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The Role of Technological Readiness in Enhancing the Quality of Audit Work: Evidence from an Emerging Market

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Abstract: This study examines the impact of remote audit quality (RAQ) on the quality of audit work (QAW). Further, it explores the moderating effect of both client technological readiness (CLTR) and auditor technology readiness (ADTR) on the link between RAQ and QAW. Data were collected through a questionnaire survey distributed to all external auditors working in Egypt. The final sample consists of 280 auditors. The data were analyzed with smart partial least squares (Smart-PLS) software. The results showed that RAQ has a positive and significant impact on QAW. Moreover, the results revealed that CLTR and ADTR moderate the relationship between RAQ and QAW. CLTR was found to have a positive moderating role, as CLTR was found to strengthen the relationship between RAQ and QAW, while ADTR was found to have a negative moderating role, as ADTR was found to weaken the relationship between RAQ and QAW. The findings can provide a pivotal yardstick for guiding companies, auditing firms, auditing professional bodies, and regulators in the Egyptian context. Positioned as one of the early studies to concentrate on the moderating role of CLTR and ADTR in the relationship between RAQ and QAW, this research suggests insights within an emerging market context.

Keywords: remote audit; audit quality; technological readiness; emerging economy; Egypt



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1. Introduction

In recent years, businesses have increasingly turned to advanced technologies to manage their operations and financial activities (Kayed Abdelazeem Mohamed and Metwally 2024). This shift was accelerated by the widespread adoption of remote work during the COVID-19 pandemic, which forced industries across the board to undergo significant digital transformations (Metwally et al. 2022). Organizations that had already invested in robust IT infrastructure were better positioned to transition smoothly to teleworking (Metwally et al. 2020). These companies not only navigated the challenges of the pandemic with greater flexibility but also saw stronger financial performance due to the more effective implementation of recovery strategies (Naseeb et al. 2020; Naseeb and Metwally 2022).

Due to this digital transformation, auditors face new challenges due to the increasingly sophisticated IT environments; on the other hand, these systems offer opportunities for faster audits, improved internal controls, broader audit coverage, and other potential advantages that remain underexplored in auditing research (Shin et al. 2013; Silva et al. 2023). The role of auditors has undergone significant changes due to the evolving nature of business models, particularly as auditing has increasingly shifted toward a risk-based

approach. This shift is driven by adopting advanced systems, which come with various risks, including cybersecurity threats and other security concerns (Metwally and Diab 2023; Naseeb and Metwally 2022).

Remote auditing (RA), which proved to be both effective and practical during the pandemic, is now a permanent option for many accounting firms, with some allowing auditors to work remotely indefinitely (Kostem 2021). Many studies in the literature have defined RA as the audits done out of the client site, which implies that hybrid audits can be divided into RA and on-site audits (Alma'aitah et al. 2024; Li et al. 2023). The wide spread of RA is due to the benefits achieved by auditors. These benefits include saving time and costs (Serag and Daoud 2021). It also promotes a better work–life balance (Grant et al. 2013; Lorentzon et al. 2024). With remote access, auditors can reach clients and data from anywhere in the world.

Despite these benefits, questions remain about remote audit quality (RAQ), and its impact on the overall quality of audit work (QAW). For this study, we differentiate between audit firm overall audit quality, referred to as QAW, and the remote audit processes and their quality, referred to as RAQ. This differentiation is crucial as the growing amount of RA will not impact only the quality of the remote audit, but also will directly impact the audit firm's overall audit quality and the audit firm's reputation in the long run.

The RA literature has reported mixed results as some researchers suggest that RA positively influences audit quality and effectiveness (Barretto et al. 2022; Alma'aitah et al. 2024; Serag and Daoud 2021; Saputro and Mappanyukki 2022; Farcane et al. 2023). On the contrary, other studies found that RA introduces risks, such as the increased likelihood of fraud due to lack of physical interaction, altered records, and missing key information, which can negatively affect QAW (Picciotti 2020). Serag and Daoud (2021) highlight additional challenges, including high costs, the need for advanced technology, inexperienced auditors, and communication difficulties, all raising the risk of fraud and undermining audit quality. Finally, Albitar et al. (2021) noted that the shift to RA during COVID-19 negatively impacted auditors' mental health, diligence, staffing, and fees, which could degrade the QAW.

RA relies heavily on the availability of advanced technology and skilled personnel to be effective (Farcane et al. 2023). Picciotti (2020) highlights that RA can be costly and requires expertise in handling sophisticated tech tools. Companies should ensure secure working environments for remote auditors and provide proper training, equipment, and IT resources for their teams. The ability of both the auditor and the client to use these technologies efficiently is a key factor in determining the success of RA (Alma'aitah et al. 2024). Agustin (2021) stresses that the RAQ can suffer without adequate technological readiness from both sides. However, little is known about how technology readiness influences QAW. Understanding the impact of a company's tech preparedness on the audit process could reveal whether it enhances or hinders the outcomes of remote auditing. There is little literature on this subject, except for Alma'aitah et al. (2024) who highlighted the positive and significant impact of CLTR on the relationship between RA and QAW in Jordan.

The contradictory results regarding the impact of RA on QAW and the scarcity of studies that have concentrated on technological readiness (both client and auditors) guided us to conduct this study to enhance our understanding regarding the factors that can affect the QAW in the Egyptian context in the industry 4.0 era. In that sense, the current study extends this early endeavour and examines the impact of RAQ on the QAW. Further, it investigates the moderating role of CLTR and ADTR on the relationship between RAQ and QAW. Although there is a growing body of literature that concentrates on the impact of RA on audit quality, little is known regarding the impact of RAQ on QAW.

In developing the theoretical framework for this study, we incorporated three key theories: agency theory, the technology acceptance model (TAM), and the Technology–Organization–Environment (TOE) framework. The TAM and the TOE framework focus on understanding technological readiness and adoption, providing insight into how orga-

nizations prepare for and integrate new technologies. On the other hand, agency theory is widely used in audit quality research to explain how high-quality audits help reduce agency costs by mitigating conflicts of interest between management and stakeholders. Together, these theories offer a comprehensive perspective on the relationship between technology and audit quality.

Having said this, the current study represents a novel exploration of the relationship between RAQ and QAW within the Egyptian context, through examining the moderating effects of CLTR and ADTR. The research is structured around three primary research questions: (1) Does remote audit quality adoption directly impact the level of the quality of audit work? (2) Does CLTR presence moderate the RAQ-QAW relationship? (3) Does ADTR moderate the RAQ-QAW association? The analysis revealed a positive and significant correlation between RAQ and QAW, CLTR and QAW, and ADTR and QAW, suggesting the existence of RAQ increases the QAW, and that higher levels of technological readiness both in the client company and the audit firm are associated with higher QAW. Furthermore, CLTR presence was found to strengthen this positive association. Interestingly, ADTR was found to weaken this positive association, which implies that in Egyptian context, auditors' technological readiness has reduced the positive impact of RAQ on QAW while the direct relationship is still positive and significant.

In that sense, the current paper seeks to make the following contributions to the existing literature: first, the current study aims to address a critical gap in audit research by focusing on audit practices within an under-researched context of developing economies, with a specific emphasis on Egypt. While most existing research centers on developed countries, little attention has been given to how unique socio-economic and political factors in regions like the Middle East and North Africa (MENA) affect auditing processes (Abdelazim et al. 2023; Ali et al. 2024; Metwally et al. 2024). As a key emerging market in Africa and a major financial hub within the MENA region (Metwally et al. 2021; Metwally 2022), Egypt provides a valuable setting to explore these influences. Its recent economic changes and the aftermath of the Arab Spring highlight parallels with other MENA nations, making the findings potentially applicable to the broader region (Abdelazim et al. 2023).

Second, this research focuses on the interaction between RAQ, CLTR, and ADTR, and how these factors impact QAW. By analyzing these relationships in a developing context which is undergoing significant transitions, the study aims to uncover new insights into how QAW is shaped in such environments. Third, the results are expected to enhance our understanding of auditing in emerging economies with similar political and economic ramifications. Fourth, the research aims to provide practical recommendations, encouraging auditors in developing countries to invest in technological advancements, thereby improving efficiency and QAW. Finally, the current research has implications for policy makers and regulators as it will enhance their ability to better understand the impact of RAQ on QAW and the importance that technological readiness plays in enhancing or diminishing the QAW, which in return may affect their decision-making regarding expanding or diminishing RA implementation. The structure of the rest of this research is organized as follows: Section 2 provides a background on the Egyptian audit market. Section 3 introduces the theoretical framework underpinning the study. Section 4 combines a review of the relevant literature with theoretical basis, leading to the development of hypotheses. Section 5 explains the research design and methodology used. Section 6 presents empirical results and offers analysis. Lastly, Section 7 concludes the study by discussing the implications of the findings.

2. Contextual Ramifications

The Egyptian market is an intriguing subject for research due to its unique characteristics (Elbayoumi et al. 2019). These include various regulatory and structural changes that could affect the impact of RAQ on QAW and the role of TR. Since the 1990s, Egypt has undergone significant economic transformation, moving from a centrally planned economy with heavy government control to one that embraces economic reforms, privatization,

and open-market policies (Abdelazim et al. 2023; Ali et al. 2024). This period also saw improvements in the country's accounting standards, particularly in the late 1990s, aimed at enhancing the quality of financial reporting within the stock exchange (Metwally et al. 2021; Metwally 2022). However, unlike more developed markets that have widely adopted international standards, Egypt still faces challenges from government interventions and regulatory constraints, which hinder its full alignment with global practices despite ongoing development efforts (Hassan 2008; Diab et al. 2023; Diab and Metwally 2020).

Other factors that may make Egypt an interesting environment for examining our research problem include its legal framework, corporate governance, and culture. Egypt is categorized as a code-law nation, meaning that businesses there are typically financed by banks with regular access to financial and non-financial data. French civil law serves as the foundation for Egyptian law. However, Anglo-American common-law ideas are dominant in the capital markets (ROSC 2004). Regarding corporate governance, Egypt differs from other developed countries in its voluntary basis without any requirements for public companies to justify any failure in following corporate governance code. This system is not like the mandatory basis applied in countries such as USA nor does it adopt the comply-or-explain basis applied in countries like the UK (El-Sayed Ebaid 2011). It is unclear how auditors would respond to a customers' voluntary acceptance of corporate governance procedures in an institutional context like Egypt, where adoption and oversight of these practices are not required (Sharma et al. 2008). Culturally, Egypt offers an interesting environment for our research area as it has higher degrees of power distance and uncertainty avoidance, leading to a high degree of secrecy (Ahmed Saad Abdelwahed et al. 2024; Dahawy et al. 2011). Many Egyptian directors suppose that full disclosure may harm their companies with regard to tax authorities and competitors (Dahawy and Conover 2007).

There are several hurdles in the Egyptian auditing sector. According to Wahdan et al. (2006), these include the degree of market concentration, audit engagement violating relevant laws, lack of experience and expertise among auditors, current untrained auditors which should be given some appropriate training, as well as that potential future auditors may not have an adequate foundation in accounting and auditing. This is supported by the results of Mohamed and Habib (2013), who found that Egyptian auditors are not independent. These are just some of the issues that put audit engagements at risk, contrary to what is otherwise expected. For instance, auditors had no quality at Accountability State Authority (ASA) or Big Four audit companies (El-Dyasty and Elamer 2021). Eldaly et al. (2022) concluded that the influx of foreign direct investment (FDI) has resulted in several positive changes within the Egyptian audit market. The Egyptian audit market experienced an improvement in local accounting and auditing standards, stricter regulatory inspections of audit firms, and a keener application of regulatory sanctions. However, Eldaly et al. (2022) noted the need for reform in the audit market.

3. Theoretical Framework

In order to provide a better understanding of the relationship between RAQ, TR, and QAW, we merge agency theory with technology acceptance model (TAM) and the Technology–Organization–Environment (TOE) framework. Triangulating themes from those theories together will provide a better understanding the impact of RAQ on QAW and the moderating role of CTR and ADTR on this relationship. Empirical research can next validate, refine, and test research hypotheses, thereby contributing to a deeper understanding of RAQ and TR and their implications for QAW.

Auditors play a crucial role in reducing agency costs, which arise from information asymmetry and conflicting interests between shareholders and managers. Due to these imbalances, agency theory—focused on the oversight and information disparity between owners and management—often serves as the theoretical foundation for explaining the importance of audits in today's business environment. This theory helps justify why audits are essential for ensuring transparency and accountability in modern companies (Jensen and Meckling 1976).

Generally, auditors should assure the integrity of financial statements through their audit reports. These reports rely mainly on information obtained from the client who has better knowledge of corporate circumstances, and the surrounding operations. This represents a huge part of the information asymmetry problem. Transparency should be more necessary while making remote audits compared to onsite audits (Lin 2018; Komal et al. 2022; Usman et al. 2023). Improving transparency through technical knowledge, communication skills, and professional skepticism may mitigate the asymmetry problem and enhance RAQ (Al Shbail et al. 2024). Moreover, an external audit can mitigate the agency problem as it provides third-party assurance on compliance, reliability, and integrity of financial information (Raimo et al. 2021). What remains of utmost importance, however, is the provision of a high degree of assurance and the maintenance of QAW (Salem et al. 2023; Usman et al. 2023).

According to Knechel et al. (2013), audit quality is the auditor's ability to provide reasonable assurance that the financial statements are free from errors or inaccuracies and have been prepared in accordance with prevailing accounting standards. The QAW in RA context may be threatened by challenges, hence, there is a need for synergy and alignment in interests between audit teams and auditee personnel to achieve the highest level of QAW and financial reporting confidence (Castka et al. 2020). When management believes that remote auditing (RA) will help reduce information asymmetry and the related agency problem, they are more likely to minimize conflicts of interest with auditors to improve QAW (Alma'aitah et al. 2024; Farcane et al. 2023; Figa et al. 2023).

In the current study, TOE framework helps in understand how TR within organizations affect QAW (Tornatzky and Fleischer 1990). TR can be used as an index to measure auditors' and clients' ability to effectively use digital platforms and tools required to perform RA. This index takes into account the availability of resources such as skilled human resources in using remote communication tools, data security, and software for analysis. The availability of these resources are crucial for the integrity and confidentiality of performed audits. Hence, the TOE framework suggests that audit firms with mature technology infrastructure and competent IT auditors are well-positioned to address RA challenges leading to improved QAW (Manita et al. 2020). Similarly, clients using technology are able to communicate directly with auditors through different online channels that render better accuracy of financial reporting leading to a secure and effective way to increase QAW (Siew et al. 2020; Li et al. 2023; Awa et al. 2015).

The technology acceptance model (TAM) represents the most integral part in our model, as it concentrates on the individual intention to adopt or resist new technology. Whether a person accepts or rejects a new deployed technology is significantly influenced by two primary factors: the perceived usefulness and the perceived ease of use (Davis 1989). Essentially, if users believe that a particular technology will enhance their performance or efficiency, they are more likely to express a willingness to adopt it. Similarly, if they perceive the technology as easy to navigate and operate, this positive perception further strengthens their intention to utilize it (Alma'aitah et al. 2024).

Given the vast benefits auditors and firms get from being digitally transformed, RA became a reality that is increasing gradually in the audit market (Shin et al. 2013; Silva et al. 2023). As auditors recognize the usefulness and simplicity of RA, they are likely to become more adept and experienced with its methods and skills. Therefore, the TAM underscores the importance of both the perceived benefits of the technology and the ease with which it can be integrated into users' routines, in shaping their behavior towards adopting new technological solutions (Davis 1989). To sum up, the more auditors find RA useful and easy to use, the better they will get with those techniques for RA. The greater use of RA will further help improve QAW by providing reasonable assurance over financial reports. Given the crucial role of technology in everyday audit work, it is assumed that both TR and RAQ will greatly influence QAW.

4. Literature Review and Hypotheses Development

4.1. RAQ and QAW

There has been a notable shift in how businesses manage their operations and financial activities in recent years, with an increasing reliance on advanced digital technologies to optimize efficiency and performance (Kayed Abdelazeem Mohamed and Metwally 2024). The widespread adoption of digital transformation in corporate environments has introduced opportunities and challenges within auditing. Auditors now face increasingly sophisticated and complex IT systems, which require advanced skill sets and a deeper understanding of digital infrastructures. These technological advancements present potential hurdles, particularly in understanding and assessing the intricate systems underpinning modern business processes. However, they also offer a range of opportunities that have yet to be fully explored in academic research and practical application (Shin et al. 2013; Silva et al. 2023).

A significant transformation in the field is the shift toward RA. This advancement represents a departure from traditional audit practices, which are more retrospective in nature. The introduction of RA has prompted considerable academic inquiry into its impact on audit protocols and overall audit quality. However, the rapid adoption of these advanced technologies also raises questions regarding their implications for the traditional audit framework, including concerns about maintaining audit independence, ensuring the reliability of automated processes, and safeguarding against cyber threats (Alma'aitah et al. 2024; Li et al. 2023). Having said this, the QAW literature includes mixed results regarding how RA impacts the QAW

Many studies have pointed out the advantages of RA and how it can improve QAW and efficiency of audits. For instance, Li et al. (2023) and Saputro and Mappanyukki (2022) reported that RA improves audit effectiveness, while Christ et al. (2021) stated that the transition from traditional auditing to RA has not reduced internal audit quality. Furthermore, Butarbutar and Pesak (2021) and Lorentzon et al. (2024) found that compared to auditors who work on-site, remote work provides flexibility, job satisfaction, and improved work–life balance, thereby reducing the effort consumption and working hours of auditors as demonstrated by increased performance metrics and QAW. In addition, RA helps encourage better management of time and lower audit expenses (Hannon 2020), improved job productivity (Farcane et al. 2023; Barretto et al. 2022), enhanced job satisfaction (Farcane et al. 2023), and improved QAW (Maharaja et al. 2022; Rachmad et al. 2023).

On the contrary, some studies reported that stakeholder trust in audit evidence quality does not significantly differ between methods (Jin et al. 2022; Eulerich et al. 2022). RA does not reduce the professional skepticism and ethics for the audit engagement (Julianti and Muhyarsyah 2023; Ovaska and Murphy 2022). Castka et al. (2021) found that rates of submission (compliance reports) did not change. According to Saputro and Mappanyukki (2022), RA does not moderate the influence of professional skepticism on QAW. Other studies in the literature have reported the negative impact of RA on QAW. RA was found to reduce efficiency and overall QAW (Thompson 2022; Jin et al. 2022), as auditors must have access to all companies' files and data, which add time pressure as they need to review many records and datasets. Additionally, relying only on RA is not applicable in auditing as reviewing data remotely limits the auditor's ability to obtain enough evidence, which may cause them to draw inappropriate inferences (Albitar et al. 2021; Saleem 2021; Thompson 2022).

In the Egyptian context, many studies have concentrated on issues that may hinder achieving higher levels of QAW in the Egyptian audit market, such as a dearth of skilled auditors, lack of auditors' independence, market concentration degree, and non-compliance with appropriate laws during audit engagement (Wahdan et al. 2006; Elmashtawy et al. 2023; Mohamed and Habib 2013). Moreover, other studies have highlighted that the QAW problem is not in small and medium audit firms only, as it is extended to include the Big Four audit firms working in Egypt as well as governmental auditors and authorities, which represent a severe problem in the auditing profession in Egypt (El-Dyasty and Elamer 2021). Contrary to these negative results, some studies like Eldaly et al. (2022) and Elmashtawy

et al. (2023) have discussed the recent changes in the Egyptian regulations, opening the market to foreign investment, and governmental controls has led to higher levels of audit quality in the market. These changes, along with the changes in the governmental version 2030 that concentrate on digital transformation of all aspects of the governmental and economic transactions, require study to understand how they may impact the overall QAW in the Egyptian context (Elgohary and Abdel-Aziz 2023).

Theoretically, QAW has been examined through various frameworks in the literature. Most studies have applied agency theory, arguing that enhanced audit quality is crucial for resolving the principal-agent problem, as higher QAW leads to greater transparency, reducing both information asymmetry and agency costs (Elmashtawy et al. 2023). Simultaneously, resource dependence theory suggests that auditor effectiveness and remote protocols can equip audit teams with the necessary knowledge and resources, and provide advisory services to inform strategic decisions, thereby improving QAW. Additionally, stakeholder and stewardship theories have been proposed to explain how QAW can meet the diverse expectations of the company's stakeholders (Handayati et al. 2022; Kusumawati and Syamsuddin 2018).

To sum up, much of the existing research has been focused on either the relationship between remote auditing (RA) and remote audit quality (RAQ) or the impact of RA on the quality of audit work (QAW). However, there remains a significant gap in understanding how the quality of remote audits (RAQ) directly influences the overall quality of audit engagements within audit firms (QAW). Given that RA has become an integral component of audit procedures for many firms, it is crucial to acknowledge that RAQ can substantially affect the overall audit outcomes and the audit firm's reputation for quality work. Despite the clear and growing shift towards RA as a prominent method in the audit process, this crucial link between RAQ and the overall QAW has been relatively neglected in academic research. Therefore, we propose the following hypothesis:

H1. *There is a positive association between RAQ and QAW.*

4.2. Technology Readiness Moderating Role

Many researchers outline the necessity of technological readiness (TR) for auditors and their clients to ensure higher levels of QAW (Alma'aitah et al. 2024; Li et al. 2023). A key aspect of this readiness is the availability of adequate technological infrastructure, including the right tools, equipment, and software, and the systems necessary for efficient communication and data management. These factors are critical in determining whether remote auditing can be effectively implemented (Eulerich et al. 2022). Hannon (2020) further emphasizes that having the necessary technological skills and providing ongoing technical training and familiarity with technology are equally crucial for ensuring that audits are conducted successfully. Therefore, the technical capabilities of the audit team, in combination with their technological proficiency, play a pivotal role in determining the quality and efficiency of the audit process (Alma'aitah et al. 2024).

Technological competency is essential for auditors to fully leverage from the new technologies, ultimately leading to enhanced audit outcomes and greater efficiency in auditing tasks. However, for these benefits to be realized, both the auditors and their clients must be well-versed in using these technologies. Without the appropriate knowledge and skills, the potential advantages of advanced audit tools remain untapped, potentially compromising the overall QAW (Castka et al. 2020; Farcane et al. 2023). Moreover, the technological infrastructure must be robust enough to support the needs of auditors while performing the audit engagement (Alma'aitah et al. 2024; Li et al. 2023).

A well-established technological infrastructure enhances the accuracy of auditing and accounting activities and reduces the likelihood of errors by the audit staff, contributing to more reliable and accurate audit results. This, in turn, improves overall audit quality by streamlining the process, minimizing human errors, and increasing the precision of audit outcomes (Saleem and Oleimat 2020). Therefore, the seamless integration of technology

into the auditing process is fundamental to achieving higher QAW and ensuring the effectiveness of the audit process (Alma'aitah et al. 2024).

If technology is not effectively integrated into the auditing process, the likelihood of audit risks rises substantially, placing greater responsibility on auditors to mitigate these challenges (Li et al. 2023). Inadequate application of technological tools can lead to errors in data interpretation, miscommunication, and ultimately affect the accuracy of audit findings, thereby compromising QAW. Furthermore, the auditor's capacity to detect discrepancies or irregularities may be hindered, especially in a remote environment where reliance on digital tools is essential for gathering and assessing financial data (Alma'aitah et al. 2024).

However, these risks are significantly reduced when technology is utilized to its full potential. Optimally applied technological solutions enhance audit accuracy, improve data flow, and allow auditors to execute their tasks more precisely and quickly. This leads to better audit results and a reduction in the overall audit risk, reinforcing the auditor's ability to deliver high-quality outcomes even in a remote setting (Jin et al. 2022). The use of advanced technology in audits not only supports the accuracy of the audit process but also strengthens the reliability of findings, ultimately enhancing the audit's trustworthiness in the stakeholders' eyes (Alma'aitah et al. 2024).

Regarding client TR, companies must have advanced systems like ERP to enhance its operations and have proper internal controls that reduce the number of errors and frauds in their operations (Kayed Abdelazeem Mohamed and Metwally 2024). This will reduce the audit risk for auditors and reduce the amount of audit evidence needed for the audit engagement (Alma'aitah et al. 2024). Having said this, client TR will help auditors to reach evidence faster, reducing the amount of time consumed to analyze evidence collected as many analytical procedures may be done electronically in no time (Shin et al. 2013; Silva et al. 2023).

In that sense, it is apparent that technological readiness for both auditors and their clients is crucial for reaching higher levels of QAW. As previously mentioned, a robust technological infrastructure and the competency of the auditors play key roles in realizing the benefits of these tools. Without proper implementation, however, technology may become a source of risk rather than an asset. Thus, successful auditing hinges on the effective application of digital tools, which, when combined with the necessary skills and infrastructure, can result in improved QAW through reaching a reduced number of errors, and increased confidence in the audit process. This creates a clear link between technological efficiency, audit risk, and the overall success of audits. Finally, this link is also supported theoretically by the TOE model, which firms use to assess readiness for technology adoption (Tornatzky and Fleischer 1990).

For any new technology to be embedded in place, we need to understand how the community and people will respond to it, as in many studies in the literature resistance has been reported to any sort of change to the known norms of community (Diab and Metwally 2020; Metwally and Diab 2021). This is why we need theories that can help us understand and explain how technologies can be accepted and embedded in place to implement these new technologies smoothly. Having the TAM model in our theoretical framework is useful to explain the perceptions of users affected by the technologies and their intention to use it, which results in actual usage in the long run (Davis 1989).

H2. *There is a positive relationship between client TR and QAW.*

H3. *There is a positive relationship between audit firm TR and QAW.*

H4. *Client TR moderates the relationship between RAQ and QAW.*

H5. *Audit firm TR moderates the relationship between RAQ and QAW.*

5. Materials and Methods

5.1. Study Measures and Data Collection Method

A cross-sectional quantitative approach was conducted to obtain and analyze the required data. The required data was gained through developing a self-structured questionnaire. The questionnaire was designed to include two distinctive sections. The first section collects the participant's demographic characteristics (i.e., name, age, education level, number of experience years, the existence of professional certifications, the audit firm size), and the second section was developed to collect data regarding the study of main constructions.

To obtain the required data, a convenience sampling approach was selected, targeting auditors actively engaged within audit firms across Egypt. The research population consisted of professionals occupying various hierarchical positions in the audit process, including audit managers, audit partners, senior auditors, auditors, and assistant auditors. This demographic diversity was crucial for ensuring a representative sample from the auditing sector. The data collection phase commenced in June 2024 and continued over a span of three months. Throughout this period, a total of 400 surveys were disseminated to the identified participants. Of these, 280 responses were successfully completed and returned, resulting in a commendable response rate of 70%; it is noteworthy that no data was missing from the returned questionnaires, which strengthens the reliability and validity of the dataset for subsequent analysis.

We reviewed the previous literature to operationalize the study constructs to find valid and reliable measures. Five variables were employed to measure RAQ derived from [Li et al. \(2023\)](#); participants were asked how regularly they performed the following practices during RA: (1) "welcome weak client explanations"; (2) "conduct superficial reviews of client documents"; (3) "failed to research an accounting principle"; (4) "reduced the amount of work performed on an audit to less than reasonable time"; and (5) "signed off on an audit program step without completing the work or noting the omissions". We employed a five-point Likert scale where "1 = Never; 2 = Rarely; 3 = Sometimes; 4 = Often; and 5 = Nearly always". To measure QAW, we employed a scale of 15 variables derived from the previous studies of [Sulaiman \(2013\)](#), [Saiewitz and Kida \(2018\)](#), [Castka et al. \(2021\)](#), [Wojcak et al. \(2016\)](#), [Jin et al. \(2022\)](#), [Lugli and Bertacchini \(2023\)](#), [Farcane et al. \(2023\)](#), [Serag and Daoud \(2021\)](#), [Albitar et al. \(2021\)](#), and [Figa et al. \(2023\)](#). TR was measured with 11 variables, 5 variables was employed to measure client technological readiness, while 6 variables were employed to measure audit firm technological readiness based on the studies of [Picciotti \(2020\)](#), [Saleem and Oleimat \(2020\)](#), [Hannon \(2020\)](#), [Castka et al. \(2021\)](#), [Chan et al. \(2018\)](#), and [Farcane et al. \(2023\)](#). All study variables are shown in Appendix A.

5.2. Demographic Analysis

Table 1 shows the demographics of the study participants. Statistics regarding firm type show that most employees work in local medium and small firms (67%), whereas the smallest respondents' percentage was from the Big Four audit companies (13%). Statistics pertaining to respondents' positions indicate that the largest respondents' percentage was from auditors (38%), followed by assistant auditors (26%), then senior auditors (19%) and audit managers (12%), whereas the lowest percentage was from audit partners (5%). Participants' experience in years show that most responses were from less experienced employees (91% for employees with 1–5 and 6–10 years of experience, at 42% and 49% respectively), whereas 7% of respondents have 11–15 years of experience, and only 2% of respondents have more than 15–15 years of experience. This is normal, as the largest percentage of respondents work in local medium and small firms. Finally, regarding professional certification, statistics show that a high percentage of respondents hold the Egyptian Certified Public Accountant (ECPA) certificate (36%), followed by a big difference with the CMA (11%), then the CPA (9%) and ACCA (2%). Eighteen percent of respondents have other professional certifications, e.g., CIA, CERT IFR, dipifr, CFE, CFA, or CFM. Nevertheless, a significant percentage of respondents (24%) do not have any professional certifications.

Table 1. Respondents' profile (n = 280).

Variable	Classification	Number	%
Firm Type	Big Four	36	13%
	Local large firm	67	24%
	Local medium and small firms	177	63%
Position	Assistant auditor	73	26%
	Auditor	106	38%
	Senior auditor	53	19%
	Audit manager	34	12%
	Audit partner	14	5%
	Experience	1 to 5 years	117
	6 to 10 years	138	49%
	11 to 15 years	20	7%
	>15 years	5	2%
Professional certification	ECPA	101	36%
	CPA	25	9%
	ACCA	5	2%
	CMA	32	11%
	Other, e.g., CIA, CERT IFR, dipiftr, CFE, CFA, CFM	49	18%
	None	68	24%

5.3. Dealing with Common Method Variance

In behavioral and social science studies, the existence of “common method variance” (CMV) in the employed measures can cause a severe threat to the validity of study results [88]. This issue (CMV) has the ability to influence variables' reliability, change the variation between latent variables, and subsequently impact the structural path (Jagpal 1982). To address this issue, we adopted the recommendations of Podsakoff et al. (2003), using Harman's one-factor test in EFA where all variables were set to load on only one construct and the results indicate that this one variable explains only 41% of variation, indicating that CMV did not significantly impact the outcomes of this study.

5.4. Data Analysis Methods

Smart partial least squares (Smart-PLS v4) software was utilized to evaluate the research model. Smart-PLS is a nonparametric method developed to examine latent factors that cannot be observed directly. Henseler et al. (2015). Smart-PLS is highly recognized in the context of social sciences for its capacity to create reliable results, specifically when testing interrelationships between various variables (Wetzels et al. 2009). It is specifically well-fitted for research that target to predict the dependent variables rather than confirm an existing theory (Hair et al. 2019). The analysis followed a two-phase procedure per Leguina's criteria (Leguina 2015). In the initial phase, the main focus was on validating the convergent and discriminant validity, while the subsequent stage was exclusively dedicated to investigating the hypotheses put forth in the research.

6. Results

6.1. Outer Measurement Model Assessment

Several criteria were employed to evaluate the measurement model as recommended by Hair et al. (2019). First, factor loadings should be more 0.5; as shown in Table 2, all factor loadings significantly surpassed the minimum recommended 0.5 value. Second, the

calculated “Composite Reliability” (CR) values should exceed 0.70; as shown in Table 2, all CR values ranged from 0.936 to 0.94, and indicated a high level of internal reliability for all reflective factors. Third, the “Average Variance Extracted” (AVE) scores should exceed the value of 0.05, to approve convergent validity; all value of AVE ranged from 0.0608 to 0.806 and exceeded the suggested value of 0.50, approving convergent validity. Finally, the variables’ internal reliability, as signaled by “Cronbach’s Alpha” (α), consistently surpassed the minimum value of 0.70, and ranged from 0.916 to 0.957, confirming the robustness and consistency of the study measures as shown in Table 2. Moreover, to evaluate the factors discriminant validity, Fornell and Larcker (1981)’s criterion (Table 3) and the cross-loading (Table 4) were calculated and inspected.

Table 2. Validity and reliability of study measures.

Factors/Items	Factor Loadings	t	α	CR	AVE	VIF
Audit Firm Technological Readiness			0.916	0.936	0.711	
AFTR_1	0.910	50.759				3.062
AFTR_2	0.937	68.751				4.020
AFTR_3	0.873	34.427				3.971
AFTR_4	0.892	38.237				3.900
AFTR_5	0.698	20.257				3.770
AFTR_6	0.718	12.870				1.767
Quality of Audit Work			0.957	0.959	0.608	
QAW1	0.693	11.103				1.886
QAW10	0.800	17.571				4.987
QAW11	0.873	18.250				4.577
QAW12	0.781	26.865				3.571
QAW13	0.774	16.698				2.864
QAW14	0.750	16.336				4.462
QAW15	0.787	14.240				4.553
QAW2	0.693	16.771				3.212
QAW3	0.738	17.609				3.419
QAW4	0.743	19.730				4.495
QAW5	0.880	19.944				4.818
QAW6	0.872	26.569				4.497
QAW7	0.787	24.689				4.689
QAW8	0.741	16.437				2.452
QAW9	0.755	14.224				4.288
Client Technological Readiness			0.939	0.950	0.790	
CTR_1	0.888	14.649				4.647
CTR_2	0.895	29.483				3.164
CTR_3	0.894	30.236				2.522
CTR_4	0.892	31.369				2.239
CTR_5	0.876	39.211				1.608
Remote Auditing Quality			0.941	0.954	0.806	
RAQ1	0.837	33.559				1.362
RAQ2	0.857	25.849				2.512
RAQ3	0.884	26.844				4.179
RAQ4	0.956	27.226				4.240
RAQ5	0.948	120.829				4.457

Table 3. Fornell and Larcker criterion—discriminant validity.

	1	2	3	4
1—Audit Firm Technological Readiness	0.843			
2—Quality of Audit Work	0.494	0.780		
3—Client technological Readiness	0.351	0.537	0.889	
4—Remote Auditing Quality	0.152	0.295	0.557	0.898

Table 4. Cross-loading scores.

	Audit Firm Technological Readiness	Quality of Audit Work	Client Technological Readiness	Remote Auditing Quality
AFTR_1	0.910	0.445	0.308	0.123
AFTR_2	0.937	0.428	0.308	0.097
AFTR_3	0.873	0.410	0.235	0.108
AFTR_4	0.892	0.390	0.288	0.056
AFTR_5	0.698	0.471	0.392	0.207
AFTR_6	0.718	0.309	0.200	0.172
QAW1	0.554	0.693	0.487	0.322
QAW10	0.228	0.800	0.340	0.132
QAW11	0.262	0.873	0.386	0.227
QAW12	0.316	0.781	0.332	0.174
QAW13	0.241	0.774	0.328	0.137
QAW14	0.244	0.750	0.321	0.066
QAW15	0.244	0.787	0.336	0.104
QAW2	0.547	0.693	0.480	0.321
QAW3	0.586	0.738	0.557	0.369
QAW4	0.580	0.743	0.559	0.372
QAW5	0.253	0.880	0.368	0.218
QAW6	0.249	0.872	0.360	0.200
QAW7	0.304	0.787	0.337	0.156
QAW8	0.220	0.741	0.294	0.102
QAW9	0.241	0.755	0.332	0.076
CTR_1	0.265	0.374	0.888	0.461
CTR_2	0.281	0.399	0.895	0.485
CTR_3	0.268	0.403	0.894	0.491
CTR_4	0.358	0.575	0.892	0.501
CTR_5	0.350	0.556	0.876	0.522
RAQ1	0.079	0.191	0.503	0.837
RAQ2	0.190	0.219	0.430	0.857
RAQ3	0.188	0.194	0.442	0.884
RAQ4	0.130	0.331	0.558	0.956
RAQ5	0.115	0.325	0.543	0.948

The off-diagonal scores (in bold) in Table 3: “Fornell and Larcker criterion” are the square root of AVE and should exceed the shared scores between the study factors (below the bold values) (Hair et al. 2019) to approve discriminant validity. As shown in Table 3 the study measures have adequate discriminant validity. Cross-loading (Table 4) further approves discriminant validity where each variable signals a high correlation to its predetermined factor as compared to any other factors employed.

6.2. Hypotheses Results (Structural Model Evaluation)

Before testing the research hypotheses using the PLS-SEM method, the researchers must first address any collinearity issue as Hair et al. (2019) suggested to confirm the results’ validity [2021].

To inspect the existence of collinearity, the tolerance levels were inspected by the value VIF (Variance Inflation Factor) which should be below 5.00; as shown in Table 4, collinearity is not a problem in our model. Furthermore, it is essential to assess the predictive power of the proposed model before testing the study hypotheses (Leguina 2015; Sarstedt et al. 2021; Chin 1998; Hair et al. 2014), the values of R², and Q² effect sizes were inspected. Our study’s endogenous variable is QAW, which shows a high R2 value of 0.464 and the Q2 value equals 0.425, which proves that the model has a high predictive power.

The bootstrapping technique with 5000 subsamplings was run to evaluate the significance of the path coefficients, and the related t values to accept or reject the proposed hypotheses in the tested model, as shown in Table 5.

Table 5. Hypotheses evaluation.

Hypotheses	β	T	p	Result
RAQ -> QAW	0.180	2.465	0.014	Supported
Client technological Readiness -> QAW	0.546	8.386	0.000	Supported
Audit Firm Technological Readiness -> QAW	0.273	4.486	0.000	Supported
Moderating effects				
Client technological Readiness x RAQ -> QAW	0.228	5.247	0.000	Supported
Audit Firm Technological Readiness x RAQ -> QAW	-0.140	2.775	0.006	Supported

The study has five predetermined and justified hypotheses, three direct and two moderations, as pictured in Figure 1. As shown in Figure 1, RAQ was found to have a positive and significant impact of QAW with a path coefficient of 0.180, a t-statistic of 2.465, and a p-value below 0.05, supporting Hypothesis 1 (H1). Similarly, for Hypothesis 2 (H2), a positive and significant impact of client technological readiness on QAW was noted ($\beta = 0.546, t = 8.386, p < 0.001$), supporting H2. This result is consistent with the findings of Jin et al. (2022), Alma’aitah et al. (2024), and Sigle et al. (2024). Hypothesis 3 (H3) was also confirmed, indicating a positive and significant impact of audit firm technological readiness on QAW. The path evaluation showed a path coefficient of 0.273, a t-statistic of 4.486, and a p-value below 0.001. This finding is confirmed by the results reported by Saleem and Oleimat (2020), Li et al. (2023), Alma’aitah et al. (2024), and Sigle et al. (2024).

For moderating analysis, the PLS-SEM findings showed that the positive impact of RAQ on QAW was strengthened with the moderation effect of client technological readiness ($\beta = 0.228, t = 5.247, p < 0.001$), accepting H4 as shown in Figure 2a; one standard deviation below the average (the red line) is negative and goes down, but one standard deviation above the average (green line) shows a slope that is steeply positive, which indicates that the relationship between RAQ and QAW is amplified with the moderating effect of client technological readiness. However, the positive impact of RAQ on QAW was dampened with the moderation effect of audit firm technological readiness ($\beta = -0.140, t = 2.775, p < 0.01$), accepting H5 as shown in Figure 2b, which implies that the positive and significant impact of RAQ on QAW is still positive and significant after the moderation

while its positive impact is weaker on the dependant variable. This unique result can be explained contextually, as most of the audit firms in our sample were small and medium audit firms, who may not be aware about the importance of TR to audit firms, or may be lacking the needed skills to use the sudden increase in the use of technologies in their audit procedures. This result, affirm early findings in the Egyptian context that discussed the lack of skills and training in many audit firms in Egypt, which was one of the main reasons for lower QAW (Wahdan et al. 2006; Elmashtawy et al. 2023; Mohamed and Habib 2013). Theoretically, TAM was useful in this regard as imposing new technologies due to the acceleration of remote audits and teleworking in recent years has led to implicit resistance, which is apparent in the negative impact. Finally, the study model demonstrates a high level of quality and explanatory proportion, which were able to explain 46.4% of the variance in QAW.

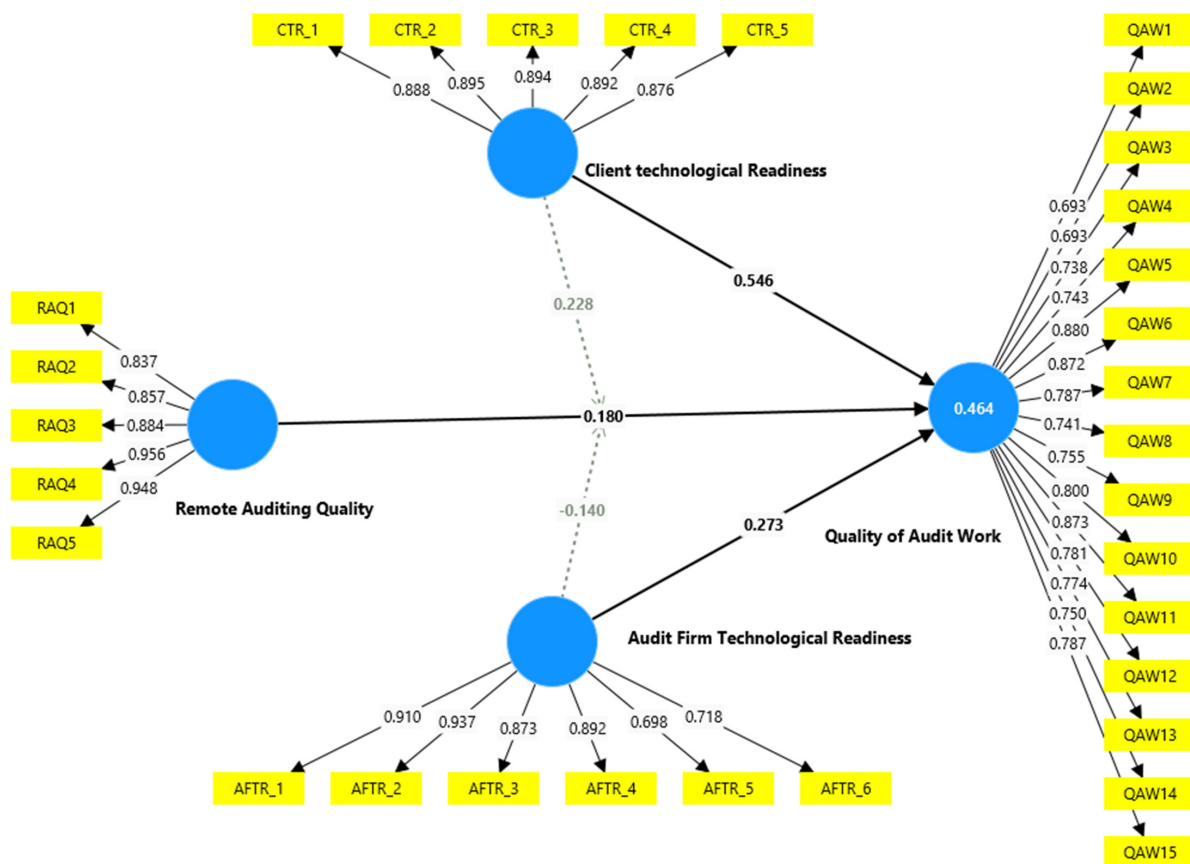


Figure 1. PLS-SEM model findings.



Figure 2. Slope analysis for the moderating effects. (a) Client technological readiness x RAQ; (b) audit firm technological readiness x RAQ.

7. Discussion and Conclusions

This study examines the impact of RAQ on QAW. Further, it examines the moderating effect of both CLTR and ADTR on the relationship between RAQ and QAW. Data was collected through a questionnaire survey distributed to all external auditors working in Egypt. The final sample consists of 280 auditors. The results revealed that RAQ has a positive and significant impact on QAW. This result represents one of the main significant contributions of the current study, as the RAQ was found to positively and significantly enhance the overall QAW in the Egyptian context. This result is different from what early studies have concluded as some studies found that RA, not RAQ, positively impacts QAW (Alma'aitah et al. 2024; Hawkins 2017; Picciotti 2020; Butarbutar and Pesak 2021; Serag and Daoud 2021; Maharaja et al. 2022; Saputro and Mappanyukki 2022; Figa et al. 2023; Farcane et al. 2023; Li et al. 2023; Lorentzon et al. 2024). Also, our results are different from studies that reported no or negative relationship between RA and QAW (Hannon 2020; Castka et al. 2021; Eulerich et al. 2022; Julianti and Muhyarsyah 2023; Castka et al. 2021; Saleem 2021; Jin et al. 2022; Thompson 2022).

Moreover, our study results affirmed H2, which implies that client TR has a positive and significant impact on QAW. This result is consistent with the findings of Jin et al. (2022), Alma'aitah et al. (2024), and Sigle et al. (2024). In addition, Hypothesis 3 (H3) was also confirmed, indicating a positive and significant impact of audit firm technological readiness on QAW. This finding is confirmed by the results reported by Saleem and Oleimat (2020), Li et al. (2023), Alma'aitah et al. (2024), and Sigle et al. (2024). These findings are important indications of the importance of investing in technology, as it is found to be important to both clients and audit firms. Technology importance also was prevalent in enhancing QAW, which in return can be explained theoretically by reducing the agency costs and information asymmetry (Lin 2018; Komal et al. 2022; Usman et al. 2023). Hence, we can infer that advancing client and audit firm TR will directly enhance audit quality and indirectly reduce agency cost and information asymmetry (Saleem et al. 2023; Usman et al. 2023).

Moreover, the results revealed that CLTR and ADTR moderate the relationship between RAQ and QAW, affirming both H4 and H5. CLTR was found to have a positive moderating role as CLTR was found to strengthen the relationship between RAQ and QAW. Meanwhile, ADTR was found to have a negative significant impact on the relationship between RAQ and QAW. The positive moderating impact of CLTR can be explained through the TOE framework, as the existence of mature technological infrastructure that interacts with the surrounding environment intra- or /and inter-organization helps in enhancing the internal control systems and increasing the accuracy of operations, which in return increases the overall QAW (Alma'aitah et al. 2024).

Regarding ADTR's moderating role, the negative moderating impact the results revealed indicate that the positive and significant impact of RAQ on QAW remains positive even after the moderation effect is applied. However, this effect appears to weaken the positive influence on the dependent variable (i.e., QAW). This result can be contextually explained by the fact that most of the audit firms included in the sample were small- and medium-sized, which may not fully appreciate the critical importance of technological readiness (TR) to audit firms. Furthermore, these firms may lack the necessary skills to effectively integrate the sudden surge in technological use within their auditing procedures. This explanation aligns with earlier studies in the Egyptian context, such as those by Wahdan et al. (2006), Elmashtawy et al. (2023), and Mohamed and Habib (2013), which identified gaps in skill development and training within many audit firms in Egypt as a significant barrier to achieving higher QAW.

Theoretically, the technology acceptance model (TAM) has been instrumental in understanding this phenomenon. The introduction of new technologies, accelerated by the recent shift toward remote audits and teleworking, has likely encountered implicit resistance within these firms. This resistance is evident in the observed weakening of the positive impact of RAQ on QAW. The lack of technological competence, particularly among smaller

firms, has led to difficulties in adapting to remote auditing practices, thus reducing the overall effectiveness of audit quality despite the potential benefits of RAQ.

8. Implication, Limitations and Future Research

This research offers important theoretical insights by developing a conceptual framework that investigates the interplay between remote audit quality (RAQ), client technological readiness (CLTR), auditor technological readiness (ADTR), and quality audit work (QAW). Unlike earlier studies, which may have explored these variables in isolation, this study uniquely examines how CLTR and ADTR act as moderating factors influencing the relationship between RAQ and QAW. One of the study's key contributions lies in its focus on the critical role of RAQ in shaping overall QAW, highlighting the significance of technological readiness on both the client and auditor sides in determining audit effectiveness.

On the practical side, the current study recommends that in developing contexts like Egypt, auditors and clients should give priority to investing in proper technological infrastructure as it impacts their operations and the overall audit quality, as if technological infrastructure quality becomes lower, auditors will not perform their job successfully. Hence, in order to protect their reputation in the market and to reduce any possibility of frauds and misstatements in the client operations, proper technologies should be in place. Moreover, auditors should invest more on training programs to make their staff ready for this digital transformation and be able to implement remote audits more effectively.

Grounded in agency theory, the current study supports early findings in the literature that the increased audit quality will lead to reduced information asymmetry and consequently reduced agency costs (Alma'aitah et al. 2024; Castka et al. 2020; Farcane et al. 2023; Salem et al. 2023). In that sense, the implementation of remote auditing equipped with proper technologies by both the audit firm and the client will mitigate the agency problem as it will lead to higher levels of audit quality. Further, the current study results support the Technology–Organization–Environment (TOE) theory in many instances. As technological readiness represents an important aspect that affects organizations engaged in the audit process, it also affects the surrounding environment through changing the way of processing, and how information is communicated to interested parties.

Finally, we cannot ignore the importance of the technology acceptance model (TAM) in explaining the results, as technology acceptance is built in theory on perceived usefulness and ease-of-use. The first is already apparent, as auditors will benefit from implementing new technologies and adopting remote audits (Alma'aitah et al. 2024; Awa et al. 2015). However, perceived ease-of-use will vary depending on the contextual ramifications and audit firm size. Having advanced technologies and heavy training programs on these technologies is very expensive, and not all audit firms will find the cost–benefit analysis in favor of having these technologies. Having said this, in the Egyptian market, most of the audit firms are small or medium, which will find that moving to remote audits is not worth it in terms of the benefits they will gain in light of the huge cost they will pay. This explains the negative moderating impact of ADTR on the relationship between RAQ and QAW.

This study presents important findings, but several limitations need to be acknowledged. First, the use of cross-sectional data restricts the ability to make broad generalizations. Future research would benefit from utilizing longitudinal or panel data to better capture the evolving nature of the relationships between the variables studied. Additionally, expanding the scope of the research to include diverse settings, cultures, and countries could offer a more holistic perspective on the RAQ-QAW relationship. Qualitative approaches like interviews and quantitative data could yield deeper insights and enhance future studies. Moreover, examining the role of institutional pressures as a mediator between RAQ and QAW would be a valuable direction for future research. It would also be beneficial to investigate how remote audits affect audit efficiency and auditors' job satisfaction. Finally, it would be beneficial to investigate the implementation of certain technologies like blockchain and digital twins by clients as aspects of technological readiness and how they impact the audit quality. These avenues would provide a more

nuanced understanding of the subject, offering richer insights that quantitative methods alone might overlook.

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Data Availability Statement: Data are available upon request from researchers who meet the eligibility criteria. Kindly contact the corresponding author privately through e-mail.

Conflicts of Interest: The authors declare no conflicts of interest.

Appendix A

Abbreviation	Variables	Sources
	Quality of audit work	Adopted from Saiewitz and Kida (2018) , Castka et al. (2021) , Sulaiman (2013) , Wojcak et al. (2016) , Jin et al. (2022) , Lugli and Bertacchini (2023) , Farcane et al. (2023) , Serag and Daoud (2021) , Albitar et al. (2021) , and Figa et al. (2023)
QAW1	The audit is carried out in accordance with auditing standards (i.e., ethical standards, quality control standards).	
QAW2	The auditor provides good value for money to the audit client.	
QAW3	The audit work undertaken is based primarily on an assessment of the risks associated with the client 's financial statements.	
QAW4	The audit work is determined by a proper planning process.	
QAW5	The auditor does sufficient work to obtain sufficient evidence to support an audit opinion.	
QAW6	The role of the audit partner is at the centre of the audit process.	
QAW7	The work done in carrying out the audit is subject to review before the audit is completed.	
QAW8	The auditor reports the correct audit opinion on the financial statements.	
QAW9	The auditor is technically competent.	
QAW10	The auditor is independent.	
QAW11	The audit meets the quality standards applied internally by the audit firm.	

Abbreviation	Variables	Sources
QAW12	The audit is completed in a timely manner.	
QAW13	The auditor maintains a high level of documentation in the completed audit files.	
QAW14	The auditor maintains effective communication and interaction with the audit committee.	
QAW15	The audit firm is free from negative findings in inspection reports.	
Remote audit quality (during RA, how regularly they performed the following practices)		Adopted from Li et al. (2023)
RAQ1	Welcome weak client explanations	
RAQ2	Conduct superficial reviews of client documents	
RAQ3	Failed to research an accounting principle	
RAQ4	Reduced the amount of work performed on an audit to less reasonable time	
RAQ5	Signed off on an audit program step without completing the work or noting the omissions	
Technological readiness (TR)		Adopted from Picciotti (2020) , Saleem and Oleimat (2020) , Hannon (2020) , Castka et al. (2021) , Chan et al. (2018) , Farcane et al. (2023) .
Client technological readiness		
CTR_1	Technological proficiency in RA	
CTR_2	Technological infrastructure for RA	
CTR_3	Protocols to safeguard data security and privacy	
CTR_4	Anxiety to perform audit tasks remotely	
CTR_5	Network strength and stability	
Audit firm technological readiness		
AFTR_1	Adequate technology investment for RA	
AFTR_2	Audit team technological knowledge and skills for RA	
AFTR_3	Effective use of technology that improves the audit's outcomes	
AFTR_4	Continuous development for audit staff on emerging technologies	
AFTR_5	Protocols to safeguard the security and privacy of data	
AFTR_6	Network strength and stability	

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