KAP). The first informant, "T," stated

that information technology plays an important role in KAP because it improves efficiency, accuracy, and speed in the audit and reporting process. Information technology enables rapid access to client financial data, automates accounting processes, and enables the implementation of analytical software that helps identify anomalies or suspicious patterns. Information technology also supports the management of large volumes of data, allowing auditors to conduct audits more thoroughly and efficiently.

The second informant, "D," stated that information technology is very important for improving efficiency and accuracy in the audit process because it can assist in analyzing big data, automating calculations, using accounting and audit software, and managing complex data. Information technology also enables auditors to identify anomalies and risks more quickly, thereby improving audit quality.

The third informant, "A," stated that information technology is very important in public accounting firms for improving efficiency, accuracy, and security of accounting work. Information technology has several roles, including automating accounting processes, managing and storing data, ensuring data security, supporting data analysis for reporting, and enabling collaboration and communication. Furthermore, enhancing regulatory compliance and adherence to existing rules is an important part of information technology's role in public accounting firms.

Analysis of interview results from several informants reveals that information technology plays a critical role in the audit and reporting process. Information technology can improve efficiency and accuracy in handling complex data and identify potential anomalies and risks. These findings align with those of Sabriady et al. (2023), who emphasize that information technology strengthens supervisory controls by adding tracking systems to audit activities, enhancing transparency, and supporting better monitoring of the implementation of audit procedures. The informants' emphasis on efficiency and accuracy also aligns with Shan and Wang (2024), who found that high-quality IT enhances data accuracy, completeness, and security—factors critical for auditors who rely heavily on data quality.

Additionally, automation of accounting processes, data storage, financial reporting, and data analysis requires collaboration and communication to enhance regulatory compliance. The implementation of IT-based audit technology offers auditors many opportunities to improve audit quality and efficiency. Audits may enable real-time monitoring of financial data, data analytics helps auditors detect anomalies and risks more quickly, and AI can automate repetitive audit tasks. This is consistent with Gupta et al. (2025) and Shan and Wang (2024), who note that IT tools and methods help automate data collection procedures, reducing the manual effort required in audits and thereby increasing efficiency. Furthermore, Juneja et al. (2025) support these findings by demonstrating that integrating emerging technologies such as AI, blockchain, and cloud computing into auditing processes enhances real-time assurance, fraud detection, and evidence integrity. The positive relationship between information technology and audit quality reported by informants is supported by Johan et al. (2025), who found that the use of information technology positively influences both cybersecurity and audit quality, leading to more reliable and transparent financial reporting. Audit technology supports the auditing process in Public Accounting Firms, helping auditors achieve maximum performance (Salma & Suyudi, 2024).

Client data security in technology

Qualitative interviews with external auditors provided deeper insights into client data security in the technology sector. The informant "T" provided information on maintaining client data security in technology, stating that they implement protocols such as data

encryption, role-based access controls, and multi-factor authentication to protect client systems and data. They also follow security standards such as ISO 27001 or NIST to protect sensitive information during audits. Additionally, access data is stored on secure devices or encrypted servers, and external auditors are supervised to ensure they do not share client data without permission, maintaining information confidentiality in accordance with applicable codes of ethics and regulations. Access restrictions are implemented only for authorized parties through layered authentication.

The informant "D" stated that, as an auditor, they maintain client data security by encrypting data during transmission and storage, using software with regularly updated security systems, and restricting access to authorized parties through layered authentication. Furthermore, internal auditors must verify compliance with data security standards and protect information confidentiality in accordance with applicable codes of ethics and regulations.

The informant "A" stated that as external auditors, they conduct security policy assessments. Before conducting an audit, external auditors evaluate the organization's policies and procedures for protecting client data or providing security assurance. After that, they examine applicable regulations such as GDPR, HIPAA, and other personal data protection laws, then assess the technology infrastructure by evaluating how it currently functions. Next, they evaluate storage management, data management, and client data access according to existing standards. The network servers, hardware, and software used must ensure the security of the client's personal data. Additionally, every month they verify the organization's access controls to ensure that individuals with authorization—namely, the audit team and authorized clients—have the right to access the data. They also conduct information system resilience testing due to the presence of hackers or crackers. If hacking occurs, their team tests system resilience to prevent data theft.

Analysis of interview results from several informants reveals that client data security in information technology is enhanced through data encryption and multi-factor authentication, which improve client data security and protect it from cybercrime. These practices directly address the three primary cybersecurity actions identified by Wahib et al. (2022): preventing data manipulation, data theft, and eliminating system accessibility for legitimate users. Auditors must maintain the confidentiality of information in accordance with applicable codes of ethics and regulations. However, auditors must also assess security policies before conducting audits in accordance with applicable regulations. Consequently, auditors conduct information system resilience testing to prevent data hacking or data theft.

The concept of data security encompasses three main aspects: confidentiality, integrity, and data availability. Data confidentiality relates to privacy and data security from unauthorized parties. Therefore, protecting data confidentiality is very important in digital transformation (Suryawijaya, 2023). These findings are consistent with those of Oktareza et al. (2024), who emphasize that cybersecurity has become increasingly critical in the interconnected digital era. In the context of Public Accounting Firms, the informants' practices align with the view that cybersecurity is essential for protecting sensitive client financial information from unauthorized access and cyber threats. As KAP increasingly adopts digital technologies, robust cybersecurity measures become fundamental to maintaining client trust and ensuring data integrity throughout the audit process.

Interestingly, the findings suggest that auditors are actively conducting security policy assessments and system resilience testing, which addresses concerns raised by Jauhari et al. (2024) about the need to improve security policy implementation, as not all policy aspects have been consistently applied. The proactive approach described by

informants, particularly "A," indicates awareness of the limitations noted by Saeed et al. (2023) regarding cybersecurity frameworks' lack of cost-benefit analysis.

Quality of external auditors in auditing

Qualitative interviews with external auditors provided deeper insights into the quality of their auditing. The informant "T" provided information that several factors, including competence, independence, and compliance with applicable auditing standards, influence the quality of external auditing. Quality auditors must possess sufficient knowledge and skills. On the other hand, they also need to have high integrity and independence, and to follow audit standards, such as the Indonesian Public Accountant Professional Standards (SPA). Thus, good auditors can accurately identify risks and provide value-added recommendations to clients.

The informant "D" stated that external audit quality depends on several factors, such as competence and experience. An auditor must have deep experience regarding audit standards, regulations, and best practices in their field. An auditor must possess independence, meaning they must be free from conflicts of interest to provide objective opinions. Furthermore, an auditor must apply audit procedures in accordance with professional standards. In using technology, an auditor will employ tools such as advanced information technology to improve accuracy and efficiency. Additionally, auditors must maintain integrity, objectivity, and confidentiality in their work.

The informant "A" stated that maintaining external audit quality involves assigning auditors based on their field of expertise and that audit planning consists of the initial planning, audit implementation, and audit completion stages. There is also an evaluation of the understanding of internal control systems, as well as a substantive testing examination to verify the details of transactions and balances in the financial statements. The auditor's task in conducting substantive procedures is to verify that recorded amounts match existing evidence. When implementing risk-based audit procedures, auditors examine significant risks related to revenue or hidden liabilities. Auditors will deepen testing, usually in revenue and liability accounts. Furthermore, evaluation of findings and testing: when there are findings where the evidence does not match the financial statements, such as invoices, the auditor will request additional evidence to strengthen the evaluation and examine existing transactions to determine the nominal amount of the account. Finally, the auditor will prepare the audit report.

Analysis of interview results from several informants reveals that the quality of external auditors in auditing is influenced by several factors, one of which is competence. An auditor can demonstrate competence through extensive experience with audit standards, regulations, and practices. This is accompanied by the auditor maintaining professional independence. These findings strongly support Maghfiroh et al. (2024), who emphasize that external auditors play a vital role in maintaining the transparency and integrity of financial information presented to the public, serving as independent intermediaries between company management and external stakeholders.

The informants' emphasis on independence aligns with Dikuua et al. (2023), Hartadi (2016), and Senan and Sharma (2017), who argue that external auditors' independence is crucial to audit quality. When auditors are independent, they can provide unbiased opinions on financial statements, which is essential for maintaining trust and credibility. The findings also reflect awareness of potential threats to independence. However, none of the informants explicitly mentioned mandatory rotation rules as suggested by García Blandón and Argilés Bosch (2013) to address long-term relationships that may threaten independence.

By paying attention to the auditor's ability to apply audit procedures in accordance with standards, the quality of an auditor's work can be evaluated. Maintaining external audit quality involves assigning auditors based on their field of expertise, conducting audit planning, testing the understanding of internal control systems, and conducting substantive testing. These practices are consistent with Mashayekhi and Mohammed (2025) and Pratiwi et al. (2019), who note that auditors possessing greater skills and experience are generally more effective at detecting fraud and errors, resulting in more reliable audits. The integration of technology mentioned by informants also reflects Nacer et al. (2024), who suggest that ongoing professional development and the integration of advanced technologies, such as artificial intelligence and big data, can further enhance auditors' capabilities and improve audit quality.
Thus, audit quality refers to whether the audit is conducted in accordance with applicable standards, which enables auditors to identify and report client violations. Simply put, audit quality can be measured by the auditor's ability to recognize and report violations in the client's accounting system (Kinasih et al., 2024).

Integration of findings with existing literature

In the digital age, information technology plays a crucial role in a country, so technological progress becomes essential to its development. On the other hand, advances in information technology make it seem limitless (Setiyawan et al., 2020). Information technology plays an important role in financial management and reporting, so the auditing process must be adapted to ensure the security and integrity of financial information. Opportunities also arise to use technology to improve the efficiency and effectiveness of the auditing process, as well as to identify risks more quickly and accurately (Fajrillah et al., 2024). The rapid development of information and communication technology has provided numerous benefits, but it has also brought new threats to the security and privacy of individual and organizational data (Repi & Irwan, 2024).

The technology sector is one of the economic sectors that focuses on research, development, and application of technology to meet the needs of individuals, businesses, and society at large. The technology sector has an important role in improving efficiency, accuracy, and transparency in public accounting firms (Apriadi et al., 2024). In protecting client data from cyberattacks, cybersecurity is a digital protection measure for computer systems against various attacks or unauthorized access that can compromise data security and information in networks (Wahib et al., 2022). This includes protecting systems from unauthorized access, preventing malicious attacks, and ensuring data security and integrity. In other words, cyberattack capabilities are oriented toward three things: (1) data manipulation, (2) data theft, and (3) eliminating system access for other users (Wahib et al., 2022).

The findings of this study demonstrate that the relationships among information technology, cybersecurity, and audit quality are interconnected. Informants consistently highlighted that technology enhances audit efficiency and accuracy, while robust cybersecurity measures protect the data that underpins the entire audit process. This interconnection is supported by Perols and Murthy (2021, 2025), who note that when cybersecurity services are provided alongside audit services, a subsequent cybersecurity incident can negatively affect investors' perceptions of the auditor's competence and independence, thereby reducing perceived audit quality. However, the proactive cybersecurity measures described by informants in this study—including regular system resilience testing and access control verification—suggest awareness of these risks and

efforts to mitigate them.

Furthermore, Li et al. (2024) and Rosati et al. (2022) found that firms experiencing cybersecurity breaches often incur higher audit fees due to increased audit risk. However, these incidents do not necessarily result in a decline in audit quality. Auditors typically respond by enhancing their substantive testing and audit efforts to mitigate heightened risk, thereby improving audit quality indicators. This finding is reflected in the practices described by informant "A," who detailed comprehensive substantive testing procedures and risk-based audit approaches.

In the digital era, technology not only provides a more efficient platform for collecting and analyzing sustainability data but also opens the door to innovation that enhances internal company value and fosters trust with external stakeholders. Client trust in sustainability reporting indicates that the quality of external auditors in public accounting firms builds trust among internal parties in the sustainability auditing process. Although digitalization has provided faster and broader access to financial data, enabling external auditors to collect, analyze, and report sustainable financial information more efficiently (Anjarwati et al., 2024). Audit quality is an important aspect that can, in turn, make financial statements more reliable as a basis for decision-making (Abimanyu & Suhartini, 2023). Audit quality can be achieved if auditors have good competence. Competence supports auditors in conducting audits effectively; the higher the auditor's competence, the better the audit quality.

5. Conclusion

This study confirms that information technology, cybersecurity, and external auditor quality are mutually reinforcing elements in modern auditing. Technology provides the tools for efficiency and accuracy, cybersecurity ensures the integrity and confidentiality of the data being audited, and auditor competence and independence guarantee that audit procedures are applied effectively. The integration of these three elements, as demonstrated by the informants' practices and supported by the existing literature, contributes to higher audit quality in Public Accounting Firms operating in the digital era.

Limitations of the Study

This study has several limitations that should be acknowledged when interpreting the findings. First, the research employed a qualitative approach with a relatively small sample size of three external auditors from three different Public Accounting Firms in the Jakarta area. While this sample size is acceptable for qualitative inquiry aimed at gaining in-depth insights, the findings cannot be generalized to the broader population of external auditors in Indonesia or other contexts. The experiences and perspectives of these three informants may not reflect the diverse range of practices and challenges faced by auditors across different firm sizes, geographic locations, or levels of technological adoption.

Second, data collection relied primarily on self-reported information through interviews, which may be subject to social desirability bias. Informants might have presented their practices and experiences in a more favorable light, potentially overstating their compliance with security protocols or underreporting challenges they face in implementing information technology. Additionally, the study did not independently verify the practices described by informants through direct observation or document analysis, limiting the ability to triangulate findings with objective evidence. The cross-sectional nature of this research captures perspectives at a single point in time.

In contrast, the information technology and cybersecurity landscapes evolve rapidly, so the findings may not reflect recent developments or emerging threats.

Third, this study focused exclusively on external auditors' perspectives and did not include those of other stakeholders, such as clients, regulators, or internal audit teams. Understanding how these stakeholders perceive the role of information technology, cybersecurity, and audit quality could provide a more holistic picture of the dynamics within Public Accounting Firms and the broader audit ecosystem. Future research should address these limitations by expanding the sample size and geographic scope, incorporating multiple stakeholder perspectives, and employing longitudinal or mixed-method approaches that combine qualitative insights with quantitative testing.

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