

Designing and Explaining a Model for Improving the Quality of Internal Audit Services in Iranian Audit Firms

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ABSTRACT

Internal audit quality is one of the important issues in the field of auditing and the capital market. Nevertheless, despite the important role of internal auditing, no comprehensive index has yet been presented for it. Therefore, the main objective of this study is to present a model for increasing commitment to the quality of internal audit services in firms based on the grounded theory approach and using the structural equation modeling technique. The present study is applied and exploratory in nature. This study was conducted using a mixed-methods research design in two qualitative and quantitative sections. The statistical population of the study in the qualitative section consisted of university faculty members, and in the quantitative section it consisted of 256 specialists in the field of auditing. Grounded theory was used to analyze the qualitative data, and structural equation modeling was used in the quantitative section. To achieve the research objectives, interview questions were designed, and ultimately 12 factors, namely independence, competence, experience, accountability, business environment, criteria related to the execution of internal audit operations, planning and methodology, information technology and knowledge of controls, access to resources, accounting knowledge, and auditing skills, together with the subcomponents related to each factor, were identified as the main factors affecting the quality of internal audit services based on the grounded theory approach. Subsequently, considering the identified indicators and determining the importance of each factor, the research hypotheses were tested using the structural equation modeling technique. The results showed that auditor competence, accounting knowledge and auditing skills, and planning and methodology had the highest coefficients of importance, respectively, in influencing the quality of internal audit activities.

Keywords: internal audit quality, effectiveness, financial reporting supply chain, stakeholders.

Introduction

In contemporary corporate governance systems, internal auditing has moved beyond its traditional role as a control and compliance mechanism and has become a strategic assurance and advisory function that supports risk management, organizational accountability, financial reporting reliability, operational efficiency, and stakeholder confidence. The increasing complexity of business environments, the expansion of regulatory expectations, the digitalization of accounting and control systems, and the rising demand for transparent financial reporting have all intensified the importance of internal audit quality. Internal audit is now expected not only to examine the adequacy of internal controls, but also to contribute to governance effectiveness, ethical decision-making, fraud prevention,



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organizational learning, and the credibility of financial information. In this context, the quality of internal audit services is a critical determinant of the value created by the internal audit function for organizations, audit committees, independent auditors, regulators, investors, and other stakeholders within the financial reporting supply chain. Recent studies have emphasized that internal audit quality can strengthen financial reporting quality, improve managerial decision-making, support organizational reliability, and enhance institutional performance in both private and public-sector contexts (1-3).

The growing importance of internal audit quality is especially evident in capital-market settings, where users of financial statements rely on credible, timely, and relevant information for economic decision-making. In such environments, weak internal auditing may increase the probability of control failure, earnings manipulation, inaccurate managerial forecasts, fraud, and inefficient risk responses. Conversely, high-quality internal auditing can improve the accuracy of financial reporting and managerial earnings forecasts by strengthening control evaluation, enhancing audit evidence, and reducing information asymmetry between managers and stakeholders (4, 5). The internal audit function also interacts with independent auditors, and this relationship is central to audit planning, reliance decisions, risk assessment, and the overall assurance process. Independent auditors' assessment of internal audit duties and functions can influence the extent to which internal audit work is used in external audit procedures, which makes the quality, objectivity, competence, documentation, and independence of internal audit services important not only for internal governance but also for external assurance quality (6, 7).

Despite this importance, internal audit quality remains a multidimensional and context-dependent construct. It cannot be reduced to a single indicator such as compliance with standards, auditor competence, independence, or reporting timeliness. Rather, it emerges from the interaction of personal, professional, organizational, technological, ethical, and environmental factors. Recent reviews of the internal audit quality literature show that the concept includes structural characteristics of the internal audit unit, individual characteristics of auditors, audit planning and execution processes, organizational support, professional ethics, use of technology, relationship with the audit committee, and the broader governance culture of the organization (8). In addition, determining the effective size of the internal audit unit, ensuring access to sufficient resources, and designing an appropriate organizational position for internal audit are necessary conditions for the function to perform its assurance and advisory responsibilities effectively (9). Therefore, any comprehensive model of internal audit service quality must integrate both behavioral and structural dimensions and explain how these dimensions jointly shape the effectiveness of internal auditing.

One of the core determinants of internal audit quality is auditor competence. Competence includes technical knowledge, accounting expertise, auditing skills, analytical ability, professional judgment, familiarity with organizational processes, and the capacity to interpret evidence in uncertain conditions. Internal auditors must understand accounting systems, internal controls, risk management procedures, information systems, and industry-specific processes in order to provide reliable assurance. Empirical evidence indicates that competence, professional attitudes, time budget pressure, and role conflict can significantly affect internal audit quality, suggesting that the individual capacity of auditors is inseparable from the conditions under which they perform their tasks (10). Competence also has a developmental character, because experience, training, repeated exposure to audit tasks, and learning from prior successes and failures can improve auditors' ability to detect errors, evaluate evidence, and communicate findings. Accordingly, a quality-oriented internal audit model should consider both the current competence of auditors and the organizational mechanisms through which such competence is developed, maintained, and applied.

Independence and objectivity are also foundational dimensions of internal audit quality. Although internal auditors are organizational employees or contracted service providers, they must maintain sufficient independence from operational management to provide unbiased assurance. Objectivity requires auditors to evaluate evidence without undue influence, conflicts of interest, or managerial pressure. The relationship between audit committees and the use of internal audit in managerial educational roles can influence internal audit independence and objectivity, particularly when internal auditors are expected to provide both assurance and advisory services (11). This dual role creates a practical tension: internal auditors must support management improvement while preserving professional skepticism and impartial evaluation. In addition, professional ethics and organizational culture affect whether internal auditors can exercise independent judgment, report deficiencies honestly, and resist pressures that may compromise audit conclusions. A model of internal audit quality must therefore include independence, ethical climate, professional values, and governance support as interdependent factors rather than isolated attributes (12).

Ethics has become a central theme in recent internal audit research, particularly because internal auditors often encounter sensitive information, control weaknesses, fraud risks, and managerial misconduct. Ethical decision-making affects whether auditors report irregularities, disclose control failures, and engage in whistleblowing when organizational interests conflict with public accountability. An integrated ethical decision-making perspective suggests that internal auditors' whistleblowing intention is shaped by moral judgment, perceived responsibility, organizational norms, and expected consequences (13). Similarly, the organizational environment can shape whistleblowing mindset among internal auditors by either encouraging transparency and accountability or discouraging the reporting of wrongdoing through fear, retaliation, or managerial pressure (14). Therefore, internal audit quality depends not only on technical procedures but also on the ethical courage, accountability orientation, and organizational protection mechanisms that enable internal auditors to act in the public interest.

Technological transformation has further changed the meaning and requirements of internal audit quality. Digital systems, enterprise resource planning platforms, automated controls, data analytics, artificial intelligence, computer-assisted audit techniques, and continuous auditing have expanded the scope and complexity of internal audit work. These technologies can increase audit efficiency, improve coverage, strengthen fraud detection, and support risk-based planning, but they also require new competencies, organizational readiness, ethical safeguards, and managerial support. Studies on the digital transformation of the internal audit function emphasize the role of technology acceptance factors and the need for future-oriented development of internal audit capabilities (15). At the same time, research on digital technology implementation highlights practical barriers, including lack of infrastructure, resistance to change, insufficient training, and uncertainty about the integration of digital tools into existing audit methodologies (16). Consequently, technology should not be treated merely as a tool; it must be understood as a strategic component of internal audit quality.

The application of advanced audit technologies is particularly relevant to fraud detection, continuous auditing, and risk-based internal audit planning. Artificial intelligence can support fraud detection and prevention by identifying unusual patterns, automating routine tests, and improving the speed and scope of audit analysis (17). Generalized audit software can also improve internal audit efficiency by enabling auditors to process large data sets, conduct more systematic testing, and reduce manual limitations in evidence collection (18). In addition, continuous auditing information can enhance risk-based internal audit planning by providing timely data for identifying high-risk areas and prioritizing audit resources (19). However, the intention to adopt computer-assisted audit techniques depends

on internal auditors' perceptions of usefulness, ease of use, team support, and managerial support, indicating that technological implementation is simultaneously a technical and organizational process (20). Therefore, a comprehensive model of internal audit quality must integrate information technology, knowledge of controls, technological competence, and organizational support for digital audit practices.

Technology adoption in internal auditing also raises ethical and professional challenges. The use of information technology requires internal auditors to understand data security, privacy, algorithmic reliability, system controls, and the ethical implications of automated evidence processing. An ethics-centered model for adopting information technology in internal auditing suggests that technological acceptance must be aligned with ethical principles, professional responsibility, and organizational accountability (21). This is particularly important because audit technologies may increase access to sensitive organizational data and may shift professional judgment from manual procedures to data-driven interpretation. Without ethical governance, technology may improve speed while weakening accountability, transparency, or professional skepticism. Accordingly, the quality of internal audit services in digitally transformed environments depends on the integration of technological capability with ethical safeguards and professional judgment.

Organizational context is another major determinant of internal audit quality. Internal auditors operate within specific business environments, governance structures, reporting lines, organizational cultures, resource constraints, and managerial expectations. The effectiveness of internal audit in local authorities, for example, depends on institutional arrangements, administrative capacity, independence, and the extent to which audit recommendations are implemented (22). Similarly, barriers to operational auditing may include structural weaknesses, lack of managerial commitment, insufficient resources, limited access to information, and implementation problems that reduce the practical impact of audit findings (23). These findings indicate that internal audit quality is not merely the result of auditor characteristics; it also reflects the environment in which auditors work. An internal audit function may employ competent auditors, but if it lacks organizational authority, access to data, management support, and adequate resources, its service quality may remain limited.

Human capital composition within internal audit teams also influences audit performance. Diversity in internal audit teams can contribute to broader perspectives, improved problem-solving, and enhanced professional judgment, particularly when teams must evaluate complex organizational risks and communicate with different stakeholders (24). Team composition, collaboration, communication, and knowledge sharing can therefore affect how internal audit services are planned, executed, documented, and reported. Moreover, internal audit quality requires a balance between individual expertise and collective team capability. Professional skepticism, analytical reasoning, communication skills, and teamwork all influence the ability of the audit team to detect weaknesses, evaluate evidence, and deliver actionable recommendations. Thus, quality improvement requires attention to team-level factors as well as individual auditor-level factors.

The internal audit function is also increasingly connected to broader sustainability, social responsibility, and corporate citizenship expectations. Internal auditors are no longer limited to financial and operational assurance; they may also evaluate environmental, social, and governance processes, green functions, and organizational citizenship responsibilities. Expanding corporate citizenship theory in evaluating the green functions of internal auditors shows that internal audit can contribute to organizational accountability beyond traditional financial control by assessing sustainability-related practices and ethical responsibilities (25). This expansion increases the complexity of internal audit quality because auditors must develop new competencies, methodologies, and

evaluation criteria for non-financial domains. It also strengthens the argument that internal audit quality should be viewed as a dynamic construct that evolves with changes in stakeholder expectations, regulatory frameworks, and organizational responsibilities.

In Iran, the need to develop a comprehensive model for improving internal audit service quality is particularly important because audit firms and organizations operate within a complex institutional environment shaped by professional standards, capital-market requirements, governance expectations, technological change, and organizational constraints. Although recent Iranian and international studies have examined different dimensions of internal auditing, including audit quality, professional ethics, organizational culture, technology adoption, whistleblowing, audit unit size, financial reporting quality, and operational audit barriers, the literature remains fragmented. Many studies focus on one or several determinants, while fewer studies provide an integrated model that identifies, categorizes, and empirically evaluates the combined factors affecting internal audit service quality. This gap is important because internal audit quality is produced through the simultaneous interaction of competence, independence, experience, accountability, technology, methodology, business environment, client communication, accounting knowledge, auditing skills, and access to resources. Without an integrated framework, audit firms may improve isolated aspects of internal auditing while neglecting the systemic relationships among the determinants of service quality.

Accordingly, the present study is grounded in the assumption that improving internal audit service quality requires both conceptual development and empirical validation. A qualitative approach is needed to identify context-specific dimensions and subcomponents through expert knowledge and theoretical interpretation, while a quantitative approach is necessary to assess the relative importance and structural relationships among the identified factors. Such a mixed-methods approach is appropriate because the phenomenon of internal audit quality is both socially constructed through professional experience and empirically measurable through observable indicators. By combining grounded theory with structural equation modeling, the study can move beyond descriptive analysis and develop a model that both reflects expert understanding and is statistically tested. This approach also responds to the need for a practical and theoretically grounded framework that can guide audit firms, internal audit units, audit committees, and policymakers in strengthening the quality, effectiveness, and credibility of internal audit services.

The aim of this study is to design and explain a comprehensive model for improving the quality of internal audit services in Iranian audit firms by identifying the key dimensions and subcomponents of internal audit quality and empirically evaluating their effects through a grounded theory approach and structural equation modeling.

Methods and Materials

In terms of objective, the present study is applied, and in terms of data collection method, it is descriptive-analytical and survey-based. Since it examines a specific population, it is also classified as a case study. This study was conducted using an exploratory sequential mixed-methods approach; that is, the dimensions of the model were first designed and explored through a qualitative method, and then confirmed through a quantitative method. Accordingly, the research paradigm in the qualitative phase is based on interpretivism, while in the quantitative phase it is based on positivism.

The present study consists of three different phases. In the first phase, library studies were conducted using a systematic review approach by searching reputable international databases, including Elsevier, Emerald, and Springer, as well as domestic databases such as Irandoc, SID, Noormags, and Magiran, to find articles and studies

related to the keywords of internal audit quality during the Gregorian period of 2011 to 2020 and, for domestic sources, the corresponding Gregorian interval of 2012 to 2021. In the second phase, which is the qualitative phase of the study, semi-structured interviews with experts were used to develop the dimensions and components of the model for improving the quality of internal audit services, and the resulting data were analyzed using qualitative content analysis based on the grounded theory approach with Maxqda software. In the third phase, which is the quantitative or field phase of the study, an initial questionnaire was prepared by integrating the data obtained from interviews and the literature review. After confirming its validity and reliability, it was used in this phase, and the resulting findings were examined using structural equation modeling with Smart PLS and SPSS software, leading to the presentation of the final model.

The subject scope of the research is the field of internal auditing. The spatial scope of the study includes all companies listed on the Tehran Stock Exchange, and its temporal scope is 2020–2021.

Two statistical populations were considered for this study. The statistical population of the qualitative section consisted of professors and experts in the field of internal auditing. Snowball sampling was used to determine the sample size, and theoretical saturation was achieved after conducting 20 interviews. The participating professors were selected from Shahid Bahonar University of Kerman, Islamic Azad University, Kerman Branch, and Islamic Azad University, Bandar Abbas Branch. In the quantitative section, the statistical population consisted of auditing specialists. Since the population size was unknown, Cochran's formula was used to determine the sample size, and the minimum sample size was estimated at 219 individuals. A total of 350 questionnaires were distributed, and ultimately 256 valid questionnaires were analyzed. The sampling method in this section was stratified random sampling, and the questionnaires were distributed both electronically and in person.

The data collection tools in this study consisted of library studies and a researcher-made questionnaire. The questionnaire included 54 items designed on a 5-point Likert scale, ranging from strongly disagree to strongly agree. The questionnaire items were derived from the theoretical literature and the results of the qualitative interviews, and the questionnaire was distributed electronically.

Various methods were used to examine the validity and reliability of the measurement instrument. The content validity of the questionnaire was confirmed by presenting it to 20 professors and doctoral students in management and applying their suggested revisions. Construct validity was also assessed through two criteria: convergent validity, by calculating the average variance extracted (AVE), and discriminant validity, using the Fornell-Larcker criterion. The AVE value for all constructs was greater than 0.50, indicating appropriate convergent validity. Moreover, the values on the main diagonal of the Fornell-Larcker matrix were greater than the values below them, indicating desirable discriminant validity of the constructs. The reliability of the questionnaire was also examined using two indicators, Cronbach's alpha and composite reliability (CR). The values of both indicators were reported to be higher than 0.70 for all constructs, indicating internal consistency and appropriate reliability of the research instrument.

For data analysis, grounded theory and Maxqda software were used in the qualitative section. In this method, coding was performed in three stages: open coding, axial coding, and selective coding. Initial concepts were extracted from the interviews and then classified into axial categories. In the quantitative section, structural equation modeling based on the partial least squares approach was used with Smart PLS and SPSS software. In this section, path coefficients, t-values, coefficient of determination (R^2), and fit indices were calculated and evaluated using the structural model. Thus, the adoption of a mixed-methods approach and the simultaneous use of qualitative and

quantitative methods made it possible to achieve comprehensive and valid results regarding the improvement of internal audit service quality.

Findings and Results

First, the age status of the respondents was examined, and the results are presented in Table and Chart 4-1. The results of Table 1 show that, among the sample members, 38 individuals were under 30 years old, approximately 15%; 121 individuals were between 31 and 40 years old, approximately 47%; 96 individuals were between 41 and 50 years old, approximately 37%; and 1 individual was over 50 years old, approximately 1%. Furthermore, among the sample members, 148 individuals were male, approximately 58%, and 108 individuals were female, approximately 42%. In addition, among the sample members, 150 individuals were single, approximately 59%, and 106 individuals were married, approximately 41%. Moreover, among the participants, 94 individuals had less than 5 years of auditing experience, approximately 37%; 19 individuals had 6 to 10 years, approximately 7%; 117 individuals had 11 to 15 years, approximately 46%; 20 individuals had 16 to 20 years, approximately 8%; and 6 individuals had more than 20 years of auditing experience, approximately 2%. Also, among the sample members, 44 individuals held an associate degree, approximately 17%; 98 individuals held a bachelor's degree, approximately 38%; 84 individuals held a master's degree, approximately 33%; and 30 individuals held a doctoral degree, approximately 12%.

To conduct the initial analysis of the data, the descriptive statistics of the research variables are presented in Table 1. According to the results of Table 1 and the comparison of the obtained means with the hypothetical mean of 3, it can be observed that, except for the components of business environment, accounting knowledge, and auditing skills, the other components of audit service quality are lower than the hypothetical mean. Therefore, the level of these variables is low from the participants' perspective.

Table 1. Examination of the Status of Audit Service Quality

Research Variables	Hypothetical Mean	Mean	Standard Deviation	Minimum	Maximum
Auditor independence	3	2.88	0.64	1.00	4.25
Auditor ability	3	2.58	0.94	1.00	5.00
Execution of audit operations and audit methods	3	2.89	0.98	1.00	5.00
Auditing experience	3	2.85	0.45	1.45	4.09
Accountability	3	2.62	0.99	1.00	5.00
Auditor competence	3	2.84	0.48	1.44	3.89
Information technology and knowledge of controls	3	2.64	0.51	1.25	4.00
Business environment	3	3.08	0.55	1.50	4.50
Planning and methodology	3	2.92	0.61	1.25	4.75
Communication with the client	3	2.84	0.73	1.00	4.33
Accounting knowledge and auditing skills	3	3.00	0.69	1.25	4.75
Access to resources	3	2.44	0.64	1.25	4.00

In order to determine the use of parametric and non-parametric tests, the normality of the data was examined. The results of the data normality test are reported in Table 2.

The results of the normality test show that, since the values fall within the ± 2 range, the distribution of the data related to the research variables is normal. Therefore, parametric statistical tests are used to examine the hypotheses.

Table 2. Results of the Data Normality Test

Indicator	Skewness	Kurtosis	Data Distribution
Auditor independence	-0.212	-0.127	Normal
Auditor ability	0.222	-0.480	Normal
Execution of audit operations and audit methods	-0.036	-0.798	Normal
Auditing experience	-0.137	-0.132	Normal
Accountability	0.136	-0.852	Normal
Auditor competence	-0.738	0.389	Normal
Information technology and knowledge of controls	-0.044	-0.261	Normal
Business environment	0.016	-0.120	Normal
Planning and methodology	0.000	0.032	Normal
Communication with the client	-0.193	-0.805	Normal
Accounting knowledge and auditing skills	0.050	0.400	Normal
Access to resources	0.307	-0.446	Normal

Variables are more suitable for model analysis when they are measured at the interval level; however, in some cases, ordinal and nominal variables are also used. It should be noted that the researcher can enter any number of variables related to the research problem into the analysis, provided that the variables have been measured correctly and that the reliability coefficient of the measurement of the variables is at an acceptable level. Regarding sample size, in general, a large amount of data is used in structural equation modeling; however, the minimum sample size should not be less than 50. The larger the sample size, the greater the accuracy and precision of the model analysis. As a general rule, the sample size should be approximately 4 or 5 times the number of variables used. This ratio is somewhat conservative. For this purpose, in the present study, the KMO test and Bartlett's test of sphericity were first used to examine the suitability of the variables and the absence of correlation problems among variables. If the KMO value is less than 0.50, the data are not suitable for structural equation modeling, and if the value is between 0.50 and 0.69, structural equation modeling can be conducted with greater caution. However, if the value is greater than 0.70, the correlations among the data are suitable for model analysis. The output of this test is presented in Table 3. The results of the KMO test in Table 3 show that the KMO statistic is equal to 0.510. Since this value is greater than 0.50, the result indicates that the sample size is adequate for analysis. Moreover, the results of Bartlett's test of sphericity are significant at the 0.05 significance level, indicating that there is a significant correlation among the variables.

Table 3. Bartlett's Test and KMO Test

Index	Value
KMO statistic	0.510
Bartlett's test of sphericity statistic	75.511
Significance level	0.000

In the grounded theory method, after collecting interview and textual data, analysis and coding were carried out in three stages: open coding, axial coding, and selective coding. Accordingly, in the open coding stage, a comparative method was used to examine the correspondence between the homogeneity of information and the categories obtained based on the information derived from the interviews. Then, during axial coding, questions were designed regarding the categories, and the evidence and events related to the data were examined through expert comments on the axial coding model. In the selective coding stage, each of the obtained categories was validated based on scientific documentation, the research background, and expert participation in data analysis and interpretation. Therefore, in this study, based on the grounded theory method and after conducting the stages of

open, axial, and selective coding, the factors extracted from library sources, the literature review, and the collective opinions of experts were classified into 12 factors. The results of the content analysis of strategies for improving and increasing the effectiveness of internal audit quality based on the perspectives and cycle path of the financial reporting supply chain using the grounded theory method are presented in Table 4.

Table 4. Findings of the Qualitative Analysis

Categories	Subcomponents
Auditor independence	Apparent independence
Auditor independence	Execution of audit operations
Auditor independence	Compliance with ethical standards
Auditor independence	Maintaining the independence of the audit team
Auditor ability	Client support
Auditor ability	Definition of standards and processes
Execution of audit operations and audit methods	Documentation templates
Execution of audit operations and audit methods	Methods for completing audit stages
Auditing experience	Experience of skepticism
Auditing experience	Work experience
Auditing experience	Repetition of tasks
Auditing experience	Level of understanding of people, data, and information
Auditing experience	Attention to decision-related information
Auditing experience	Detection of mistakes and errors
Auditing experience	Searching for the causes of mistakes and presenting solutions
Auditing experience	Accuracy in supervision
Auditing experience	Reduction of mistakes and errors during auditing
Auditing experience	Gaining experience from failures and successes in auditing
Auditing experience	Creating a good reputation through audit work
Accountability	Teamwork within the audit group
Accountability	Conducting the audit within the specified time
Auditor competence	Being curious and open-minded
Auditor competence	Providing simple solutions
Auditor competence	Team spirit and cooperation
Auditor competence	Being analytical as an auditor
Auditor competence	Theoretical organizational knowledge
Auditor competence	Public-sector accounting knowledge
Auditor competence	Processing numbers, data, and information based on accounting knowledge
Auditor competence	Completing technical and general training in auditing
Auditor competence	Statistical and computer knowledge
Information technology and knowledge of controls	Providing recommendations to management
Information technology and knowledge of controls	Awareness of internal controls
Information technology and knowledge of controls	Awareness of information security and data processing
Information technology and knowledge of controls	Awareness of information technology and accounting systems
Business environment	Creating organizational change
Business environment	Use of consultants' services
Business environment	Existence of a specific order
Business environment	Level of automation in the audit system
Planning and methodology	Audit planning
Planning and methodology	Use of audit methodology for planning
Planning and methodology	Skill in planning and conducting audits
Planning and methodology	Bilateral agreement on the objectives and scope of the program
Communication with the client	Client's understanding of the audit work process
Communication with the client	Effective use of problem-solving methods
Communication with the client	Good communication skills
Accounting knowledge and auditing skills	Use of statistical methods in auditing
Accounting knowledge and auditing skills	Execution of audit operations
Accounting knowledge and auditing skills	Passing the CPA examination
Accounting knowledge and auditing skills	Competence of audit team members
Access to resources	Ability to collect data
Access to resources	Availability of audit working papers
Access to resources	Maintaining a skeptical attitude
Access to resources	Access to unique resources
Access to resources	Use of technological audit tools

Before testing the hypotheses and measurement for the path analysis of the conceptual model of the study, the indicators used in the questionnaire must be assessed and evaluated in terms of model fit capability. Therefore, in this section, confirmatory factor analysis was used to examine the accuracy of construct measurement. For this purpose, standardized factor loading values and the t-statistics of the observed variables with their corresponding latent variables were examined. It should be noted that if standardized factor loadings lower than 0.30 and non-significant values exist in the model, the item related to that construct should be removed to improve model fit, and the confirmatory factor analysis should be run again. The results of the confirmatory factor analysis for the variables are presented in Table 5. For example, the factor loading of the first observed variable for the components of auditor independence is 0.73, and the t-statistic is 2.12. The larger the factor loading and the closer it is to 1, the better the observed variables can explain the latent variable. If the factor loading is less than 0.30 and the t-statistic is also less than 1.96, the relationship is considered weak and non-significant, and that variable is excluded. The results of the confirmatory factor analysis in Table 5 show that the second indicator from the auditor independence component, the second, third, and fifth indicators from the auditor competence component, and the third indicator from the access to resources component do not have an adequate level of significance. The other significance values of all model parameters are greater than 1.96. A t-statistic greater than 1.96 or less than -1.96 indicates significance of relationships at the 0.05 level. Therefore, except for the five mentioned indicators, the other indicators have acceptable factor loading and t-statistic values and are considered appropriate indicators. However, the five mentioned indicators are removed from the model because their t-statistics are less than 1.96.

Table 5. Results of Confirmatory Factor Analysis of Audit Service Quality

Row	Components	Indicator	Factor Loading	t-Statistic
1	Auditor independence	Maintaining the apparent and actual independence of the audit team	0.73	2.12
2	Auditor independence	Execution of audit operations by audit team members	0.25	0.568
3	Auditor independence	Compliance with high ethical standards in the audit team	0.30	1.974
4	Auditor independence	Maintaining the independence of audit team members	0.46	2.02
5	Auditor ability	Client support in assisting with data collection	0.80	2.26
6	Auditor ability	Defining organizational standards and processes	0.81	2.47
7	Execution of audit operations and audit methods	Use of documentation templates by the audit team	0.76	1.96
8	Execution of audit operations and audit methods	Strict methods used by the audit team to complete audit stages	0.82	2.53
9	Auditing experience	In your opinion, does skepticism toward the client company's audit evidence affect the auditor's experience?	0.62	2.02
10	Auditing experience	In your opinion, work experience leads to the auditor's professional development.	0.60	2.13
11	Auditing experience	In your opinion, repeated performance of tasks increases the auditor's experience.	0.71	1.80
12	Auditing experience	In your opinion, experienced auditors have greater understanding when encountering people, collecting data and information, and examining them.	0.77	2.44
13	Auditing experience	In your opinion, experienced auditors pay attention to decision-related information.	0.79	2.25
14	Auditing experience	In your opinion, experienced auditors detect mistakes and errors more effectively.	0.82	2.67
15	Auditing experience	In your opinion, experienced auditors search for the causes of mistakes and provide solutions to eliminate or minimize them.	0.80	2.96
16	Auditing experience	In your opinion, experienced auditors exercise the necessary accuracy during supervision and perform their duties correctly.	0.87	3.68
17	Auditing experience	You believe that mistakes and errors during auditing and the collection of evidence and information hinder the completion process.	0.91	7.66

18	Auditing experience	You believe that failures and successes in auditing are opportunities for auditor learning and make the auditor more experienced.	0.84	4.59
19	Auditing experience	You believe that the number of audit tasks that the auditor performs correctly and quickly contributes to the auditor's good reputation.	0.90	5.84
20	Accountability	Team-based cooperation of the audit group with the client organization	0.97	16.16
21	Accountability	Conducting the audit within the specified time	0.97	12.70
22	Auditor competence	Being curious and open-minded and possessing the necessary competence in performing duties even under uncertainty	0.95	6.38
23	Auditor competence	Providing simple solutions by using one's cognitive findings in critical situations	0.19	1.66
24	Auditor competence	Having team spirit and cooperation	0.15	0.99
25	Auditor competence	Being analytical as an auditor	0.96	5.72
26	Auditor competence	Having theoretical organizational knowledge to understand the organization	0.26	1.22
27	Auditor competence	Having public-sector accounting knowledge	0.95	4.46
28	Auditor competence	Having accounting knowledge to process numbers, data, and information	0.95	4.38
29	Auditor competence	Completing technical and general training in auditing	0.95	3.36
30	Auditor competence	Having statistical and computer knowledge for the use of computers	0.95	4.59
31	Information technology and knowledge of controls	Providing recommendations to management by the audit team	0.96	4.30
32	Information technology and knowledge of controls	Audit team members' awareness of internal controls and business processes	0.97	3.97
33	Information technology and knowledge of controls	Audit team members' awareness of information security and data processing	0.98	7.53
34	Information technology and knowledge of controls	Audit team members' awareness of information technology and accounting systems	0.97	4.28
35	Business environment	Occurrence of organizational change within the client organization	0.97	3.59
36	Business environment	Use of consultants' services by the audit team in specific cases	0.96	3.69
37	Business environment	Existence of a specific order in the client's industry	0.97	4.91
38	Business environment	Level of automation within the organization and the audit process or system	0.98	5.21
39	Planning and methodology	Audit planning	0.97	3.19
40	Planning and methodology	Use of audit methodology by the audit team for audit planning and management	0.98	12.67
41	Planning and methodology	Audit manager's skill in planning and conducting the audit	0.98	10.98
42	Planning and methodology	Agreement between the audit team and the client regarding objectives and the scope of the program	0.98	7.24
43	Communication with the client	Client's understanding of the audit work process and its objective	0.98	9.55
44	Communication with the client	Effective use of problem-solving methods by the audit team	0.99	12.78
45	Communication with the client	Good verbal and written communication skills of the audit team	0.98	9.54
46	Accounting knowledge and auditing skills	Use of statistical methods in auditing by the audit team	0.98	5.68
47	Accounting knowledge and auditing skills	Execution of audit operations by a senior member of the audit team	0.99	9.54
48	Accounting knowledge and auditing skills	Passing the CPA examination by audit team personnel	0.99	20.24
49	Accounting knowledge and auditing skills	Competence of audit team members	0.97	5.25
50	Access to resources	Ability of the audit team to collect data independently and without relying on the client	0.99	8.61
51	Access to resources	Availability of audit working papers and their results for review	0.99	14.63
52	Access to resources	Maintaining a skeptical attitude throughout audit operations by audit team members	0.24	1.17
53	Access to resources	Audit team's access to unique resources, including people, databases, and tools, for specialized audit needs	0.99	15.11
54	Access to resources	Use of computer-assisted audit tools for analysis	0.99	9.21

Before fitting the path analysis and estimating the path coefficients, it is necessary to evaluate the validity and efficiency of the fitted model. The results of the fit indices and the estimates of the main model are shown in Table

6. In the structural model, the chi-square index (χ^2), root mean square residual (RMR), goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI), normed fit index (NFI), non-normed fit index (NNFI), incremental fit index (IFI), comparative fit index (CFI), and the highly important root mean square error of approximation (RMSEA) were used to evaluate model validity. None of the obtained indices alone provides sufficient evidence for the model's fit or lack of fit; rather, these indices must be interpreted together.

The χ^2 test is often referred to as a success index. This index simply shows whether the model statement describes the structure of relationships among the observed variables. There is no certainty regarding the ratio of chi-square to degrees of freedom; however, in most sources, a value below 3 is considered acceptable. In the model of the present study, this value was calculated as 2.76. The GFI criterion indicates the relative amount of variances and covariances explained by the model. This criterion ranges from zero to one, and the closer it is to one, the greater the goodness of fit of the model with the observed data. In structural equation modeling, whenever the GFI value is higher than 0.80, the model is in a good condition in terms of this index (Jöreskog & Sörbom, 1988). The GFI value calculated in this study is 0.85. To examine how the proposed model combines fit and parsimony, the highly powerful RMSEA index is used. The RMSEA index represents the root mean square error of approximation. For good models, this index is 0.05 or lower. The RMSEA value in this study was calculated as 0.010, indicating appropriate explanation of covariances. To examine how well a particular model performs in explaining a set of observed data compared with other possible models, the normed fit index (NFI), non-normed fit index (NNFI), incremental fit index (IFI), and comparative fit index (CFI) are used. Values above 0.90 for these indices indicate a very appropriate fit of the designed model. The results of Table 6 show that the values of the mentioned indices in this study are greater than 0.90. The coefficient of determination is used to assess model quality, and the coefficient of determination is the main criterion for evaluating the structural model. This index shows what percentage of changes in the dependent variable is explained by the independent variables. The results of Table 6 show that 78.1% of the changes in audit service quality are predicted by the identified subcomponents, namely the dimensions of the model. These results indicate a very appropriate fit of the designed model and show that the model has predictive ability.

Table 6. Model Fit Indices

Index Name	Main Model Estimates	Acceptable Values
Chi-square divided by degrees of freedom	2.76	≤ 3
GFI, goodness of fit	0.85	≥ 0.80
AGFI, adjusted goodness of fit	0.81	≥ 0.80
RMSEA, root mean square error of approximation	0.010	≤ 0.08
CFI, comparative fit index	0.94	≥ 0.90
NFI, normed fit index	0.92	≥ 0.90
NNFI, non-normed fit index	0.95	≥ 0.90
IFI, incremental fit index	0.92	≥ 0.90
R ² , coefficient of determination	0.781	≥ 0.67

The results show that the variables of auditor ability, execution of audit operations, Machiavellian and utilitarian perspectives, and internal and external factors of ethical evaluation collectively explained 78% of audit service quality.

The objective of testing the first research hypothesis was to examine the effect of auditor independence on audit service quality. The standardized path coefficient between auditor independence and audit service quality is 0.039

and is significant at the 0.05 significance level. The positive and significant path coefficient indicates that auditor independence has a direct effect on audit service quality. Therefore, the first research hypothesis is confirmed.

The objective of testing the second research hypothesis was to examine the effect of auditor ability on audit service quality. The standardized path coefficient between auditor ability and audit service quality is 0.016 and is significant at the 0.05 significance level. The positive and significant path coefficient indicates that auditor ability has a direct effect on audit service quality. Therefore, the second research hypothesis is confirmed.

In the third hypothesis, the standardized path coefficient between execution of audit operations and audit methods and audit service quality, equal to 0.018, indicates that execution of audit operations and audit methods has a direct effect on audit service quality. Therefore, the third research hypothesis is confirmed.

The results of testing the fourth research hypothesis, which examined the effect of auditing experience on audit service quality, show that the standardized path coefficient is equal to 0.170 and is significant. The significance of the standardized path coefficient means that auditor experience has a direct effect on audit quality. Therefore, the fourth research hypothesis is confirmed.

The results of testing the fifth research hypothesis, which examined the effect of accountability on audit service quality, show that the standardized path coefficient between the variable of accountability and audit service quality is equal to 0.145 and is significant. The positive and significant standardized path coefficient means that auditor accountability increases audit service quality. Therefore, the fifth research hypothesis is confirmed.

The results of testing the sixth research hypothesis show that the standardized path coefficient between auditor competence and audit service quality is 0.205 and is significant at the 0.05 significance level. The negative and significant path coefficient indicates that the scientific and ethical competence of the auditor increases audit service quality. Therefore, the sixth research hypothesis is confirmed.

The objective of testing the seventh hypothesis was to examine the effect of information technology and knowledge of controls on audit service quality. The standardized path coefficient between information technology and knowledge of controls and audit service quality is 0.194 and is significant. The positive and significant standardized path coefficient indicates that the relationship between information technology and knowledge of controls and audit service quality is direct. Therefore, the seventh research hypothesis is confirmed.

Discussion and Conclusion

The present study aimed to design and explain a model for improving the quality of internal audit services in Iranian audit firms using a grounded theory approach and structural equation modeling. The qualitative findings led to the identification of 12 major dimensions of internal audit service quality, namely auditor independence, auditor ability, execution of audit operations and audit methods, auditing experience, accountability, auditor competence, information technology and knowledge of controls, business environment, planning and methodology, communication with the client, accounting knowledge and auditing skills, and access to resources. These findings indicate that internal audit quality is not a single-dimensional construct limited to technical compliance or procedural performance; rather, it is a multidimensional professional capability that is shaped by human capital, ethical behavior, organizational context, technological readiness, audit methodology, and resource accessibility. This multidimensional interpretation is consistent with recent literature showing that internal audit quality is formed through the interaction of structural, behavioral, ethical, and technical factors (8). The results also align with studies emphasizing that internal audit quality improves financial reporting quality, managerial decision-making,

organizational reliability, and stakeholder confidence when it is supported by competent auditors, effective audit processes, and appropriate governance mechanisms (1-3).

The quantitative findings showed that the overall model had acceptable fit indices and strong predictive ability. The coefficient of determination indicated that the identified dimensions explained 78.1% of the variance in internal audit service quality, demonstrating that the proposed model has considerable explanatory power. This finding confirms that the grounded theory model extracted from expert interviews and the literature review is empirically meaningful and can explain a substantial proportion of changes in internal audit quality. The strong model fit also supports the argument that internal audit quality should be understood as a systemic outcome rather than the result of one isolated factor. This result is consistent with the view that the internal audit function contributes to financial reporting reliability through a combination of strategy, ethics, accounting culture, audit performance quality, and professional capability (5). It also supports evidence that internal audit improves the quality of financial reports by strengthening control evaluation, detecting weaknesses, and increasing the credibility of organizational information (2). Therefore, the high explanatory power of the model suggests that organizations and audit firms should adopt an integrated approach to improving internal audit quality instead of focusing only on individual indicators.

Among the dimensions examined in the structural model, auditor competence had the highest effect on internal audit service quality. This finding indicates that the scientific, professional, ethical, and analytical competence of internal auditors is a central condition for delivering high-quality services. Auditor competence includes curiosity, open-mindedness, analytical capability, theoretical organizational knowledge, public-sector accounting knowledge, accounting knowledge for processing numbers and information, technical and general audit training, and statistical and computer knowledge. The significance of auditor competence is consistent with the findings of Nurmawanti et al., who showed that competence, professional attitudes, time budget pressure, and role conflict influence internal audit quality (10). This result is also compatible with studies emphasizing that internal auditors' professional knowledge and ability affect the accuracy of managerial earnings forecasts and the quality of financial reporting outcomes (4). In explaining this finding, it can be argued that internal auditors operate in complex environments where they must interpret evidence, evaluate controls, identify risk patterns, communicate findings, and make judgments under uncertainty. Therefore, higher competence enables auditors to detect errors, evaluate evidence more accurately, and provide recommendations that are both technically sound and practically useful.

The findings also showed that accounting knowledge and auditing skills had a strong and meaningful effect on internal audit service quality. This result highlights the technical foundation of internal audit work. Although internal auditing now includes advisory, risk-based, technological, and governance-oriented roles, its effectiveness still depends heavily on auditors' mastery of accounting principles, audit procedures, statistical methods, audit evidence, and professional certification-related competencies. This finding aligns with research showing that internal audit quality is closely associated with the quality of financial reporting and the reliability of accounting information (1, 2). It also supports studies indicating that the internal audit function is evaluated by independent auditors partly on the basis of its technical competence, documentation quality, and ability to perform duties reliably (6, 7). From an explanatory perspective, accounting knowledge and auditing skills allow internal auditors to understand the financial reporting process, identify misstatements, evaluate control deficiencies, and support both internal governance and external audit reliance. Therefore, this dimension represents the professional infrastructure upon which other quality-enhancing factors depend.

Planning and methodology also emerged as one of the most influential dimensions of internal audit service quality. The results showed that audit planning, the use of audit methodology for planning and managing the audit, the audit manager's skill in planning and conducting audit activities, and agreement between the audit team and the client regarding objectives and program scope are important predictors of quality. This finding is consistent with Sajjadi and Hooshmand Kashani's emphasis on the use of continuous auditing information in risk-based internal audit planning, which shows that systematic planning improves the relevance and effectiveness of audit activities (19). It is also aligned with the argument that internal audit strategy, auditor ethics, and accounting culture affect financial reporting quality through the mediating role of audit quality (5). In explaining this result, planning and methodology create coherence between audit objectives, risk assessment, resource allocation, fieldwork execution, documentation, and reporting. Without proper planning, even competent auditors may fail to focus on high-risk areas or may produce fragmented findings. Therefore, the significance of this dimension confirms that audit quality requires disciplined methodology in addition to individual expertise.

Information technology and knowledge of controls had a significant direct effect on internal audit service quality. This finding reflects the increasing digitalization of audit environments and the growing importance of information systems, automated controls, data analytics, computer-assisted audit tools, and continuous auditing. The result is consistent with studies showing that digital transformation has become a strategic issue for internal audit functions and that technology acceptance factors influence future development of internal auditing (15). It also supports findings that the implementation of digital technology in internal audit faces practical challenges but can improve audit efficiency and effectiveness when properly adopted (16). Similarly, research on generalized audit software and artificial intelligence confirms that technological tools can enhance audit efficiency, fraud detection, and prevention capabilities (17, 18). In explaining this finding, internal auditors increasingly need to evaluate electronic data, automated systems, cybersecurity risks, information processing controls, and digital evidence. Therefore, knowledge of information technology and controls strengthens the auditor's ability to identify risks that may not be visible through traditional procedures.

The importance of technology in the present model is further supported by the finding that knowledge of controls and technology-related awareness form a distinct dimension of internal audit quality. This is consistent with research indicating that the intention to adopt computer-assisted audit techniques is influenced by team and managerial support and that such adoption can affect internal auditor performance (20). The findings also align with ethics-centered research on information technology adoption in internal auditing, which argues that digital audit practices should be implemented with attention to ethical responsibility and professional accountability (21). This is important because technological tools can increase the volume, speed, and scope of audit evidence, but they cannot replace professional skepticism or ethical judgment. Thus, internal audit quality improves when technology is combined with auditor competence, organizational support, and ethical safeguards. The model developed in this study therefore confirms that digital transformation should be treated as a core quality dimension rather than a peripheral operational issue.

The results showed that auditing experience had a significant direct effect on internal audit service quality. Experience allows auditors to develop professional judgment, recognize recurring patterns of error, understand client behavior, interpret evidence more effectively, and learn from failures and successes. This finding is compatible with the literature emphasizing the importance of human capital, team composition, and performance in internal audit teams (24). It also aligns with studies that consider internal audit effectiveness to be dependent on internal

audit factors such as competence, professional experience, and organizational position (26). Experienced auditors are more likely to detect irregularities, assess risks accurately, supervise audit work carefully, and provide practical recommendations. Therefore, the significance of experience in the model indicates that audit quality is partly cumulative and develops through repeated professional exposure, learning, and reflection. This finding suggests that audit firms should not treat experience merely as years of service but as a professional learning process that improves evidence evaluation and decision-making.

Accountability was also found to have a significant positive effect on internal audit service quality. This result indicates that team cooperation, timely audit completion, responsibility toward stakeholders, and commitment to audit objectives improve the quality of internal audit services. Accountability is closely linked to ethical behavior, organizational transparency, and willingness to report deficiencies accurately. This finding is aligned with research on internal auditors' whistleblowing intention, which shows that ethical decision-making and perceived responsibility influence whether auditors act in accordance with professional obligations (13). It is also consistent with studies showing that the organizational environment affects whistleblowing mindset among internal auditors (14). In explaining this finding, accountable auditors are more likely to maintain professional discipline, communicate weaknesses clearly, complete audit procedures responsibly, and resist pressures that may compromise audit findings. Therefore, accountability connects the technical performance of audit tasks with the ethical responsibility of the auditor.

Auditor independence was confirmed as a significant predictor of internal audit service quality. Although its path coefficient was smaller than those of some other variables, its significance confirms that independence remains a necessary condition for credible internal auditing. This finding is consistent with studies emphasizing the role of organizational culture and professional ethics in internal audit quality (12). It also aligns with research showing that the relationship between audit committees and the use of internal audit in managerial educational roles may affect internal audit independence and objectivity (11). The relatively lower coefficient of independence may suggest that, in practice, independence alone is not sufficient to ensure quality unless it is accompanied by competence, methodology, resources, and organizational support. However, without independence and objectivity, even technically strong audit work may lose credibility. Therefore, independence should be understood as a foundational condition that enables other quality dimensions to operate effectively.

The results also confirmed the direct effects of auditor ability and execution of audit operations and audit methods on internal audit service quality. Auditor ability reflects practical capacity to perform audit work, while execution of operations and methods reflects the procedural discipline through which audit plans are translated into evidence, documentation, and conclusions. These findings are supported by studies showing that operational audit barriers, weak implementation mechanisms, and procedural limitations can reduce the effectiveness of audit services (23). They are also consistent with research on the evaluation of internal audit effectiveness in local authorities, which emphasizes the importance of institutional capacity, implementation, and follow-up (22). In explaining this result, audit quality is not achieved only through planning or professional knowledge; it also requires rigorous implementation of audit procedures, proper documentation, timely completion, and appropriate communication of findings. Therefore, audit firms should strengthen both the design and execution phases of internal audit engagements.

The qualitative findings further showed that business environment, communication with the client, and access to resources are important components of internal audit service quality. These dimensions indicate that audit quality

is affected by organizational context, the client's understanding of audit objectives, access to data and working papers, availability of technological tools, and the possibility of collecting evidence independently. This interpretation is consistent with Asadzadeh and Nikbakht's emphasis on determining the effective size and structure of the internal audit unit, because inadequate resources and inappropriate organizational design can limit audit effectiveness (9). It also corresponds with research on corporate citizenship and green functions of internal auditors, which shows that internal audit responsibilities are expanding into broader organizational and social domains, requiring access to diverse information and specialized resources (25). Therefore, internal audit quality depends not only on what auditors know and do, but also on whether the organization enables them to perform their responsibilities effectively.

Overall, the findings of this study support the idea that improving internal audit service quality requires an integrated model combining professional competence, ethical responsibility, technological readiness, methodological discipline, organizational support, and resource adequacy. The model developed in this study is consistent with recent evidence that internal audit quality enhances financial reporting quality, supports organizational performance, improves control systems, and strengthens stakeholder trust (2, 3, 5). It also extends previous research by integrating several fragmented dimensions into a comprehensive model suitable for Iranian audit firms. The results show that the most influential factors are auditor competence, accounting knowledge and auditing skills, and planning and methodology, while other factors such as technology, experience, accountability, independence, execution methods, communication, business environment, and access to resources also contribute to quality improvement. This integrated interpretation confirms that internal audit quality is a dynamic and systemic phenomenon that requires coordinated improvement across individual, team, organizational, technological, and ethical levels.

The present study has several limitations that should be considered when interpreting the findings. First, although the study used a mixed-methods design and included both expert interviews and survey data, the qualitative participants were selected from a limited group of academic and professional experts, which may restrict the diversity of viewpoints reflected in the model. Second, the quantitative sample consisted of auditing specialists, and although the number of valid questionnaires was sufficient for analysis, the findings may not fully represent all internal auditors, audit firms, listed companies, public-sector organizations, and non-listed entities in Iran. Third, the data were collected through self-report questionnaires, which may be affected by perceptual bias, social desirability, or respondents' subjective interpretations of internal audit quality. Fourth, the study was cross-sectional, meaning that the relationships among the variables were examined at one point in time and cannot fully capture how internal audit quality evolves over time. Finally, although the model explained a high percentage of variance in internal audit service quality, other contextual, regulatory, cultural, economic, and technological variables may also influence internal audit quality and were not fully examined in this study.

Future studies are recommended to test the proposed model in different organizational settings, including public-sector institutions, banks, insurance companies, manufacturing firms, governmental agencies, universities, and private corporations, in order to examine the generalizability of the findings. Researchers can also compare internal audit quality models across industries and countries to identify contextual differences in the determinants of quality. Longitudinal studies are suggested to investigate how internal audit quality develops over time and how changes in technology, regulation, audit committee structure, organizational culture, and professional training affect audit outcomes. Future research may also examine mediating and moderating mechanisms, such as the role of audit committee effectiveness, organizational support, ethical climate, digital maturity, professional skepticism, and

managerial pressure in the relationship between auditor characteristics and internal audit quality. In addition, qualitative studies can explore the lived experiences of internal auditors regarding independence threats, access to resources, technology adoption, whistleblowing, and client communication. Finally, future studies may develop industry-specific measurement instruments for internal audit quality and validate them using larger and more diverse samples.

Based on the findings, audit firms and organizations should adopt a comprehensive strategy for improving internal audit service quality. First, they should prioritize the development of auditor competence through continuous professional education, specialized training, certification support, mentoring, and practical learning opportunities. Second, internal audit units should strengthen accounting knowledge, auditing skills, statistical analysis skills, and technology-based audit capabilities among their staff. Third, audit firms should improve audit planning and methodology by using risk-based planning, clear documentation templates, structured procedures, and systematic supervision. Fourth, organizations should invest in audit technologies, data analytics tools, computer-assisted audit techniques, and secure information systems while ensuring that auditors are properly trained to use them. Fifth, governance structures should protect auditor independence and objectivity by establishing clear reporting lines, audit committee support, and safeguards against managerial interference. Sixth, internal audit teams should improve communication with clients while maintaining professional skepticism and independence. Finally, managers should provide internal auditors with sufficient access to resources, data, working papers, personnel, and technological tools so that audit activities can be performed accurately, independently, and effectively.

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Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

All ethical principles were adhered in conducting and writing this article.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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