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THE ELECTRONIC AND CLOUD INTERNAL AUDITING: ITS IMPACT ON THE QUALITY OF AUDIT EVIDENCE

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ABSTRACT

Internal audit departments encounter considerable challenges stemming from the swift technological advancements within the business sector. It is essential for the audit process that internal auditors improve their abilities, and the difficulties they have encountered have increased their drive to do just that. With an eye toward electronic and cloud audits, this research examines how well-informed internal auditors are on obtaining trustworthy audit evidence. The consequences of conducting these audits are the primary points of discussion. It examines how internal auditors can improve audit quality based on responses gathered from Iraqi commercial banks through an electronic survey. A total of 334 internal auditors were randomly selected for the study. A questionnaire was developed based on the literature review and organized into two sections. The initial section focused on demographic data, whereas the subsequent section explored inquiries concerning electronic and cloud internal audits, comprising 15 questions categorized into three dimensions: knowledge and understanding, trust and acceptance, and challenges and opportunities. The third section addresses the quality of audit evidence and includes 16 questions. Factor analysis was employed for clarification. The questionnaire demonstrated both validity and reliability. Simple linear regression, along with correlation analyses, was used to test the hypotheses.

The findings indicate that internal auditors extensively utilize electronic and cloud-based software, with a high level of adoption of electronic auditing applications. The results indicated that the quality of electronic audit evidence is more reliable than paper-based evidence. Furthermore, electronic auditing leads to the quality of internal audit performance. The study also demonstrated the importance of internal auditors obtaining high-quality audit evidence to provide their opinions on improving internal control systems and the results of organizational operations. The study also recommended the inclusion of legal provisions on electronic evidence in, specifically, the Iraqi Evidence Law No. 107 of 1979, as amended.

Keywords: internal audit, e-internal audit, internal auditors, cloud internal audit, quality of evidence**,** commercial banks, Iraq

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INTRODUCTION

Internal auditors play a critical role in enhancing assurance within organizations. For the beneficiaries of their services (Dzikrullah et al., 2020), the objectives of modern internal auditing include ensuring the protection of personal data, preventing cyber-attacks, and providing continuous training for internal auditors on modern technologies. Caution must be exercised regarding technology, which is less critical compared to the desire of internal auditors to implement continuous auditing. Cost and time also play a crucial role in enhancing internal auditing, as technological advancements, combined with careful implementation and a tailored strategy for each case, enable the improvement of data protection effectiveness and the prevention of cyberattacks. Training is a key objective of internal auditing in a modern technology environment, as organizations must ensure the appropriate preparation of trained auditors (Lois et al., 2020). Audits are not uniform or homogeneous processes that emerge from nothing, but must be understood as a combination of interconnected procedures, tools, and calculations. To avoid audits

becoming mere reputation management tasks for the organization, internal auditors must be aware of their own biases and perspectives, as well as those of the organization (Al-Taee & Flayyih, 2023). This awareness is crucial, as internal auditors play a critical role in enhancing assurance to stakeholders (Dzikrullah et al., 2020). As companies continue to adopt emerging technologies, internal auditors must proactively assess and understand the new risks associated with these technologies. This enables internal audit to assess whether appropriate controls are in place to prevent and detect new and emerging risks (Prabowo & Suhartin, 2020). Although internal audit practices often strive to ensure quality, technological challenges have recently become an obstacle to achieving this goal amid these digital changes (Al-Taee & Flayyih, 2023).

Literature on auditing reveals that internal auditing has progressively embraced digitization in recent years, with nearly all audits now utilizing computerized data processing technologies. A recent advancement in this digital procedure is termed e-auditing, which refers to the ability of internal auditors to collect and utilize audit tools and techniques through software utilities in electronic accounting systems. Additionally, e-auditing is being conducted online, referred to as cloud internal auditing. The experience of auditors in e-auditing is intriguing for internal auditors, who often possess a history in e-auditing and frequently pioneer the exploration and adoption of new audit information technologies before they are referred to external auditors. An intriguing question that emerges in the realm of internal auditing is whether e-auditing improves the quality of audit evidence. This may prove advantageous for both internal and external auditors.

The primary crisis of this study is that computer technologies have gradually entered public and private institutions (financial and non-financial) in Iraq since 2003, albeit unhurriedly and to a limited extent, and have not yet reached the required level compared to their counterparts in other countries. However, over the past five years, the commercial and governmental banking sector has witnessed a qualitative leap in the use of high-level electronic programs, creating a new challenge for internal auditors in relying on electronic audit evidence instead of traditional evidence. Therefore, the study problem focuses on understanding the challenges faced by internal audit departments in the banking sector, with the aim of identifying solutions and frameworks that enable them to perform their tasks efficiently and effectively.

This study is among the rare investigations into the quality of electronic audit evidence, and that the results we will obtain will serve as a guide for internal auditors in the public and private sectors, and can be used by professionals in external auditing, in addition to assisting the judiciary in resolving disputes that arise as a result of breaches of professional duties, whether internal or external auditing, especially in developing countries that lack legal legislation to address this critical issue.

LITERATURE REVIEW

Electronic and cloud internal auditing

The role of internal auditors is being transformed by new technology, which is increasing the market value of their companies and changing the way internal auditors work. Modern technology empowers internal auditors to optimize operations, gain deeper insights into business processes, and boost productivity. However, it also poses some challenges, especially if not implemented successfully (EACLN, 2017). As is well known, in recent years, the internal audit function has evolved from manual, paper-based audits to computer-based electronic audits, in addition to emerging systems and online technologies, which provide appropriate mechanisms for generating information and company business results promptly. Therefore, considering these rapid technological developments, this function requires its auditors to develop their competencies to understand, identify, and analyze the risks posed by cyber threats and fraud, in cooperation with information security, to ensure the effectiveness of the information security program and the production of reliable financial statements (Cosmulese & Socoliuc, 2019). This creates an urgent need for research to understand the new types of accounting required to supervise establishments in the changing digital economy and to determine the latest skills and competencies that both accountants and auditors may need to master to remain relevant and add value to the company, considering these complex challenges (Moll & Yigitbasioglu, 2019; Hussein, 2022). As more electronic applications have become available, organizations have sought ways to enhance their audit procedures by leveraging these technologies. If internal auditors want to execute their jobs more efficiently, they need to implement electronic internal auditing. Consequently, customized training programs must be implemented for internal auditors to address their deficiencies in electronic qualifications (Hamza et al., 2023). Internal auditing seeks to assess the efficacy of internal operational controls by collecting information regarding organizational operations, detecting potential vulnerabilities or inaccuracies, and delineating internal control mechanisms to avert or discover fraud. Computers and networks supply most of the information required for auditing. To ensure the efficacy of internal audits, auditors must utilize computers as an auditing instrument to verify the proper working of automated financial systems and data (Madhar & Almaktoomi, 2022). Electronic auditing influences

audit procedures and hence diminishes overall audit risk (Al-Taee & Flayyih, 2023). Electronic auditing enhances the independence of internal auditors by freeing them from external pressures that may undermine the objectivity and reliability of their reports. It may enhance communication between the internal audit director and top management, as well as with departments involved in audit activities (Alfartoosi et al., 2024). The implementation of cloud accounting substantially influences the efficacy of internal auditors. The digital proficiency of auditors enhances the influence of cloud and electronic accounting on their efficacy in audit operations (Hamza et al., 2024).

Organizations that effectively utilize e-auditing can attain favorable results across multiple operational dimensions by supplying precise data for decision-making and facilitating rapid responses (Mujalli, 2024). Green electronic auditing considerably enhances the dependability of accounting information and cloud computing by markedly improving the correctness and efficiency of financial records through the integration of green technology (Alrabei, 2023). The change affects the audit landscape and internal audit methods, methodologies, IT auditing, information systems, IT governance, and risk management, necessitating auditors to acquire new competencies to maintain high-quality service in this context. Internal auditing must develop into a pivotal strategic function (Daidj, 2022). The digital economy substantially enhances the security of internal audit operations, thereby fostering financial stability and advancing internal audit systems within business entities to a heightened capacity for early risk detection, minimizing errors, and ensuring operational transparency. Innovative instruments, including cloud services, big data analytics, and blockchain technology (Maxmudova, 2024), augment the advancement of governmental internal audit systems in numerous nations, dependent on the utilization of digital technologies. This augments the endeavors of most nations. The incorporation of digital technologies in government internal auditing requires auditors to have a sufficient understanding of cloud computing and appropriate auditing methodologies for conducting cloud-based internal audits (Korol et al., 2022).

Furthermore, they require access to all information essential for audit purposes (Rabie et al., 2023). Organizations can optimize the benefits of digital transformation by improving IT auditing through proactive measures and promoting skill enhancement for internal auditors (Mirwali et al., 2024). The figure below depicts the correlation between electronic and cloud-based internal auditing.

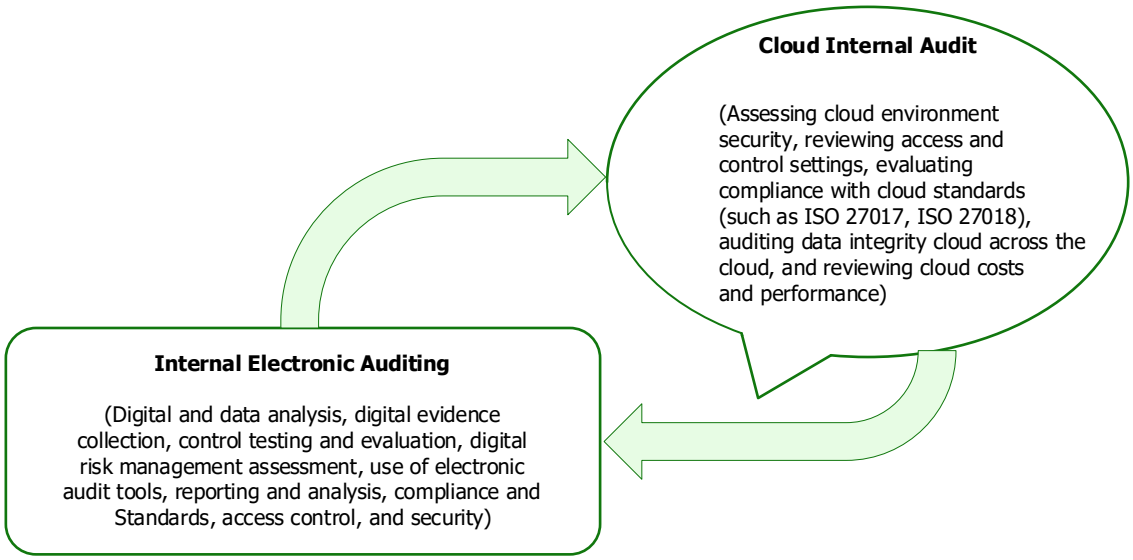

Figure 1. The relationship between electronic and cloud internal auditing.

The figure above illustrates that internal and cloud auditing have commonalities in automated and graphical analysis, evaluation of control and security, and adherence to policies and standards. The various factors are: Electronic auditing encompasses all digital systems, both local and cloud-based, and entails a thorough evaluation of the digital infrastructure, whereas cloud auditing focuses on the examination of the cloud environment, data security, and cloud management protocols.

Issues with digital changes and the quality of audit evidence

Audit evidence is fundamental to the auditing process. The most crucial aspect is that internal and external auditors rely on them to ascertain the authenticity and dependability of the audited financial statements. The caliber of this evidence is vital for the auditor to produce a precise and reliable evaluation, enhancing confidence in financial statements and upholding the tenets of transparency and accountability. The effectiveness of internal auditing is presently conditional on the

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degree of digital technology employed in the planning, organization, and execution of audit activities (Korol et al., 2022). Due to the COVID-19 epidemic, internal auditors had to transition from in-person audits to remote audits. Consequently, internal auditors perceive no distinction in the efficiency, effectiveness, and stakeholder reliance on the outcomes of remote audits (Marc et al., 2022).

Moreover, electronically collected audit data seems to be less dependable and credible. Nonetheless, a correlation between the prompt gathering of audit evidence and its trustworthiness could not be established (Eulerich et al., 2022). Moreover, auditors' anticipations of self-fulfilling prophecy affect their perceptions regarding corroborating and disconfirming facts. Moreover, auditors possessing elevated expectations of self-fulfilling prophecies exhibited heightened sensitivity to mitigating evidence while simultaneously demonstrating a reduced propensity to favor contradictory evidence (Andre et al., 2011).

Audit evidence is fundamental to the auditing process. The most crucial aspect upon which internal and external auditors depend to ascertain the legitimacy and dependability of the audited financial statements. Internal and external auditors rely on this data to generate an opinion on the reliability of the financial statements, hence enhancing trust in the reports and ensuring accountability and transparency for stakeholders. This section will examine the fundamental components of audit evidence quality as presented in the literature we analyzed:

How important is it to have high-quality audit evidence while conducting an internal audit?

Auditors employ diverse methodologies to acquire and evaluate evidence. These procedures encompass inspection, observation, inquiry, verification, computation, re-performance, and additional techniques. The initial and paramount action that auditors significantly influence the overarching regulations governing the audit process is to acquire adequate and pertinent audit evidence. Audit evidence must be meticulously documented to ensure the achievement of the audit objective (Feizizadeh, 2021). Internal auditors must gather evidence that verifies the accuracy of information provided by management. Audit evidence consists of textual and electronic material that allows the auditor to reach logical conclusions. In this context, audit evidence aids auditors in establishing a basis for forming their opinion on the financial statements of the audited firm (Enofe et al., 2013). Clients retain a preeminent role during the evidence-gathering phase.

Concerns remain among internal and external auditors over their clients' self-perceptions and the audit team's efficacy. Auditors often have challenges in fulfilling their professional responsibilities while remaining close to the customer. These forces often lead to tactics that compromise audit quality, such as client avoidance and "ghost work." The ongoing power disparity between staff auditors and their clients may jeopardize auditors' independence (Melissa et al., 2023). Audit evidence is the foundation of assurance, providing regulators, investors, and stakeholders with a dependable framework for improving their understanding of financial statements. Audit evidence consists of various papers, records, and data that support the auditor's assessment. The essential elements and characteristics of audit evidence validate firms' claims about their financial condition and performance while also fostering stakeholder confidence in the supplied information. Therefore, enterprises must recognize the need for auditing and audit evidence to confirm their compliance with standards and regulations (SD, 2024).

Compiling and organizing audit evidence is essential for auditors and accountants, as it furnishes the requisite information to evaluate the correctness and trustworthiness of financial accounts based on the gathered evidence (Kenton, 2025). Internal auditing is essential for gathering relevant evidence, whereas external auditors conduct the audit. An extensive analysis of financial data, including balances, invoices, and inventories, is necessary to verify the accuracy of financial accounts. Internal auditors assess the effectiveness of cybersecurity controls (Bevin, 2023). Auditor support directly and indirectly impacts the auditor's judgment by shaping the assessment of evidence and directing decision-making on audited information. The effectiveness of internal audit functions depends on internal control mechanisms and the cooperation between internal and external auditors to obtain reliable audit evidence (Behrooz et al., 2024).

Factors and criteria influencing the quality of audit evidence

Auditors who stick to their assumptions are more likely to interpret mixed evidence, which includes both confirming and contradicting data, as supporting their opinions. The level of commitment influences auditors' appraisals of mixed evidence, with those who are more dedicated to their preconceptions more likely to prefer confirmatory evidence than those who lack such commitment (Bryan, 1991). Additionally, goal-oriented auditors collect evidence more efficiently than their plan-oriented counterparts and pursue this evidence with greater effectiveness. This suggests that a goal-oriented approach improves audit quality in assignments that require auditors to adapt to new information (Jacqueline & Hammersley, 2021). Nielson's study discovered two tactics used by managers to manage audit evidence: the sub-item set strategy and the partial item disclosure strategy. Managers use the sub-item set strategy to give evidence sets that contain a considerable

amount of less credible material. In the partial disclosure strategy, managers withhold contextual evidence that could cast doubt on its reliability—referred to as "undermining details" (Nielson, 2025). The quality of internal audit is a predictor of the quality of financial reporting. The findings align with stakeholder theory, which emphasizes the need for organizations to address stakeholder expectations, particularly regarding the disclosure of financial information. Financial institutions necessitate high internal audit quality, which is contingent upon staff competency and adherence to professional standards and regulations (Twaha et al., 2021). As the quality of audit evidence improves, the requirement for supplementary supporting evidence diminishes.

Nevertheless, acquiring additional evidence of the same type cannot offset the deficiencies in the quality of that evidence (PCAOB, 2025). Experienced auditors frequently opt for additional confirmatory evidence upon receiving favorable information from a client's CFO. Experienced auditors demonstrated a tendency to select more confirmatory evidence when presented by the CFO (Reilly et al., 2017). The counterfactual mindset of auditors may be engaged when analyzing and utilizing counterfactual evidence, especially in situations of time pressure that can introduce biases against such evidence (Durkin & Rose, 2025). Auditors tend to exhibit confirmatory behavior regarding their sensitivity to evidence during evaluations. Moreover, confirmability remains consistent across two levels of experience and in contexts both with and without irregularities (Bamber et al., 1997). Contemporary technologies, including explainable artificial intelligence (XAI), improve interpretability and evidence quality by employing an audit task to evaluate the risk of material misstatement (Zhang et al., 2022).

AIMS AND OBJECTIVES

This study aims to evaluate the correlation between electronic and cloud-based internal auditing and the quality of electronic audit evidence acquired by internal auditors, given the lack of explicit guidance in local law or professional regulations. This study aims to provide recommendations for enhancing the quality of internal auditing in both public and commercial sectors, while also examining the prevalence of electronic and cloud-based internal auditing across Commercial banks listed on the Iraq Stock Exchange. Moreover, there is limited knowledge regarding e-auditing and the impact of cloud utilization on the quality of audit evidence. This study aims to address the present gap in the literature. The primary objective is to analyze the effect of electronic and cloud-based internal auditing on the quality of audit evidence acquired by internal auditors utilizing electronic accounting software, referred to as electronic or cloud-based audit evidence, upon which internal auditors base their audit opinions. The study's sub-objectives were:

1. To assess the impact and correlation of electronic and cloud-based auditing on the quality of audit evidence;
2. To identify and catalog the tools applicable to electronic and cloud-based auditing, while examining the benefits, challenges, and opportunities associated with their utilization, along with the requisite skills and competencies;
3. To develop a framework that establishes regulations for specific electronic or cloud-based internal audit tools that internal auditors can depend upon.

METHODS

A three-part questionnaire was developed to achieve the study's objectives. The initial part focused on demographic data, including gender, age category, educational qualification, specialism, and experience in internal auditing. The second portion focused on questionnaire inquiries with two dimensions. The initial aspect concerns the independent variable (electronic and cloud-based internal auditing), comprising 15 queries, with each dimension containing five targeted inquiries. The second axis pertains to the dependent variable (quality of audit evidence) and encompasses 16 targeted inquiries regarding the quality of audit evidence in both electronic and traditional systems. The study sample consisted of internal auditors from the governmental and commercial sectors in Iraq. A total of 334 electronic questionnaires were distributed and deemed genuine for analysis. The data were examined using SPSS version 29, which included descriptive analysis of demographic information and an evaluation of the questionnaire's validity and reliability. The t-test and simple linear regression were used to evaluate the study hypothesis. The following regression equation was utilized to assess the hypotheses:

$$\mathrm{QEIA} = \mathrm{B}_0 + \mathrm{B}_1(\mathrm{ECIA}) + \mathrm{e}_{\mathrm{it}} \quad (1)$$

where: $QEIA$ *= the dependent variable (quality of audit evidence);* B_0 *= The regression equation's constant represents the accounting disclosure value when the Artificial intelligence equals zero;* $B_1(ECIA)$ *=The slope of the regression function,*

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which measures the effect of the independent variable (electronic and cloud internal auditing) on the dependent variable (quality of audit evidence); e_{it} *= Estimation errors or so-called statistical residuals.*

The study Problem

Iraq has endured political crises and conflicts for over thirty years, severely damaging the nation's economy. Internal auditing is an activity that has fallen behind neighboring Gulf countries in terms of development. Nonetheless, economic liberalization and recent détente, along with the government's initiative to automate financial operations in both public and private sectors, have engendered acute challenges in managing electronic audit evidence and evaluating its integrity. This is particularly applicable to internal auditors, who have dedicated decades to conventional auditing practices and dependence on paper-based documentation. The problem primarily revolves around the absence of explicit and unequivocal legal or professional standards upon which auditors can depend to ascertain the authenticity of evidence collected using electronic or cloud-based systems. Consequently, further investigation and analysis into strategies to enhance the efficacy of the Iraqi internal audit function, together with the formulation of legal and professional frameworks to offer recommendations beneficial to all stakeholders, is necessary. Consequently, the study poses an additional inquiry:

Does the use of electronic or cloud-based internal auditing affect the quality of audit evidence?

The hypotheses:

The hypotheses of this study are based on the question posed in the study problem, as follows:

1. There is no significant relationship between electronic and cloud-based internal auditing and the quality of audit evidence, H0.
2. There is a significant relationship between electronic and cloud-based internal auditing and the quality of audit evidence, H1.

RESULTS

Analyzing demographic data of sample individuals

Male respondents comprised 53.6% of the total, while female respondents accounted for 46.4%. This % is relatively balanced and devoid of bias. The sample's age varied from 30 to 39 years, with 59.4% of participants within this range. Subsequently, 14.4% of those aged 40 to 49 were recorded, with those aged 50 and beyond ranking third. The highest percentage of banking experience was observed among individuals with 26 to 30 years of experience as internal auditors, accountants, or specialists. Subsequently, 25.5% of individuals with 16 to 20 years of experience and 15.9% of those with 6 to 10 years of experience were noted. The minimum proportion was 8.2% for individuals with 30 or more years of experience.

Regarding educational achievement, people possessing a master's degree constitute the largest group (37.7%), followed by those holding a bachelor's degree (34.8%). Individuals possessing an academic or professional doctorate ranked third, comprising 15.9%. The minimum rate was 11.6% among those possessing a technical diploma. Accounting graduates constituted the most significant proportion of those pursuing academic or professional specialization, at 55.1%. The second position was awarded to people possessing a degree in finance and banking sciences, who garnered 24.5%. Holders of the certificate secured third place. In business administration, 13% of participants possessed degrees in statistics, economics, and law.

The highest ratio (37.8%) pertained to individuals holding the job title "Internal Auditor or Accountant". The second position was awarded to those holding the title "Internal Audit Manager or Accounts Manager", who garnered 15.9%. The third position was awarded to individuals holding the titles of "Assistant Audit Manage", "Senior Audit Manager", "Expert", or "Auditor". This indicates that respondents are likely to answer survey questions judiciously and rationally, based on their practical experience with Iraqi commercial banks.

Split-half reliability

Upon verifying the validity and reliability of the questions about the Independent and dependent variables, which exhibited a significant value of less than 0.00 for all inquiries, the stability of the scale will be ascertained by calculating Cronbach's alpha coefficients through the split-half method, utilizing SPSS version 29, with the subsequent results being as follows:

Table 1. Outcomes on the stability of the scale employees for the study variables.

	Parts	Value & N of Items	Electronic or cloud internal auditing	quality of audit evidence
Cronbach's Alpha	Part 1	Value	0.765	0.722
		N of Items	8	8
	Part 2	Value	0.764	0.799
		N of Items	7	8
	Total N of Items		15	16
Correlation Between Forms			**0.754**	**0.867**
Spearman-Brown Coefficient	Equal Length		0.860	0.929
	Unequal Length		0.860	0.929
Guttman Split-Half Coefficient			**0.859**	**0.928**

The aforementioned Table 1 indicates that the independent variable (electronic and cloud internal audit), comprising eight individual questions and seven paired questions, has a Cronbach's alpha correlation value of 76.5% and a Spearman-Brown Coefficient value of 86%. The Guttman Split-Half Coefficient between the two portions was 85.9%, indicating a statistically acceptable dependability rate exceeding 0.7. The dependent variable, quality of audit evidence, comprises eight paired questions and eight individual questions, with a Cronbach's alpha correlation coefficient of 72.2% and a Spearman-Brown coefficient of 86%. The correlation coefficient between the two portions (Guttman Split-Half Coefficient) was 85.9%, indicating a statistically acceptable dependability rate exceeding 0.7.

Analysis results of respondents' answers

According to the knowledge and understanding dimension of the first axis (electronic and cloud internal auditing), 70.1% of internal auditors in Iraqi commercial banks agree that they are aware of electronic and cloud internal auditing procedures, while 29.9% disagree. Part of the disagreement stems from external respondents, such as auditors and financial analysts. 80.5% of them agree that electronic and cloud-based internal auditing contributes to improving auditing processes, and 88% believe that electronic internal auditing tools are more effective than traditional internal auditing methods. The results also indicate that 65.9% believe that using electronic and cloud internal auditing will reduce risks related to financial statements, and 88% of them agree that using this type of auditing will contribute to reducing time and costs. Regarding the second dimension (trust and acceptance) of this axis, 59.9% of respondents expressed high confidence in the results of electronic and cloud audits compared to traditional internal audits.

In comparison, 4.5% disagreed, and 45.6% were neutral. Furthermore, 26% believed that the use of electronic and cloud internal audits would hinder data confidentiality and security, while 35.5% disagreed, and the remaining percentage were neutral. 65.5% of the sample believed that internal auditors were dissatisfied with the use of these technologies in auditing. The results indicated that 83.5% believed that appropriate training would enhance acceptance of electronic and cloud internal audits, which explains the high level of resistance to the use of this type of audit. Regarding the third dimension (Challenges and Opportunities) of this axis, 82% believe that electronic and cloud-based internal auditing faces challenges related to security and privacy.

On the other hand, 73.5% of them believe that this type of auditing increases the chances of detecting errors more quickly than traditional auditing. Furthermore, 91% of respondents agree on the need to issue or amend legal and professional legislation that supports electronic and cloud-based internal auditing. Furthermore, 82.1% believe that Iraqi commercial banks are not yet fully ready to adopt electronic and cloud-based auditing. Regarding the questions on the second axis (quality of audit function), the analysis results indicate that 65.6% of respondents confirm that the use of electronic and cloud audit tools has contributed to improving the quality of audit evidence, and that only 4.5% of respondents oppose this approach, while the remaining percentage are neutral. 80.9% of them believe that this type of audit provides reliable and secure audit evidence, and 71.5% believe that the use of electronic audit has increased the efficiency of internal audit. However, at the same time, 80.3% of respondents believe that there are challenges surrounding the quality of audit evidence, and 85% of respondents believe that reliability, sufficiency, and timeliness are key factors contributing to the quality of audit evidence.

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Results of testing the study hypothesis

Table 2. Correlation matrix between the independent variable and the dependent variable.

		Electronic or cloud internal auditing	Quality of audit evidence
Pearson Correlation	Electronic or cloud internal auditing	1.000	0.578
	Quality of audit evidence	0.578	1.000
Sig. (1-tailed)	Electronic or cloud internal auditing		0.00
	Quality of audit evidence	0.00	
N	Electronic or cloud internal auditing	334	334
	Quality of audit evidence	334	334

Table 2 presented above, outlines the variables included in the regression matrix. The correlation coefficient between the independent variable (electronic and cloud internal audit) and the dependent variable (quality of audit evidence) is 57.8%, with a significance level below 0.01. The correlation between the two variables indicates a statistically significant relationship, as evidenced by a significant value of 0.00 for the independent and dependent variables.

Table 3. Model Summary.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.578a	.334	.332	1.01454
a. Predictors: (Constant), Electronic or cloud internal auditing				
b. Dependent Variable: Quality of audit evidence				

Table 3 above presents the Pearson correlation coefficient between the independent variable, electronic and cloud-based internal audit, and the dependent variable, quality of audit evidence. The correlation coefficient (R) between the variables was 0.578, while the coefficient of determination (R-squared) was 0.334, indicating the explanatory power of the model, specifically regarding the independent variable of electronic and cloud-based internal audit. This coefficient accounts for 33.4% of the variance in the dependent variable (quality of audit evidence), with a standard deviation of the estimation error at 1.01454, indicating a low value. Reduced errors correlate with improved statistical performance, thereby illustrating the model's robustness.

Table 4. Hypothesis testing variance (ANOVA[a])

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	171.581	1	171.581	166.697	.000b
	Residual	341.727	332	1.029		
	Total	513.308	333			
a. Dependent Variable: Quality of audit evidence						
b. Predictors: (Constant), Electronic or cloud internal auditing						

Table 4 presents the regression significance, indicated by an F-value of 166.697, which surpasses the critical value from the table for degrees of freedom (1, 333). The mean squared residuals were calculated to be 171.581 at a 5% significance level. The significance level of the test, represented by Sig. 0.000 is below the conventional error threshold of 0.05 typically employed in social sciences. This effect signifies the rejection of the null hypothesis and the acceptance of the alternative hypothesis, which posits a significant regression. The influence of electronic and cloud-based internal auditing on the quality of audit evidence is evident.

Table 5. Regression function coefficients for the hypothesis (Coefficients[a])

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.771	.372		7.443	.000
	Electronic or cloud internal auditing	.595	.046	.578	12.911	.000
a. Dependent Variable: Quality of audit evidence						

The preceding Table 5 shows that the observed multicollinearity between the variables' inflation coefficients is less than 3.00, suggesting statistical acceptability. Furthermore, the regression equation included a constant term of 2.771. The slope of the regression equation was found to be 0.595, showing that the independent variable (electronic and cloud internal audit) influenced the dependent variable (quality of audit evidence) via factor B. A positive value for the factor shows that the two variables have a significant and direct link. In other words, an increase of one unit in the independent variable (electronic and cloud-based internal audit) results in a 59.5% rise in the dependent variable (quality of audit evidence). The table above shows that the t-value for the independent variable (electronic and cloud internal audit) is statistically significant at the 0.00 level, which is much less than the tolerable error rate of 0.05. This means that the sample data supplied is convincing evidence for rejecting the null hypothesis and accepting the alternative hypothesis (a notable correlation between the electronic and cloud-based internal audit and the quality of audit evidence)

Below are Figures 2-3 that show the normal distribution of the dependent variable (Limiting material misrepresentation):

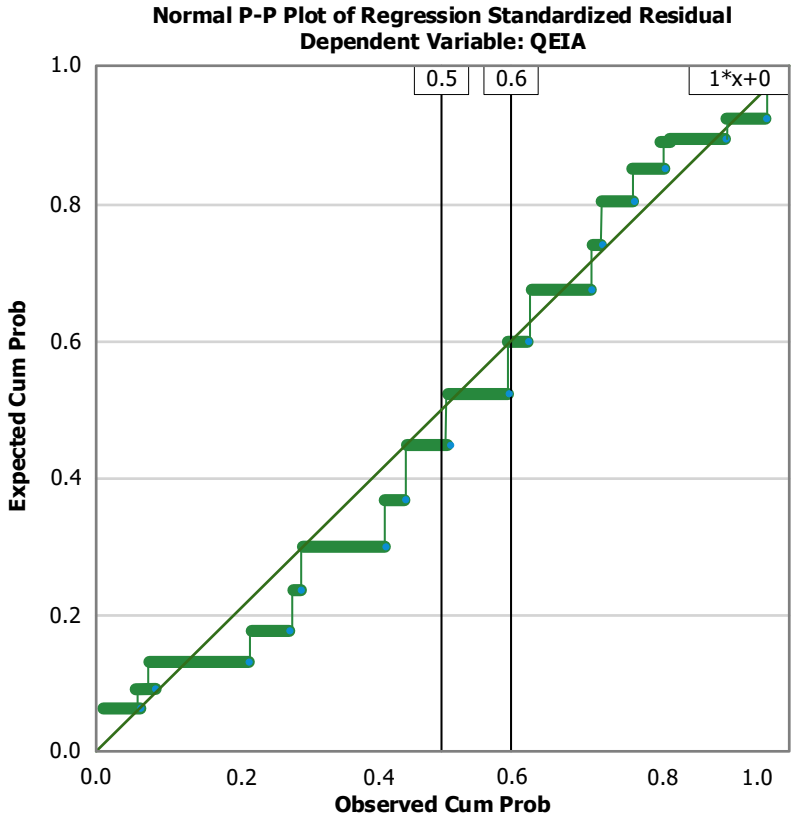

Figure 2. Histogram of the regression of the residuals of the dependent variable.

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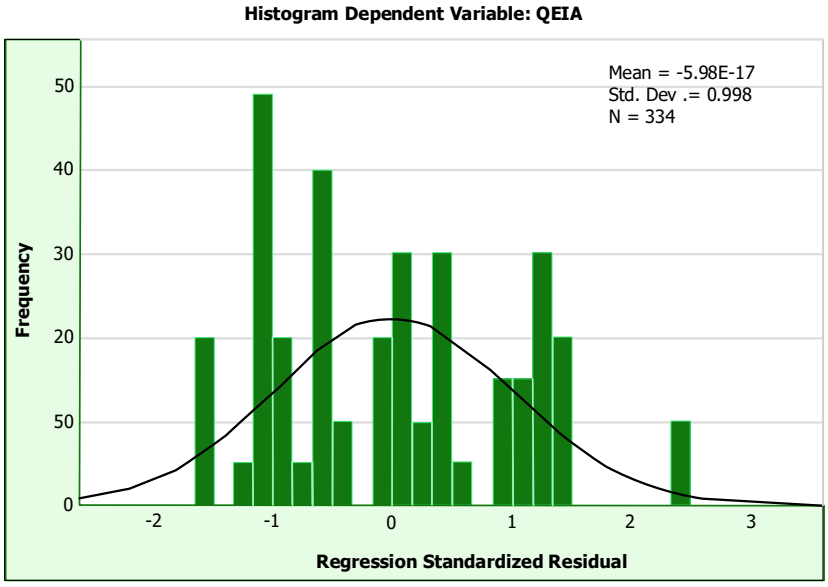

Footnote

Figure 3. Scatterplot of the quality of audit evidence.

Figure 3 above shows that the residuals are distributed according to the data's standard distribution, implying that one of the regression analysis conditions has been met. Based on Table 5 and Figure 2, the regression function (1) can be recast as follows:

$$QEIA = 2.771 + .595 \times \varepsilon_i \quad (2)$$

DISCUSSION

This study makes a significant contribution to the literature on electronic and cloud-based internal auditing within commercial banks listed on the Iraqi Stock Exchange. This sample offers a comprehensive insight into the utilization of electronic and cloud-based internal auditing and its influence on the work practices of internal auditors, specifically regarding the quality of electronic audit evidence and the formulation of judgments by internal auditors. This study is among the initial investigations in Iraq that empirically and conceptually analyzes the determinants affecting the use of electronic and cloud-based auditing by internal auditors and its ensuing effect on the quality of audit evidence; however, there is a dearth of papers focusing on both electronic and cloud-based internal auditing. This study enhances the knowledge base by evaluating the capacity and extent of internal auditors' utilization of electronic and cloud-based auditing in the assessment of financial statements within Commercial banks listed on the Iraq Stock Exchange, as well as its influence on the quality of audit evidence. The findings revealed that the utilization of electronic and cloud-based auditing tools by internal auditors in the Iraqi bank is markedly low, except in government banks. Simultaneously, their utilization is significant in private sector enterprises. Nonetheless, the caliber of audit evidence seems to improve with the implementation of electronic and cloud-based auditing. The practical effect of technology adoption is crucial for professionals across various sectors in terms of the quality of audit evidence. This highlights the potential of employing novel methodologies to enhance internal audit efficacy by improving the quality of audit evidence through the use of innovative technological tools. The internal audit function aims to improve its reputation by providing various services to decision-makers, including the implementation of electronic and cloud-based auditing to generate reliable and accurate audit evidence for assessments of the audited item.

Electronic and cloud-based auditing are expected to increasingly integrate into the internal audit profession in the coming years, driven by the Iraqi government's efforts to automate operations in both the public and private sectors. The Iraqi Accounting and Auditing Standards Board must establish a standard for electronic and cloud-based auditing that both internal and external auditors can operate. The study's conclusions possess multiple ramifications for internal audit practices. Internal auditors need to enhance their skills in the current technology-driven era to effectively leverage technology in their practice. This is essential for identifying methods to enhance efficiency via the utilization of innovative technology instruments, including electronic and cloud auditing.

Moreover, the results provide internal auditors with numerous administrative and technological recommendations to leverage the beneficial effects of electronic auditing. Amendments to the Iraqi Evidence Law No. 107 of 1979 are essential to incorporate legislative stipulations for the acceptance of electronic documents as evidence by internal auditors during the auditing of financial transactions.

CONCLUSIONS

The current study reached several conclusions to achieve its primary and secondary objectives. It demonstrated a significant relationship and correlation between electronic and cloud-based internal auditing and electronic internal audit evidence. This requires attention to the nature, quality, and adequacy of electronic audit evidence by internal audit departments. Furthermore, Iraqi Penal Code No. 111 of 1969, as amended, does not include explicit legal provisions condemning auditors who fail to perform their professional duties, which harms stakeholders. This requires the necessary legal amendments to keep pace with technological developments and their impact on the internal audit function. This requires the Accounting and Auditing Standards Board to issue a local standard that defines the general and specific frameworks for the quality of audit evidence, taking into account electronic and cloud-based internal auditing. The study reveals the widespread adoption of electronic and cloud-based internal auditing in commercial banks listed on the Iraq Stock Exchange, alongside a notable lack of knowledge regarding the quality of electronic or cloud-based audit evidence. However, this knowledge and use are limited in Iraqi public sector units, requiring them to continue developing their current accounting programs and electronic applications, and to train internal audit departments to keep pace with technological developments and enhance their professional performance.

All Iraqi banks and public sector units still lack clear standards for the quality of electronic audit evidence, due to the absence of a local internal audit standard that would guide internal auditors and enable them to rely on the most reliable evidence. This requires regulatory authorities to issue clear guidelines to enhance the quality of internal audits in both the banking sector and the public sector, and Internal auditing is a vital and beneficial service to organizations. However, studies on the quality of electronic audit evidence remain very limited, both in the context of internal and external auditing, and auditors are seeking assistance with many growing issues. Because the quality of audit evidence affects the credibility of the outcomes and the auditor's reputation, it is critical to the success of financial audits. To confirm the accuracy and transparency of financial reports, auditors must adhere to best practices and rely on information from reliable sources. Electronic auditing enhances the independence of internal auditors by eliminating external influences, such as requirements that affect the objectivity and reliability of reports. It also promotes effective communication between the internal audit manager and senior management, as well as relevant audit departments, as all reports are submitted to senior management. The banking sector in Iraq is of paramount importance in Iraq's financial and economic policy. This sector has witnessed remarkable development over the past five years, both for commercial and Islamic banks. Technology, communications, and artificial intelligence applications have been remarkably utilized, keeping pace with global banks, notably the Iraqi Commercial Bank, the Development Bank, the National Bank of Iraq, and others. In the government sector, electronic applications in the Iraqi public sector are relatively new, both in the banking and services sectors, as the application of electronic and cloud-based internal auditing remains significantly restricted. The Iraqi public sector anticipates a comprehensive digital transformation by 2026.

Regarding the use of commercial banks listed on the Iraq Stock Exchange, the absence of regulatory texts in Iraqi legal and professional legislation has forced internal auditors to obtain written evidence through the traditional audit system. This applies to all economic sectors subject to audit, requiring amendments to local legislation. Internal auditors in Iraq require additional training and qualification to effectively manage electronic systems, particularly those related to audit evidence, in order to meet current and future challenges. A significant weakness in the performance of internal auditors in the public sector was observed in their handling of electronic systems.

Future research should aim to delve deeper into the treatment of electronic audit evidence within a proposed framework for external auditing and propose an international or local auditing standard that guides auditors regarding the validity and sufficiency of electronic evidence. This standard serves as a guide during the implementation of audit procedures, enabling auditors to arrive at an opinion that fairly reflects the company's financial position, while mitigating the risks inherent in the audit process in light of the rapid development of electronic and cloud accounting, as well as artificial intelligence.

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ADDITIONAL INFORMATION

AUTHOR CONTRIBUTIONS

All authors have contributed equally.

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The Authors declare that there is no conflict of interest.

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ЕЛЕКТРОННИЙ І ХМАРНИЙ ВНУТРІШНІЙ АУДИТ: ЙОГО ВПЛИВ НА ЯКІСТЬ АУДИТОРСЬКИХ ДОКАЗІВ

Відділи внутрішнього аудиту стикаються зі значними проблемами, пов'язаними зі швидким технологічним прогресом у бізнес-секторі. Для процесу аудиту важливо, щоб внутрішні аудитори вдосконалювали свої здібності, а труднощі, з якими вони стикаються, посилили їхнє прагнення робити саме це. У цьому дослідженні розглянуте питання про електронні та хмарні аудити, які аналізують, наскільки добре внутрішні аудитори поінформовані щодо отримання надійних аудиторських доказів. Наслідки проведення цих аудитів є першочерговими предметами обговорення. У ньому розглянуто, як внутрішні аудитори можуть покращити якість аудиту на основі відповідей, отриманих від іракських комерційних банків за допомогою електронного опитування. Загалом для дослідження випадковим чином було обрано 334 внутрішні аудитори. Анкета була розроблена на основі огляду літератури. Початковий розділ був зосереджений на демографічних даних, а наступний досліджував запити щодо внутрішніх аудитів в електронному та хмарному секторі, що включало 15 питань, розділених на три виміри: знання й розуміння, довіра та прийняття, а також виклики й можливості. Третій розділ був присвячений якості аудиторських доказів і включав 16 питань. Для уточнення було використано факторний аналіз. Опитувальник продемонстрував і валідність, і надійність. Для перевірки гіпотез використана проста лінійна регресія разом із кореляційним аналізом.

Отримані результати свідчать про те, що внутрішні аудитори широко використовують електронне та хмарне програмне забезпечення з високим рівнем упровадження додатків для електронного аудиту. Результати показали, що якість електронних аудиторських доказів більш достовірна, ніж паперових. Крім того, електронний аудит сприяє підвищенню якості проведення внутрішнього аудиту. Дослідження також продемонструвало важливість отримання внутрішніми аудиторами високоякісних аудиторських доказів для надання своїх висновків щодо вдосконалення систем внутрішнього контролю та результатів організаційної діяльності. Дослідження також рекомендувало включити правові положення про електронні докази зокрема в Закон Іраку про докази No 107 від 1979 року з поправками.

Ключові слова: внутрішній аудит, електронний внутрішній аудит, внутрішні аудитори, хмарний внутрішній аудит, якість доказів, комерційні банки, Ірак

JEL Класифікація: M16, M42, M54, O39