

A Comparative Study of Internal and External Auditors' Perceptions of the Impact of Information Technology Adoption on Audit Quality

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Abstract: The rapid development of information technology (IT) plays a significant role in enhancing the accuracy and efficiency of audit processes; however, realizing these benefits depends on auditors' perceptions and acceptance of such technologies. Accordingly, the primary objective of the present study was to examine the effect of the acceptance and use of information technology on audit quality and to comparatively assess the perceptions of independent and internal auditors based on the Technology Acceptance Model (TAM). In terms of purpose, this study was applied research, and in terms of research method, it employed a descriptive–survey design. The statistical population consisted of 1,200 auditors working in Iraq, including 700 independent auditors and 500 internal auditors. Using Cochran's formula, a sample of 291 participants (170 independent auditors and 121 internal auditors) was selected through stratified random sampling. Data were collected both in person and online using a standardized questionnaire based on Davis's Technology Acceptance Model (1989) and a five-point Likert scale. The data were analyzed using structural equation modeling (SEM) and the Mann–Whitney U test. The structural model results indicated that the acceptance and use of information technology had a positive and statistically significant effect on audit quality in both populations ($p < .05$). Among independent auditors, perceived ease of use ($\beta = .336$) had a stronger effect on audit quality than perceived usefulness ($\beta = .274$), whereas among internal auditors, perceived usefulness ($\beta = .432$) played a more prominent role in enhancing audit quality than perceived ease of use ($\beta = .122$). Furthermore, the Mann–Whitney U test indicated a statistically significant difference between internal and independent auditors in their perceptions of the effect of information technology on audit quality ($p < .05$). The findings demonstrate that although the application of information technology improves audit quality, auditors' perceptual priorities differ according to their professional roles: independent auditors place greater emphasis on the ease of use of technological tools, whereas internal auditors focus more strongly on their usefulness and operational efficiency. Therefore, audit firms and organizations should develop user-friendly technological infrastructures while designing and implementing training programs tailored to the distinct needs of each group.

Keywords: information technology, audit quality, perceived usefulness, perceived ease of use, independent auditors, internal auditors, structural equation modeling.

1. Introduction

The rapid expansion of information technology (IT) has fundamentally transformed the organizational, informational, and decision-making environments in which contemporary auditing is performed. Audit engagements that were historically dominated by manual inspection, document-based verification, and

retrospective sampling are increasingly supported by integrated information systems, cloud platforms, data analytics, artificial intelligence (AI), blockchain-based infrastructures, automated confirmation systems, and digitally enabled internal controls. These developments have altered not only the technical procedures available to auditors but also the competencies, judgments, and professional behaviors required to ensure high-quality audit outcomes. Digital transformation therefore represents more than the introduction of new technological tools; it constitutes a structural change in the architecture of auditing, affecting evidence collection, risk assessment, fraud detection, internal control evaluation, communication, professional judgment, and the overall organization of audit work [1, 2]. Within this context, the effectiveness of technological transformation depends considerably on whether auditors perceive technological applications as useful, accessible, and compatible with the requirements of their professional tasks.

The increasing digitalization of business processes has created both opportunities and challenges for the audit profession. Organizations now generate unprecedented volumes of financial and nonfinancial data through enterprise resource planning systems, electronic transactions, online platforms, digital banking systems, and automated operational processes. Consequently, auditors are expected to examine larger and more complex datasets while maintaining accuracy, timeliness, professional skepticism, and compliance with auditing standards. Technological tools can increase audit efficiency by automating repetitive procedures, facilitating real-time analysis, improving access to audit evidence, and enabling more comprehensive examination of organizational data. At the same time, digital transformation may introduce new forms of technological dependency, cybersecurity exposure, algorithmic opacity, skills gaps, and risks associated with the reliability of automated systems. Thus, technology does not automatically improve auditing merely by being available; rather, its contribution depends on how effectively auditors understand, accept, and integrate it into professional practice [3, 4].

Audit quality is a multidimensional concept that generally reflects the auditor's ability to perform audit procedures accurately, identify material misstatements or irregularities, obtain reliable evidence, comply with professional standards, and communicate credible conclusions. From an information technology perspective, improvements in audit quality may arise through greater data-processing accuracy, broader audit coverage, enhanced analytical capacity, more timely identification of anomalies, and better documentation of audit procedures. Digital systems can enable auditors to move beyond relatively limited samples toward the analysis of extensive or even complete datasets, thereby strengthening the probability of identifying unusual transactions, control deficiencies, and potential fraud. Technological applications may also reduce human error in routine tasks and permit auditors to concentrate more heavily on complex judgments and high-risk areas. Empirical evidence concerning audit digital transformation indicates that digitally enabled audit procedures can improve audit quality by increasing the reliability, efficiency, and scope of audit evidence [5]. Accordingly, information technology has become increasingly important not only as an operational resource but also as a potential determinant of audit quality.

One of the most important areas in which technology may contribute to audit quality is fraud prevention and detection. Fraud risks have become more sophisticated as organizations increasingly rely on electronic transactions, integrated databases, and digitally interconnected systems. Traditional audit procedures may be insufficient to identify irregularities embedded in large datasets or complex transaction networks. Information technology allows auditors to employ continuous monitoring, automated exception reporting, advanced analytical procedures, and digital control mechanisms that can strengthen the identification of suspicious patterns. Previous research has demonstrated that information technology, together with appropriate corporate governance mechanisms, can play

an important role in improving organizational capacity for fraud prevention and detection [6]. More recent evidence in public-sector auditing also suggests that digital transformation can contribute to institutional trust through improvements in audit efficiency, regulatory compliance, and fraud prevention [7]. These findings underscore the broader governance implications of technology-enabled auditing and suggest that technological adoption can influence not only operational performance but also the credibility of assurance processes.

The increasing integration of artificial intelligence into auditing represents another important dimension of digital transformation. AI-assisted auditing tools can support anomaly detection, risk classification, document analysis, predictive modeling, and the automated assessment of transactions. These applications can enhance auditors' ability to identify patterns that may remain undetected through conventional procedures, thereby potentially increasing both the efficiency and effectiveness of audit engagements. In internal auditing, artificial intelligence can also facilitate continuous auditing, real-time control assessment, and more targeted allocation of audit resources [8]. Nevertheless, the successful implementation of AI depends substantially on auditors' willingness to use such systems and their confidence in the technologies involved. Evidence based on the Technology Acceptance Model (TAM) has shown that auditors' perceived usefulness and perceived ease of use are central factors influencing acceptance of AI-assisted auditing technologies [9]. Therefore, the behavioral dimension of technology adoption is essential for understanding why the same technological infrastructure may generate different outcomes across auditors and organizational contexts.

Similar behavioral considerations apply to other emerging audit technologies, including Big Data analytics and blockchain. Big Data analytics provides auditors with the ability to examine extensive and heterogeneous datasets, identify relationships among variables, detect unusual patterns, and enhance risk-based audit planning. However, the decision to adopt such analytical technologies depends on multiple organizational and individual factors. Research examining auditors' decisions to use Big Data analytics has demonstrated that adoption is influenced by auditors' perceptions, technological conditions, organizational support, and other contextual considerations [10]. Blockchain technology presents comparable adoption challenges. Although blockchain can potentially strengthen transaction traceability, data integrity, verification, and transparency, auditors' intentions to adopt blockchain-based applications are affected by their evaluations of technological benefits and implementation demands. Evidence from Big Four audit firms indicates that understanding adoption intention is critical to determining whether blockchain's potential benefits can actually be incorporated into audit practice [11]. These developments reinforce the argument that technological capability alone is insufficient; auditor acceptance is a necessary mechanism linking technological innovation to improvements in audit performance.

The Technology Acceptance Model provides a particularly relevant theoretical framework for examining this issue. TAM proposes that individuals' acceptance and eventual use of technology are strongly influenced by two central perceptions: perceived usefulness and perceived ease of use. Perceived usefulness refers to the degree to which an individual believes that using a particular technological system will enhance job performance, whereas perceived ease of use refers to the degree to which the individual believes that using the technology will require relatively little effort. In an auditing context, perceived usefulness may reflect the extent to which auditors believe that information technology improves accuracy, efficiency, fraud detection, analytical capacity, documentation, and decision-making. Perceived ease of use, in contrast, concerns the accessibility, comprehensibility, operability, and user-friendliness of technological tools. These constructs are especially important because auditors may recognize the potential benefits of technology but still resist its use if systems are difficult to operate, poorly integrated into audit workflows, or perceived as imposing excessive learning demands. Empirical work applying

TAM to auditing has provided support for the importance of these perceptual dimensions in explaining auditors' acceptance of emerging technologies [9].

The importance of such perceptions has increased as auditors' professional identities and competency requirements have changed. Digital transformation is progressively reshaping the traditional image of the auditor from a professional relying primarily on accounting expertise and documentary verification toward a technologically competent professional capable of interpreting complex information systems and data-intensive audit evidence. Auditors are increasingly expected to possess digital literacy, analytical competence, and the capacity to work collaboratively with automated systems. This transition may create professional uncertainty because technological innovation can simultaneously enhance auditors' capabilities and challenge established forms of professional expertise. Research on auditors' responses to digital transformation has shown that becoming technologically proficient is increasingly linked to professional security and legitimacy within the evolving audit environment [12]. Consequently, auditors' attitudes toward technology may be shaped not only by technical considerations but also by perceptions of professional relevance, competence, role security, and the changing nature of audit work.

These changes may not affect internal and external auditors in identical ways. Although both groups share a general responsibility for evaluating financial information, controls, risks, and organizational processes, their institutional roles and operational environments differ substantially. External or independent auditors are primarily responsible for providing independent assurance regarding financial statements and related representations, and their work is strongly shaped by external reporting requirements, professional standards, engagement efficiency, audit risk, and the need to obtain sufficient and appropriate audit evidence. In this setting, technological tools that simplify audit procedures, improve evidence collection, reduce repetitive effort, and support efficient engagement completion may be especially attractive. Internal auditors, by contrast, operate within organizations and typically maintain more continuous involvement with internal control systems, governance mechanisms, risk management, compliance, and operational processes. Their repeated interaction with organizational information systems may lead them to evaluate technology more strongly according to its practical utility for improving ongoing audit functions and organizational effectiveness.

The distinction between these professional roles has become increasingly relevant as artificial intelligence and other digital technologies affect internal and external auditing differently. The implementation of AI may alter the work of internal finance and audit teams through continuous monitoring, automated controls, and operational analytics, while external auditors may use similar tools for independent testing, substantive procedures, risk assessment, and evidence evaluation. Research examining the impact of AI on internal and external auditors has emphasized that technological transformation can produce different consequences for these professional groups because their responsibilities, information access, organizational positioning, and performance expectations are not identical [13]. Consequently, it cannot be assumed that internal and independent auditors perceive the usefulness and ease of use of information technology in the same manner or that these perceptions have equivalent implications for audit quality.

Within internal auditing specifically, the effectiveness with which information technology is used may be directly associated with the quality of audit activities. Internal audit functions are increasingly expected to assess complex digital control environments while simultaneously employing technological resources in their own audit procedures. Effective use of information technology can support risk assessment, data collection, control testing, reporting, communication, and the monitoring of corrective actions. Empirical evidence indicates that internal

audit effectiveness in using information technology is positively associated with improved audit quality [14]. Moreover, AI-assisted technologies are increasingly becoming embedded in internal audit processes, strengthening the capacity for automated analysis and continuous assurance [8]. Such findings suggest that internal auditors may attach substantial importance to the practical usefulness of technology because its value is closely related to their ability to perform continuous and organization-specific assurance activities.

At the organizational level, technological adoption is also influenced by broader managerial and leadership conditions. The quality of IT auditing and its contribution to organizational performance may depend on whether organizations create a digital environment that encourages effective technology utilization. Digital leadership can shape strategic priorities, technology investments, professional training, employee readiness, and the integration of information systems into organizational processes. Research has shown that IT audit quality can contribute to digital business performance and that this relationship may be conditioned by the presence of effective digital leadership [15]. Therefore, examining auditors' technology acceptance is also relevant to management because the successful implementation of digital audit systems requires more than technical acquisition; it requires organizational support, leadership commitment, training, appropriate system design, and alignment between technological resources and users' professional needs.

The digital transformation of audit firms further illustrates the organizational significance of technology acceptance. Audit firms increasingly invest in cloud-based systems, automated audit platforms, advanced analytics, and digitally integrated engagement management tools to respond to competitive pressures and changing client environments. These developments can increase operational efficiency, improve knowledge sharing, standardize procedures, and support more sophisticated forms of audit analysis [4]. However, organizational investments in digital transformation may fail to produce the expected returns if auditors are reluctant or unable to incorporate new technologies into routine professional activities. Accordingly, understanding user perceptions represents a central issue in the management of digital transformation. Audit firms need to determine whether technological systems are perceived as practically beneficial, whether they are sufficiently intuitive for users, and whether professional training adequately addresses differences in technological readiness.

At the same time, digital transformation should not be conceptualized exclusively as a uniformly beneficial process. The growing use of technology in accounting and auditing may generate consequences that are not fully captured by conventional efficiency-oriented assessments. Digital transformation can redistribute professional responsibilities, alter accountability relationships, create dependencies on technological infrastructures and vendors, and introduce questions regarding transparency and control over automated decision processes. Scholars have therefore emphasized the need to examine both the intended and unaccounted effects of digital transformation in accounting, auditing, and accountability research [3]. From this perspective, the human interpretation and acceptance of technology become even more important because auditors remain responsible for professional judgments even when those judgments are supported by increasingly sophisticated digital systems.

Digital transformation also creates a need to balance technological efficiency with trust. In auditing, trust is fundamental because stakeholders rely on auditors' evaluations of financial information, organizational processes, controls, and regulatory compliance. Technological systems can strengthen trust when they increase transparency, consistency, fraud detection capability, and procedural efficiency; however, inappropriate or poorly understood technological implementation may weaken confidence in audit processes. Evidence from public-sector auditing shows that the relationship between digital transformation and trust can be mediated through efficiency,

compliance, and fraud prevention [7]. Similarly, the implementation of digital bank confirmation systems has demonstrated that technological transformation can enhance audit quality through improvements in the reliability and efficiency of evidence-gathering procedures [5]. Such findings support the proposition that auditors' acceptance of technology has implications extending beyond individual work behavior to the broader credibility and reliability of audit functions.

Despite these advances, the digital transformation of auditing remains uneven and presents significant implementation challenges. Auditors may differ substantially in technological competence, organizational support, prior experience, perceived complexity, and willingness to change established professional routines. Emerging technologies may require considerable investment in training and infrastructure, while concerns regarding data security, system reliability, ethical use, and professional accountability may inhibit adoption. Contemporary research consequently characterizes digital transformation in auditing as a process involving both considerable opportunities and substantial challenges [2]. Similarly, the evolving technological environment requires auditors to continuously adapt their competencies and professional practices to remain effective in the digital age [1]. These challenges are especially relevant in settings where technological development may progress unevenly across organizations or where internal and independent auditors have unequal access to technological resources.

The Iraqi auditing environment provides an important context in which to examine these issues. As organizations increasingly introduce digital accounting systems and technology-supported business processes, auditors are required to adapt their procedures to increasingly computerized environments. Yet the effective use of audit technologies may vary according to auditors' organizational roles, access to technological infrastructure, professional experience, and perceptions of the value and complexity of available systems. In such a context, identifying whether internal and independent auditors differ in their perceptions of technology adoption can provide practical evidence for audit firms, private organizations, public institutions, and professional bodies seeking to strengthen audit quality. The issue is particularly relevant because technology adoption programs that treat auditors as a homogeneous professional group may overlook meaningful differences in the factors that motivate technology use across different audit roles.

A comparative examination of internal and independent auditors can therefore extend the existing literature in several ways. Previous studies have investigated digital transformation, AI, Big Data analytics, blockchain adoption, IT audit quality, fraud detection, and technology-enabled audit effectiveness [6, 10, 11, 15]. Other studies have demonstrated the implications of technological change for audit quality, organizational trust, professional identity, and internal audit effectiveness [5, 12, 14]. Nevertheless, much of this literature focuses either on particular technologies or on specific auditor groups rather than directly comparing the technology-related perceptions of internal and independent auditors within the same empirical framework. In addition, although the effects of AI on internal and external auditors have increasingly attracted attention [13], further empirical evidence is required to determine whether the central TAM dimensions of perceived usefulness and perceived ease of use have different relationships with audit quality across the two groups.

Such a comparison has important managerial and professional implications. If internal auditors place greater emphasis on the practical usefulness and operational contribution of information technology, organizations may need to prioritize systems that enhance continuous monitoring, internal control evaluation, risk management, and organizational decision-making. Conversely, if independent auditors attach comparatively greater importance to ease of use, audit firms may obtain greater benefits by investing in user-friendly systems, standardized digital workflows, and training programs that reduce technological complexity. Recognizing these differences may

improve technology implementation strategies and enable organizations to allocate training and technological resources more effectively. More broadly, technology adoption policies should account for the fact that the technological transformation of auditing involves interactions among technological functionality, professional roles, organizational conditions, and individual perceptions rather than a simple process of introducing new software or automated tools [4, 12].

Accordingly, the continued development of audit technology makes it necessary to examine not only whether information technology contributes to audit quality but also how auditors themselves perceive the mechanisms through which this contribution occurs. Perceived usefulness and perceived ease of use provide theoretically grounded constructs for understanding these mechanisms, while a comparative analysis of internal and independent auditors can reveal whether the relative importance of these constructs differs across professional roles. Such evidence can contribute to the literature on technology acceptance, digital auditing, and audit quality while also offering practical guidance for audit institutions seeking to design effective digitalization strategies. Contemporary developments in AI-assisted auditing, digital audit platforms, advanced analytics, and other emerging technologies make this issue increasingly important because future audit quality will depend partly on the extent to which auditors are willing and able to integrate these innovations into their professional activities [8, 9].

Therefore, the aim of the present study was to examine the effect of information technology acceptance and use on audit quality and to comparatively assess the perceptions of internal and independent auditors in Iraq based on the Technology Acceptance Model.

2. Methodology

In terms of purpose, this study was applied research, and in terms of its implementation method, it employed a descriptive–survey design. The primary objective was to examine and compare internal and independent auditors' perceptions of the effect of information technology adoption on audit quality in Iraqi companies. The theoretical framework of the study was based on Davis's Technology Acceptance Model (TAM; Davis, 1989), which emphasizes the roles of perceived usefulness and perceived ease of use in technology acceptance. In this study, information technology adoption was considered the independent variable and audit quality the dependent variable, while differences between the perspectives of internal and independent auditors were also examined. The statistical population consisted of two principal groups of auditors working in Iraq: internal auditors employed in the audit units of public and private organizations and companies, and independent auditors employed by public accounting firms or private audit firms. These two groups were treated as strata within the statistical population to enable a comparison of their perceptions of information technology. Based on information published by the Iraqi Auditors' Union and related professional organizations, the approximate number of active auditors in the country was estimated at 1,200, comprising approximately 700 independent auditors and 500 internal auditors. Cochran's formula for finite populations was used to determine the sample size. At a 95% confidence level, with a 5% margin of error and a 50% response proportion, the calculated sample size was 291 participants. The sample was proportionally distributed between the two strata, resulting in approximately 170 independent auditors and 121 internal auditors in the final sample. A stratified simple random sampling method was employed. First, the statistical population was divided into the two strata of internal and independent auditors, after which random sampling was conducted within each stratum. This procedure preserved the statistical representativeness of each group and enhanced the validity of the comparative findings. Questionnaires were distributed through in-person

visits to audit offices, financial companies, and governmental organizations, as well as online through official platforms. To comply with research ethics principles, informed consent was obtained from participants before they completed the questionnaire. Participants were informed that all information would remain confidential and would be collected solely for scientific purposes, and that participation in the study was entirely voluntary. Data were collected using a standardized questionnaire based on Davis's (1989) Technology Acceptance Model. The instrument comprised 19 items measured on a five-point Likert scale and focused on the two principal dimensions of perceived usefulness and perceived ease of use. Following translation and validation in Arabic and English, the questionnaire was administered to Iraqi auditors both in person and online. The collected information covered three main sections: demographic characteristics, independent variables (perceived usefulness and perceived ease of use), and the dependent variable (audit quality).

Table 1. Questionnaire Structure and Items Related to the Study Variables

No.	Study Variable	Dimensions/Indicators	Item Numbers	Number of Items
1	Perceived information technology acceptance	Perceived usefulness	1–6	6
2	Perceived information technology acceptance	Perceived ease of use	13–19	7
3	Audit quality	Accuracy, fraud detection, reliability	7–12	6
Total number of items				19

For data analysis, descriptive statistics were first calculated using SPSS to determine the mean, standard deviation, and range of the study variables, as well as the demographic characteristics of the participants. The Shapiro–Wilk test was used to assess the normality of the data distribution because, given the sample size ($N = 291$), this test provides an appropriate basis for selecting suitable statistical procedures. In the main analysis and hypothesis-testing stage, structural equation modeling (SEM) was conducted using AMOS to simultaneously examine the causal relationships among perceived usefulness, perceived ease of use, and audit quality. Model fit indices, including the root mean square error of approximation (RMSEA), comparative fit index (CFI), Tucker–Lewis index (TLI), and the chi-square to degrees-of-freedom ratio (χ^2/df), were reported to evaluate model fit. In addition, the Mann–Whitney U test was used to examine differences between internal and independent auditors in their perceptions of the effects of the components of information technology acceptance and use on audit quality.

3. Findings and Results

As shown in Table 2, the demographic composition of the respondents indicates that the study sample exhibited adequate diversity in terms of individual and professional characteristics. Regarding age, the highest frequency was observed among participants aged 27–35 years, followed by those younger than 27 years. Thus, a substantial proportion of the sample consisted of young and early-middle-career auditors, which may be associated with greater readiness to use emerging audit technologies. Regarding work experience, most respondents had fewer than five years of professional experience, while participants with more than five years of experience constituted a smaller proportion of the sample. This finding indicates the predominance of auditors in the early and intermediate stages of their professional careers and may affect their perceptions of the usefulness and ease of use of information technology.

In terms of educational attainment, the largest proportion of respondents held bachelor's degrees, followed by master's degrees, while participants with high school diplomas and doctoral degrees were also represented. This distribution indicates an appropriate level of higher education within the sample, which may contribute to auditors' attitudes toward audit technologies. Both internal and independent auditors were substantially represented in the

sample, with the number of independent auditors being slightly higher, thereby providing suitable conditions for comparing the perceptions of the two groups. Regarding experience with information technology, both individuals with and without prior IT experience were represented in the sample. Overall, the adequate diversity of respondents in terms of age, professional experience, educational attainment, and technological experience provided an appropriate basis for analyzing and comparing perceived usefulness, perceived ease of use, and audit quality.

Table 2. Demographic Characteristics of Participants by Auditor Group

Demographic Factor	Participant Description	Internal Auditors	Independent Auditors	Total Frequency	Percentage
Age group	Younger than 27 years	33	41	74	25.4
	27–35 years	64	95	159	54.6
	36–45 years	12	18	30	10.3
	Older than 46 years	12	16	28	9.6
Work experience	Less than 1 year	29	45	74	25.4
	1–3 years	42	49	91	31.3
	3–5 years	31	47	78	26.8
	More than 5 years	19	29	48	16.5
Educational level	High school diploma	19	18	37	12.7
	Bachelor's degree	48	74	122	41.9
	Master's degree	41	59	100	34.4
	Doctoral degree	13	19	32	11.0
Experience using information technology	Yes			127	43.6
	No			164	56.4

Table 3 presents the descriptive statistics for the study variables by auditor group (independent and internal auditors). According to the results, the mean perceived usefulness score was 22.81 among independent auditors and 21.25 among internal auditors, indicating that independent auditors reported relatively higher perceived usefulness than internal auditors. In contrast, the mean audit quality score among internal auditors (22.62) was slightly higher than that among independent auditors (22.09), indicating a marginally higher perception of audit quality among internal auditors. Furthermore, for perceived ease of use, internal auditors reported a higher mean score of 27.89 compared with 25.38 among independent auditors. The skewness and kurtosis values for all variables were within acceptable ranges, indicating that the distributions of the data were approximately normal and supporting the suitability of the data for subsequent statistical analyses.

Table 3. Descriptive Statistics of the Study Variables by Auditor Group

Variable	Auditor Group	Mean	SD	Minimum	Maximum	Skewness	Kurtosis
Perceived usefulness	Independent	22.81	3.600	12	30	−0.203	0.075
	Internal	21.25	4.696	11	30	−0.333	−0.574
Audit quality	Independent	22.09	3.830	8	30	−0.852	1.076
	Internal	22.62	4.282	13	30	0.147	−0.662
Perceived ease of use	Independent	25.38	4.917	12	35	−0.299	−0.094
	Internal	27.89	5.095	13	35	−0.429	−0.262

In this section, the fit of the research model was examined, and the principal model fit indices are reported.

The results presented in this section pertain to the first main hypothesis of the study and were obtained by estimating the model separately using data from the independent auditor group.

Table 4. Model Fit Indices for the Independent Auditor Group

Fit Index	Abbreviation	Model Value	Acceptable Fit
Chi-square to degrees-of-freedom ratio	CMIN/DF	1.182	< 3 (desirable)
Incremental fit index	IFI	0.949	> .90
Tucker–Lewis index	TLI	0.940	> .90
Comparative fit index	CFI	0.947	> .90
Parsimony normed fit index	PNFI	0.651	> .50
Parsimony comparative fit index	PCFI	0.831	> .50
Root mean square error of approximation	RMSEA	0.033	< .05 (excellent)

Based on the results presented in Table 4, the research model demonstrated a highly satisfactory fit for the independent auditor group. The chi-square to degrees-of-freedom ratio was 1.182, which is below the recommended threshold of 3, indicating an adequate correspondence between the model and the observed data. In addition, the incremental and comparative fit indices, including IFI = .949, TLI = .940, and CFI = .947, all exceeded the criterion value of .90; therefore, the model demonstrated fully acceptable comparative fit. Regarding the parsimony indices, PNFI = .651 and PCFI = .831 were both above the minimum acceptable threshold of .50, indicating that the model achieved an appropriate degree of simplicity and parsimony. Finally, the RMSEA value was .033, which is below .05 and confirms an excellent level of model fit. Overall, all reported indices indicate that the proposed model fits the empirical data well for the independent auditor group and that the results of the hypothesis tests can therefore be interpreted with confidence.

In the structural component of the model, the effects of perceived usefulness and perceived ease of use on audit quality were examined. According to the path coefficients, perceived usefulness had a positive effect on audit quality with a coefficient of .23, while perceived ease of use had a positive effect with a coefficient of .33. These findings indicate that, among independent auditors, higher perceptions of the usefulness and ease of use of information technology in the audit process are associated with higher audit quality. A comparison of the path coefficients further indicates that perceived ease of use exerted a stronger effect on audit quality than perceived usefulness in this group.

Overall, the results obtained from this model indicate that the constructs under investigation possess an appropriate measurement structure and that the conceptual relationships among the variables were supported in the direction hypothesized by the study.

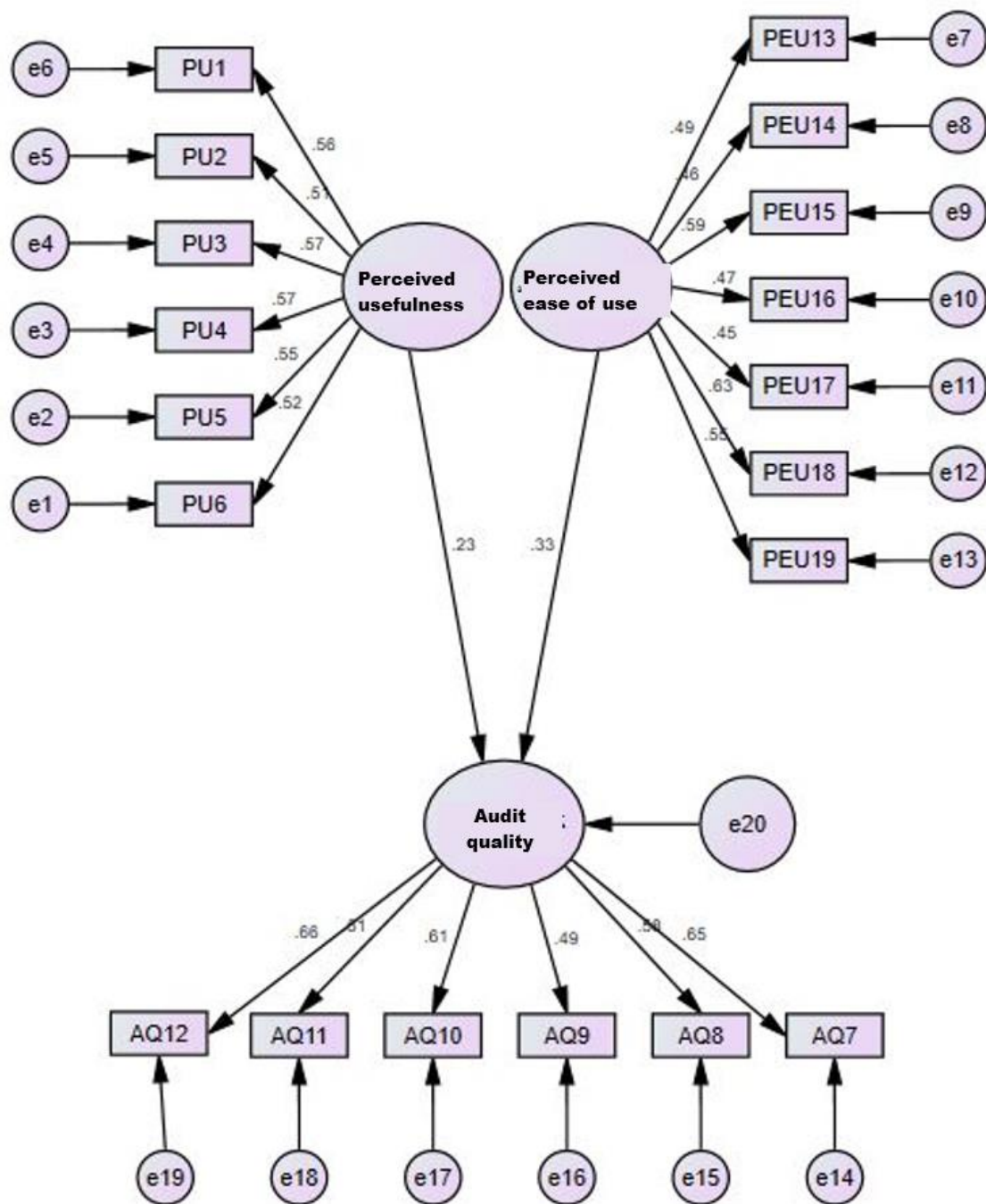


Figure 1. Structural Representation of the Research Model for the Independent Auditor Group

Table 5 presents the path coefficients and their statistical significance, providing an overall representation of the independent auditors' perspectives and the results of the research hypothesis tests.

Table 5. Results of Hypothesis Testing for the Independent Auditor Group

Hypothesis	Effect	Regression Coefficient	Critical Ratio (C.R.)	Significance Level	Result at the 95% Confidence Level
	According to independent auditors, perceived usefulness in auditing has a positive and significant effect on audit quality.	.274	2.116	.034	Supported

	According to independent auditors, perceived ease of use in auditing has a positive and significant effect on audit quality.	.336	2.823	.005	Supported
Main Hypothesis 1	According to independent auditors, the acceptance and use of information technology in external auditing have a positive and significant effect on audit quality.				Supported

The results presented in Table 5 demonstrate the hypothesis-testing outcomes for the independent auditor group. According to the table, the effect of perceived usefulness in auditing on audit quality was .274, indicating a positive relationship between the two variables. The critical ratio (C.R.) for this path was 2.116, with a significance level of .034. Because the significance level was below .05, the relationship was statistically significant, and the corresponding hypothesis was supported at the 95% confidence level. This finding indicates that the greater independent auditors' perceptions of the usefulness of information technology in the audit process, the greater the resulting improvement in audit quality.

The results also indicate that perceived ease of use in auditing had a positive and statistically significant effect on audit quality. The regression coefficient for this path was .336, which was larger than that of the preceding path, indicating a stronger effect on audit quality. Moreover, the critical ratio was 2.823, and the significance level was .005, which is substantially below .05; therefore, this hypothesis was also supported at the 95% confidence level. This result indicates that the easier, simpler, and more comprehensible information technology is for independent auditors to use, the greater the improvement in audit quality. Accordingly, the first main hypothesis of the study was supported among independent auditors at the 95% confidence level. A comparison of the path coefficients further demonstrates that perceived ease of use plays a slightly more prominent role than perceived usefulness in explaining audit quality among independent auditors.

The results presented in this section concern the fit of the research model for the internal auditor group and indicate the extent to which the model corresponds to the data when estimated separately for this group. Based on the results reported in Table 6, the research model demonstrated an acceptable to relatively satisfactory fit for this group. The chi-square to degrees-of-freedom ratio was 1.436, which is below 3 and indicates an appropriate correspondence between the model and the data. The comparative fit indices, including IFI = .911 and CFI = .908, exceeded the .90 threshold; therefore, the model was acceptable according to these criteria. Only the TLI value of .895 was slightly below the .90 criterion. However, this difference was minimal, and values above .85 are considered acceptable in many studies; therefore, this index was also considered borderline acceptable. With respect to the parsimony indices, PNFI = .663 and PCFI = .796 were both above .50, indicating that the model exhibited satisfactory parsimony and simplicity. Finally, the RMSEA was reported as .06. Although values below .05 are considered excellent, a value of .06 remains within the acceptable range ($\leq .08$), indicating a relatively low approximation error.

Table 6. Model Fit Indices for the Internal Auditor Group

Fit Index	Abbreviation	Model Value	Acceptable Fit
Chi-square to degrees-of-freedom ratio	CMIN/DF	1.182	< 3 (desirable)
Incremental fit index	IFI	0.949	> .90
Tucker–Lewis index	TLI	0.940	> .90
Comparative fit index	CFI	0.947	> .90
Parsimony normed fit index	PNFI	0.651	> .50
Parsimony comparative fit index	PCFI	0.831	> .50
Root mean square error of approximation	RMSEA	0.033	< .05 (excellent)

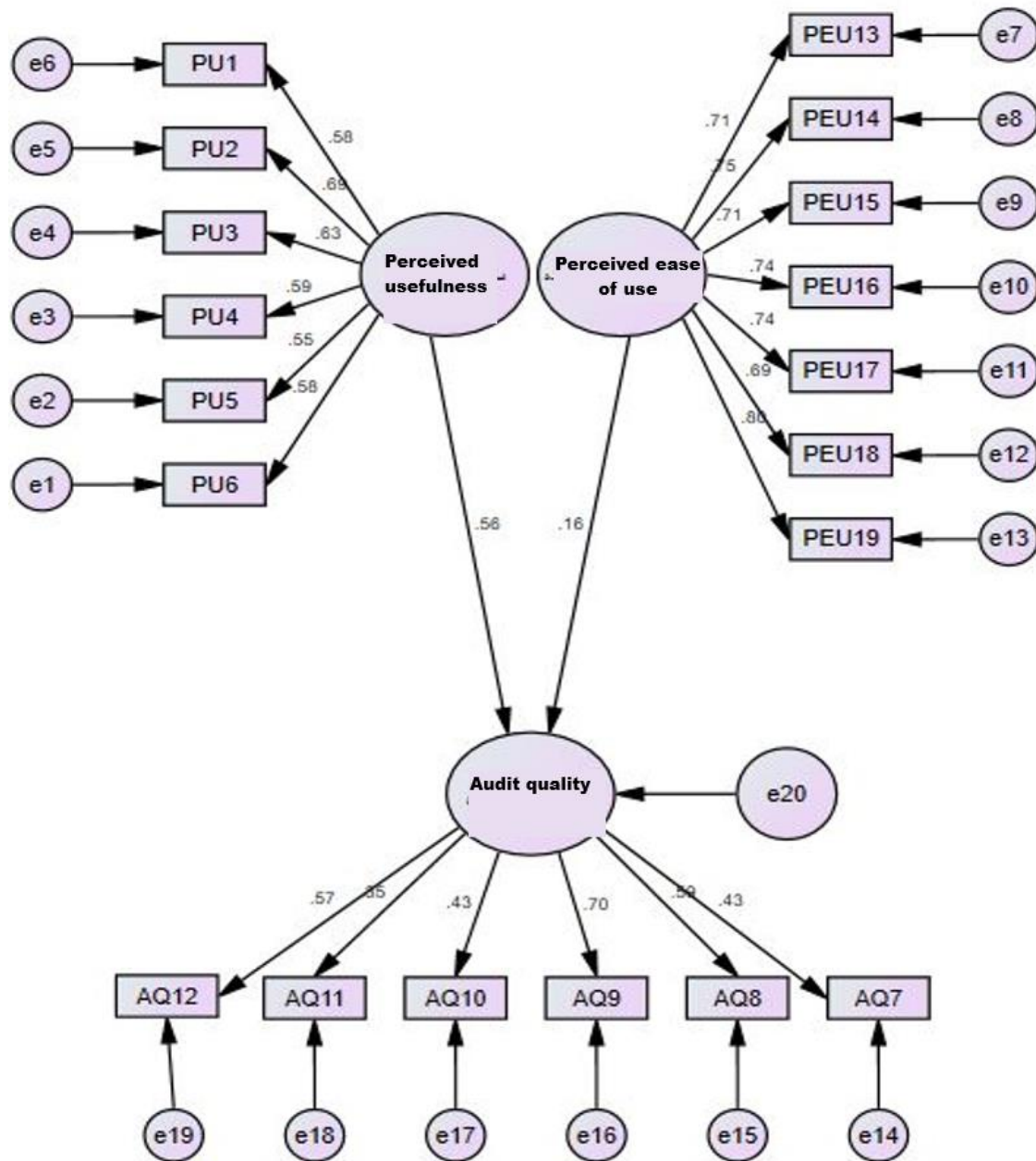


Figure 2. Structural Representation of the Research Model for the Internal Auditor Group

Figure 2 presents the structural model of the study for the internal auditor group, together with the standardized path coefficients and factor loadings of the items. As shown in the figure, the three principal constructs examined in the study were perceived usefulness, perceived ease of use, and audit quality.

In the structural component of the model, the path coefficients indicate that perceived usefulness had a positive and relatively substantial effect on audit quality, with an estimated path coefficient of .56. This value indicates that an increase in internal auditors' perceptions of the usefulness of information technology may contribute to improved audit quality.

Perceived ease of use also had a positive effect on audit quality, although the magnitude of this effect was smaller, with a path coefficient of .16. This finding indicates that the simpler and more comprehensible information

technology is for internal auditors to use, the more audit quality may improve to some extent; however, its role is weaker than that of perceived usefulness.

Overall, the structural model results indicate that both perceived usefulness and perceived ease of use positively affect audit quality among internal auditors, with perceived usefulness playing the stronger role in explaining variations in audit quality.

Table 7 presents the results of the research hypothesis tests for the internal auditor group. According to the findings, the effect of perceived usefulness in auditing on audit quality was estimated at .432, indicating a positive relationship between the two variables. The critical ratio (C.R.) was 3.077, and the significance level was .002. Because the significance level was below .05, the relationship was statistically significant, and the corresponding hypothesis was supported at the 95% confidence level. This finding indicates that the greater internal auditors' perceptions of the usefulness of information technology in the audit process, the greater the improvement in audit quality. The findings also indicate that perceived ease of use in auditing had a positive and significant effect on audit quality. The regression coefficient for this path was .122. The critical ratio was reported as 1.493, with a significance level of .035, which is below .05; therefore, this hypothesis was also supported at the 95% confidence level. Nevertheless, the regression coefficient indicates that the magnitude of this effect was smaller than that of perceived usefulness.

Table 7. Results of Hypothesis Testing for the Internal Auditor Group

Hypothesis	Effect	Regression Coefficient	Critical Ratio (C.R.)	Significance Level	Result at the 95% Confidence Level
	According to internal auditors, perceived usefulness in auditing has a positive and significant effect on audit quality.	.432	3.077	.002	Supported
	According to internal auditors, perceived ease of use in auditing has a positive and significant effect on audit quality.	.122	1.493	.035	Supported
Main Hypothesis 2	According to internal auditors, the acceptance and use of information technology in auditing have a positive and significant effect on audit quality.				Supported

Overall, because both perceived usefulness and perceived ease of use had positive and significant effects on audit quality, it can be concluded that the acceptance and use of information technology in auditing have a positive and significant effect on audit quality among internal auditors. Therefore, the second main hypothesis of the study was supported among internal auditors at the 95% confidence level. A comparison of the path coefficients further indicates that perceived usefulness plays a stronger role than perceived ease of use in improving audit quality among internal auditors.

To examine more precisely the hypothesis concerning the presence or absence of a significant difference between internal and independent auditors, it was necessary to employ a statistical test capable of assessing differences between two independent groups in terms of their perceptions of the components of the "acceptance and use of information technology" variable. Accordingly, the Mann–Whitney U test was considered appropriate. This test is a nonparametric method used to compare two independent groups when the objective is to assess differences between two statistical populations with respect to a variable or its components. The primary justification for using this test in the present study was that the two groups under investigation—internal auditors and independent auditors—were mutually independent and their responses were collected using a Likert scale. Because Likert-scale

data are ordinal in nature and, in many cases, normality of their distribution cannot be assumed with certainty, the use of a nonparametric test such as the Mann–Whitney U test is methodologically justifiable.

Table 8 presents the results of the Mann–Whitney U test used to examine differences between internal and independent auditors in their perceptions of the effects of the components of information technology acceptance and use on audit quality. As previously indicated, because the effect of information technology acceptance and use on audit quality was independently found to be significant in both groups, the next step was to determine whether the magnitude of the perceptions of this effect was equivalent between the two groups or whether a statistically significant difference existed. For this purpose, given the independence of the two groups and the suitability of the test for ordinal data, the Mann–Whitney U test was employed.

Table 8. Results of Hypothesis Testing for Differences Between Independent and Internal Auditors

No.	Null Hypothesis	Test	Significance Level	Decision
1	There is no significant difference between internal and independent auditors in their perceptions of the effect of the perceived usefulness of information technology on audit quality.	Independent-samples Mann–Whitney U test	.009	Null hypothesis rejected
2	There is no significant difference between internal and independent auditors in their perceptions of the effect of the perceived ease of use of information technology on audit quality.	Independent-samples Mann–Whitney U test	.001	Null hypothesis rejected
Main Hypothesis 3	There is no significant difference between internal and independent auditors in their perceptions of the effect of information technology acceptance and use on audit quality.			Null hypothesis rejected and main research hypothesis supported

Given that statistically significant differences were observed between the two groups for both principal components of information technology acceptance and use—namely, perceived usefulness and perceived ease of use—the third main null hypothesis, stating that “there is no significant difference between internal and independent auditors in their perceptions of the effect of information technology acceptance and use on audit quality,” was rejected. Consequently, the third main research hypothesis was supported. In other words, a statistically significant difference exists between internal and independent auditors in their perceptions of the effect of information technology acceptance and use on audit quality.

4. Discussion and Conclusion

The present study examined the effect of information technology acceptance and use on audit quality and compared the perceptions of internal and independent auditors in Iraq based on the Technology Acceptance Model. The findings showed that information technology acceptance and use had a positive and statistically significant effect on audit quality in both groups of auditors. More specifically, among independent auditors, both perceived usefulness and perceived ease of use significantly predicted audit quality, with perceived ease of use exerting the stronger effect. Among internal auditors, both dimensions were also positively and significantly associated with audit quality; however, perceived usefulness exerted a substantially stronger effect than perceived ease of use. In addition, the Mann–Whitney U test showed statistically significant differences between internal and independent auditors in their perceptions of both perceived usefulness and perceived ease of use. Taken together, these findings indicate that information technology contributes to audit quality in both professional contexts, but the mechanisms

through which auditors perceive and value technological adoption differ according to their professional roles and working environments.

The first major finding was that perceived usefulness had a positive and statistically significant effect on audit quality among independent auditors. The standardized regression coefficient for this relationship was $\beta = .274$, with a critical ratio of 2.116 and a significance level of $p = .034$. This result indicates that when independent auditors perceive information technology as capable of improving their work performance, audit quality also tends to improve. In practical terms, technologies that enable auditors to process larger volumes of data, obtain audit evidence more efficiently, identify anomalies, document audit procedures more systematically, and complete engagements with greater accuracy are likely to be regarded as useful and consequently incorporated more effectively into audit practice. This finding is consistent with the broader literature emphasizing that digital transformation can enhance audit quality by improving evidence collection, analytical capacity, and the efficiency of audit procedures [1, 5]. It also supports research demonstrating that auditors' perceptions of the benefits of emerging technologies are important determinants of their willingness to adopt and use them in professional contexts [10, 11].

The positive effect of perceived usefulness among independent auditors can also be explained by the nature of external auditing. Independent auditors generally work within engagement-based environments characterized by time pressures, professional standards, documentation requirements, audit risk considerations, and the need to obtain sufficient appropriate evidence within a specified period. Under these conditions, information technology is particularly valuable when it contributes directly to productivity, accuracy, and decision-making. Technologies such as advanced data analytics, automated confirmation systems, and artificial intelligence can reduce repetitive work and help auditors direct professional attention toward areas of higher risk. The evidence reported by Guo et al. indicates that digital transformation in auditing, including digital bank confirmation processes, can improve audit quality by strengthening the reliability and efficiency of audit evidence [5]. Similarly, research on the digital transformation of audit firms has emphasized that technology can improve the standardization, speed, and effectiveness of audit procedures [4]. Therefore, the present finding is consistent with the proposition that independent auditors are more likely to produce higher-quality audits when they perceive digital tools as directly beneficial to the performance of audit tasks.

The second finding for independent auditors was that perceived ease of use had a positive and significant effect on audit quality, with a standardized coefficient of $\beta = .336$, a critical ratio of 2.823, and $p = .005$. Importantly, this coefficient was greater than the corresponding coefficient for perceived usefulness, indicating that perceived ease of use was the stronger predictor of audit quality among independent auditors. This suggests that even when auditors recognize the functional benefits of information technology, the usability and accessibility of technological systems may play an even more important role in determining whether those benefits are realized in practice. Complicated interfaces, poorly integrated software, excessive learning requirements, or systems that interrupt established audit workflows may reduce effective use regardless of their potential usefulness. Conversely, systems that are intuitive, understandable, and easy to incorporate into routine audit procedures can facilitate more consistent and effective adoption.

This finding is strongly aligned with studies applying technology acceptance frameworks to contemporary auditing. Fatmala et al. demonstrated that perceived usefulness and perceived ease of use are important dimensions in auditors' acceptance of artificial intelligence technologies, illustrating that technological adoption depends not only on the objective capabilities of the system but also on how users perceive its usability [9]. The result is also

compatible with research emphasizing the increasing need for auditors to become technologically competent while maintaining professional confidence in digitally transformed audit environments [12]. As audit work becomes increasingly dependent on sophisticated digital tools, systems that impose high cognitive or operational demands may generate resistance or underutilization. Therefore, the stronger effect of perceived ease of use among independent auditors may reflect their need for technologies that can be incorporated quickly and reliably into engagement-based workflows without creating additional operational complexity.

The finding also corresponds with the broader transformation of the auditing profession described in recent studies. Digital technologies are increasingly changing auditors' routines, responsibilities, and competency requirements [2]. Although emerging technologies can provide substantial benefits, their implementation can also introduce challenges related to technological complexity, skill gaps, and adaptation to new working methods. Nunna similarly emphasized that auditing in the digital age requires auditors to adapt continuously to technological developments while maintaining the effectiveness of professional judgment [1]. From this perspective, the importance of perceived ease of use among independent auditors is understandable: when technologies are sufficiently accessible and user-friendly, auditors are better positioned to integrate them into evidence gathering, risk assessment, analytical procedures, and reporting, thereby improving audit quality.

Among internal auditors, perceived usefulness also had a positive and statistically significant effect on audit quality, with a standardized regression coefficient of $\beta = .432$, a critical ratio of 3.077, and $p = .002$. This effect was notably stronger than the corresponding effect among independent auditors and was also substantially stronger than the effect of perceived ease of use within the internal auditor group. This finding suggests that internal auditors place particular importance on whether information technology makes a substantive contribution to their professional responsibilities. Internal auditors are routinely involved in evaluating organizational processes, internal controls, risk management systems, compliance mechanisms, and operational performance. Consequently, they may judge technological tools primarily according to their capacity to enhance continuous monitoring, identify organizational risks, support management decisions, and improve the reliability and comprehensiveness of internal assurance activities.

This interpretation is supported by Meilani et al., who found that the effectiveness of internal audit functions in using information technology contributes to improved audit quality [14]. The present result also accords with Gökoğlu's discussion of artificial intelligence-assisted internal auditing, which emphasizes the potential of advanced technologies to improve continuous monitoring, control assessment, and the analytical capabilities of internal auditors [8]. In internal audit settings, therefore, the perceived usefulness of technology may be especially salient because internal auditors interact continuously with organizational information systems and require technologies that can support repeated, integrated, and organization-specific assurance functions. When a technological system demonstrates tangible value in identifying weaknesses, improving control evaluation, increasing efficiency, or supporting timely reporting, internal auditors may be more likely to use it effectively, leading to higher perceived audit quality.

The importance of perceived usefulness among internal auditors is also consistent with research linking digital transformation to efficiency, compliance, fraud prevention, and institutional trust. Loang et al. showed that the contribution of digital transformation to public-sector auditing is closely associated with improved efficiency, compliance, and fraud prevention [7]. These outcomes are directly relevant to the responsibilities of internal auditors, who often operate at the intersection of governance, control, risk, and compliance. Similarly, the role of information technology in fraud prevention and detection has long been recognized, particularly when

technological systems are integrated with sound governance practices [6]. Thus, internal auditors may perceive information technology as useful when it improves their ability to identify irregularities, monitor compliance, detect deficiencies, and provide management with timely and reliable assurance.

Perceived ease of use also had a positive and significant effect on audit quality among internal auditors, although the magnitude of the effect was relatively small ($\beta = .122$, C.R. = 1.493, $p = .035$). This suggests that usability remains relevant but is less influential for internal auditors than the practical value generated by technology. One possible explanation is that internal auditors may be more willing to tolerate technically demanding systems when those systems offer substantial organizational benefits. Because internal auditors often use information systems repeatedly over extended periods and may receive organization-specific training, initial complexity may become less important once users recognize that a system improves risk identification, monitoring, or reporting. In contrast, independent auditors may work across multiple clients and systems, making ease of use comparatively more important because technological complexity can create significant time and learning costs across audit engagements.

The comparatively smaller effect of perceived ease of use among internal auditors can also be interpreted in relation to the professional adaptation associated with digital transformation. Lajoie and Gendron observed that auditors increasingly seek technological competence as a means of maintaining professional relevance and security in changing audit environments [12]. Internal auditors embedded within organizations may have stronger incentives to develop system-specific competencies because their responsibilities require continuing engagement with the same organizational processes and digital infrastructures. Consequently, once a technology is judged to be useful, internal auditors may invest the necessary effort to master it, reducing the relative importance of initial ease of use. This finding nevertheless reinforces the general principles of technology acceptance because usability still showed a positive relationship with audit quality.

Another major finding was that the relative importance of TAM dimensions differed between the two auditor groups. For independent auditors, perceived ease of use was the stronger predictor of audit quality, whereas for internal auditors, perceived usefulness was clearly dominant. This pattern demonstrates that professional role is an important contextual factor in technology acceptance. Independent auditors often require technologies that can be transferred efficiently across different client environments and incorporated into engagement procedures without excessive disruption. Internal auditors, in contrast, may prioritize the extent to which technologies provide sustained operational and organizational value. Singh's examination of artificial intelligence in relation to internal and external auditors similarly highlights that technological transformation does not affect these groups identically because they differ in their responsibilities, organizational positions, information access, and work objectives [13]. The present findings extend this perspective by demonstrating that the perceptual pathways linking technology acceptance to audit quality may also differ between internal and independent auditors.

The Mann–Whitney U test provided further evidence for these differences. Significant between-group differences were found for perceived usefulness ($p = .009$) and perceived ease of use ($p = .001$), leading to rejection of the null hypothesis that internal and independent auditors have similar perceptions of the influence of information technology acceptance and use on audit quality. These findings indicate that auditors should not be treated as a homogeneous professional population when designing digital transformation strategies. The technologies used, organizational conditions, training needs, and expected benefits differ across audit roles. Research on Big Data analytics adoption has similarly shown that auditors' technology adoption decisions are affected by a combination of individual, organizational, and technological factors [10]. Likewise, blockchain

adoption research among major audit firms demonstrates that adoption intention depends on how auditors evaluate the advantages and requirements of the technology [11]. Thus, differences in auditors' professional contexts can meaningfully shape how technological innovations are perceived and adopted.

These results also have implications for understanding audit quality within broader digital transformation processes. Digitalization should not be conceptualized as the simple replacement of manual procedures with automated ones. Argento et al. emphasized that digital transformation can generate complex and sometimes unaccounted consequences for accounting, auditing, and accountability systems [3]. Technology can alter professional responsibilities, patterns of organizational control, accountability mechanisms, and reliance on automated decision systems. Consequently, improvements in audit quality depend not only on technological sophistication but also on appropriate integration between technological systems and human expertise. The current findings support this interpretation by showing that auditors' perceptions of usefulness and usability remain central even when advanced technological capabilities are available.

Moreover, audit technology operates within an organizational and leadership context. Aljawarneh found that IT audit quality is associated with digital business performance and that digital leadership can play an important moderating role [15]. This perspective helps explain why the acceptance of information technology should be considered a managerial as well as a technical issue. Management can influence adoption by providing adequate training, ensuring system compatibility, allocating technological resources, and creating an organizational climate supportive of digital learning. Audit firms and internal audit departments that fail to address these dimensions may obtain limited value from technological investments, even when the systems themselves possess advanced capabilities.

Overall, the findings support the growing body of evidence that information technology can improve audit quality by increasing efficiency, accuracy, analytical capability, fraud detection, and access to reliable evidence [5-7]. They also demonstrate that the human acceptance of technology remains a critical condition for realizing these benefits. Recent research consistently portrays digital transformation as simultaneously an opportunity and a challenge for the audit profession [2]. The transformation of audit firms, the growing use of AI, and the emergence of advanced analytical and blockchain technologies require auditors to continuously develop digital competencies and adjust established practices [4, 9]. The present study contributes to this literature by showing that perceived usefulness and perceived ease of use are both associated with audit quality, but their relative importance varies between internal and independent auditors.

This study has several limitations that should be considered when interpreting the findings. First, the research employed a cross-sectional survey design, which limits the ability to establish temporal or definitive causal relationships between information technology acceptance and audit quality. Second, the findings were based on self-reported perceptions of auditors, which may be affected by response tendencies, social desirability, or differences in participants' interpretations of questionnaire items. Third, the sample was restricted to auditors working in Iraq, and institutional, technological, regulatory, and organizational conditions in this context may differ from those of other countries. Fourth, information technology was examined primarily through the dimensions of perceived usefulness and perceived ease of use, while other potentially important factors such as technological competence, organizational support, cybersecurity concerns, digital leadership, system compatibility, and perceived risk were not directly incorporated into the model. Finally, the study compared internal and independent auditors as broad professional groups without differentiating between organizational size, industry, type of audit firm, technological maturity, or specific technologies used in audit activities.

Future research should examine the relationships identified in this study using longitudinal designs to determine how auditors' perceptions and technology-related behaviors change as digital auditing systems become more established. Comparative studies across different countries and regulatory environments would also be useful for determining whether the observed differences between internal and independent auditors are context-specific or generalizable across auditing systems. Future models could incorporate additional variables such as digital competence, perceived technological risk, trust in automated systems, organizational support, digital leadership, cybersecurity awareness, resistance to change, and professional experience. Researchers could also distinguish between specific technologies, including artificial intelligence, blockchain, Big Data analytics, robotic process automation, cloud-based audit systems, and continuous auditing platforms, because auditors may respond differently to each technological application. Mixed-method and qualitative studies could further explore the reasons underlying differences in perceived usefulness and ease of use between internal and independent auditors. In addition, future studies could use objective indicators of audit quality alongside perceptual measures to determine whether technology acceptance predicts observable improvements in audit effectiveness, accuracy, fraud detection, and audit completion time.

Audit firms, organizations, and professional bodies should design technology adoption strategies that reflect the distinct needs of internal and independent auditors rather than applying uniform implementation policies. For independent auditors, particular attention should be given to usability, intuitive system design, interoperability, standardized workflows, and practical training that reduces the effort required to learn and operate new technologies across different client environments. For internal auditors, organizations should prioritize technologies that demonstrate clear operational value by strengthening continuous monitoring, risk assessment, control evaluation, fraud detection, and management reporting. Training programs should combine technical instruction with realistic audit scenarios so that auditors can understand both how technological tools operate and how they improve professional outcomes. Organizations should also provide ongoing technical support, assess user feedback during implementation, and involve auditors in technology selection and system design. Finally, audit institutions should develop structured digital competency programs and periodically evaluate whether technological investments are producing measurable improvements in audit quality, efficiency, and reliability.

Authors' Contributions

Authors equally contributed to this article.

Ethical Considerations

All procedures performed in this study were under the ethical standards.

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Conflict of Interest

The authors report no conflict of interest.

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