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The Impact of Artificial Intelligence and Auditors' Technological Knowledge on the Quality of Internal Auditing in Iranian Organizations

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ABSTRACT

The purpose of this study was to investigate the impact of artificial intelligence (AI) and auditors' technological knowledge on the quality of internal auditing in Iranian organizations. The present research is applied in terms of purpose and descriptive-survey in terms of data collection method. The statistical population included all internal auditors working in Iranian organizations and companies with at least one year of experience and familiarity with modern technologies. Based on estimates, the population size was determined to be between 260 and 304 individuals. Using stratified random sampling and based on Krejcie and Morgan's table, a sample size of 184 was calculated, and ultimately, 207 valid questionnaires were analyzed. Data were analyzed using LISREL software and structural equation modeling (SEM). The findings revealed that artificial intelligence (path coefficient = 0.72, $p < 0.001$) and auditors' technological knowledge (path coefficient = 0.75, $p < 0.001$) have a positive and significant impact on the quality of internal auditing. Additionally, artificial intelligence had a positive and significant impact on auditors' technological knowledge (path coefficient = 0.68, $p < 0.001$). The coefficient of determination (R^2) was 0.63, indicating the model's high ability to explain the variance of the dependent variable. Consequently, it can be concluded that the development and application of artificial intelligence and the enhancement of auditors' technological knowledge are key factors in improving the quality of internal auditing in Iranian organizations.

Introduction

In recent decades, the organizational environment has faced extensive technological, regulatory, and economic developments that have increased the complexity of management and internal audit processes. Internal audit, as a key institution in organizations, plays a vital role in identifying risks, preventing fraud, and improving management decision-making. However, many organizations still use traditional audit methods that have limitations in accuracy, speed, and effectiveness. In this context, artificial intelligence, as a new technology, is able to enhance internal audit processes by analyzing big data, identifying hidden patterns, and predicting future trends (Wassie, 2024; Shawaqfeh et al., 2024). The use of artificial intelligence can lead to timely detection of risks, reduce human errors, and improve management decisions, but its effective use requires auditors with sufficient technological knowledge. Auditors' technological knowledge includes the ability to understand and optimally use technological tools and systems used to analyze data and identify risks. Research shows that auditors with high technological knowledge are able to accurately analyze complex data, identify hidden patterns, and predict potential risks, which directly increases the quality of internal audits (Zhang et al., 2024). Without this knowledge, the outputs of intelligent systems can be incomplete or misleading and lead to incorrect decisions. Therefore, the interaction between artificial intelligence and auditors' technological knowledge plays a key role in improving the quality of internal audits. Iranian organizations face several practical challenges in utilizing artificial intelligence. Information technology infrastructure limitations, lack of access to accurate and high-quality data, cultural resistance to technological changes, and lack of specialized training are among the most important obstacles (Shawaqfeh et al., 2024). These limitations can hinder the effective use of smart technologies and reduce the quality of internal audit processes, which ultimately increases the financial and operational risks of organizations. Therefore, research on the impact of artificial intelligence and auditors' technological knowledge on the quality of internal audit in Iranian organizations is necessary. Recent research shows that artificial intelligence can improve managerial decision-making by providing accurate and predictive analytics and help managers identify risks and opportunities with a comprehensive and data-driven perspective (Shawaqfeh et al., 2024). However, to achieve these benefits, auditors need to have sufficient technological knowledge to be able to analyze and correctly interpret the outputs of smart systems. The combination of artificial intelligence and auditors' technological knowledge increases the speed, accuracy, and effectiveness of internal audit reports and paves the way for improving decision-making processes at the organizational level. Internal audit quality, as a key variable, plays an important role in the success and sustainability of organizations. Internal audit identifies weaknesses by providing accurate and timely assessments and prevents violations and improper compliance with regulations. Studies show that low quality of internal audit increases financial risk, incorrect decisions, and reduces shareholder trust (Lonto & Pandowo, 2025). Therefore, improving the quality of internal audit through the use of artificial intelligence and developing the technological knowledge of auditors is of great importance. Implementing artificial intelligence in Iranian organizations is accompanied by numerous limitations and challenges. Lack of information technology infrastructure, resistance to change, and lack of appropriate training prevent the effective use of new technologies (Zhang et al., 2024). These issues not only reduce the quality of internal audit, but also increase the financial and operational risks of organizations. To overcome these challenges, it is necessary for organizations to put appropriate strategies, invest in training and development of human resources, and create advanced information technology infrastructures on the agenda. Training and development of auditors' technological skills are other effective factors in the exploitation of artificial intelligence. Auditors with high technological knowledge are able to analyze complex data and effectively use smart tools, which directly improves the quality of internal auditing (Wassie, 2024). Specialized training should be designed in a way that, in addition to improving technical knowledge, also strengthens auditors' analytical skills and critical thinking, so that they can effectively analyze and interpret the outputs of smart technologies. Artificial intelligence, with its advanced capabilities in data analysis and identification of complex patterns, improves management decision-making processes. By using artificial intelligence in internal auditing, organizations will be able to make better strategic decisions, allocate resources optimally, and identify risks proactively (Shawaqfeh et al., 2024). These benefits are only realized when auditors have sufficient technological

knowledge. In general, the interaction of artificial intelligence and auditors' technological knowledge plays a key role in improving internal audit processes. This interaction increases the accuracy, speed, and effectiveness of internal reports and improves organizations' ability to manage risks and make sound decisions (Zhang et al., 2024). Given the importance of the subject, scientific research on the impact of artificial intelligence and auditors' technological knowledge on the quality of internal auditing in Iranian organizations is essential. These studies can identify challenges, opportunities, and effective solutions in utilizing new technologies and1-Research Literature

1-1- Artificial Intelligence

In today's complex and challenging world, organizations are faced with a huge volume of data, the analysis and processing of which is manual, time-consuming and prone to human errors. In this regard, artificial intelligence as an advanced technology has been able to create a tremendous transformation in internal audit processes (Wassie, 2024). By utilizing complex algorithms and machine learning models, artificial intelligence is able to process a huge volume of data in a short time and identify hidden patterns (Baharom, 2025). As a result, organizations can improve their internal audit processes and prevent possible deviations by using artificial intelligence (Schuett, 2024). Internal audit, as an independent and consulting activity within the organization, plays a vital role in evaluating and improving management processes. This activity helps managers make better decisions and prevent possible deviations by examining and evaluating internal processes, identifying risks and ineffective controls (Shawaqfeh et al., 2024). Internal auditors increase transparency in the organization and strengthen stakeholder trust by providing accurate and timely reports (Karmańska, 2022). In today's complex and challenging world, organizations face numerous risks that can negatively affect their performance. By identifying these risks and providing appropriate solutions, internal audit helps organizations effectively manage risks and improve performance (Pérez-Calderón, et al., 2025). In addition, internal audit prevents financial and operational deviations and increases the efficiency of the organization by assessing the effectiveness of internal controls. Implementing artificial intelligence in internal audit also comes with challenges. One of these challenges is the lack of quality data. For AI models to function properly, they need accurate and up-to-date data; otherwise, the results may be misleading (Zweers et al., 2025). In addition, cultural resistance to technological change and organizations' lack of readiness to adopt new technologies are other obstacles to implementing AI in internal audit (Baharom, 2025). To effectively utilize AI, organizations must develop appropriate strategies and provide the necessary resources for training and developing IT infrastructure. Also, paying attention to ethical and legal issues related to the use of AI is of particular importance (Schuett, 2024). By adopting appropriate approaches, the potential of AI can be exploited and its benefits can be seen in internal audit processes (Wassie, 2024). Given the vital role of internal audit in promoting transparency and organizational efficiency, attention to this area is of particular importance. The use of artificial intelligence can serve as an effective tool in improving internal audit processes and increase the accuracy, speed, and efficiency of these processes. However, to effectively utilize this technology, careful planning, continuous training, and attention to existing challenges are needed (Shawaqfeh et al., 2024).

-2-1Technological knowledge of auditors

In today's world, with the rapid advancements in information and digital technology, the role of internal auditors in evaluating and monitoring organizational processes has become more important than ever. One of the main pillars of success in this area is having "technological knowledge" or IT capabilities that allow auditors to increase the efficiency and effectiveness of audit processes by using modern tools. The technological knowledge of internal auditors refers to a set of skills and capabilities that allow them to utilize information and digital technologies in performing their audit tasks. This knowledge includes familiarity with audit software, data analysis, information security, and the use of new technologies such as artificial intelligence and machine learning. According to professional standards, internal auditors must have these capabilities in order to effectively perform their duties (; Henderson et al., 2013; Thottoli, 2021). Dimensions of internal auditors' technological knowledge:

A. Software skills and digital audit tools: Auditors must be familiar with audit software and digital tools to effectively analyze data and provide accurate reports.

B. Data analysis and use of big data: The ability to analyze large and complex data allows auditors to identify

hidden patterns and assess risks more accurately.

C. Information security and data protection: Given the importance of protecting sensitive data, auditors must be familiar with the principles of information security to prevent cyber intrusions and threats.

D. Use of artificial intelligence and machine learning: New technologies such as artificial intelligence can help auditors analyze data, simulate scenarios, and predict risks (Vitali, 2024).

Despite the high importance of technological knowledge, many internal auditors face challenges in this area. According to research, many internal auditors are still in the early stages of learning digital technologies and need ongoing training (Julian, 2023). This is while organizations increasingly need these skills to remain competitive in the digital world. On the other hand, by improving technological knowledge, auditors can perform audit processes more effectively and create more added value for the organization. This can lead to improved report quality, reduced risks, and increased stakeholder trust (Tharouma & Oudai, 2022). Finally, to improve the effectiveness of internal audit in the digital age, it is essential that internal auditors continuously update their technological knowledge and utilize new tools and technologies. This not only helps improve audit quality but also guides organizations on the path of sustainable growth and development.

1-3 -Internal Audit Quality

The quality of internal audit is recognized as one of the main pillars of corporate governance and ensures transparency, efficiency and reduction of organizational risks. With rapid technological changes, increasing data volume and complexity of organizational processes, the need for quality and effective internal audit is felt more than ever (Abdullah et al., 2018). Internal audit plays a key role in promoting transparency and stakeholder confidence by assessing management processes, internal controls and organizational risks (Alqudah et al., 2023). The quality of internal audit depends not only on the accuracy and reliability of reports, but also on the effectiveness of recommendations and their impact on management decisions (Liu et al., 2024). Therefore, numerous studies have shown that several factors can affect the quality of internal audit, including auditor independence, professional competence, support from senior management, and the use of new technologies (Samagaio & Felício, 2023). The dimensions of internal audit quality are:

1 .Independence and impartiality of internal auditors: Internal auditors must be able to perform their duties without internal or external pressures so that assessments are accurate and impartial. Studies have shown that higher auditor independence increases the quality of reports and management decisions (Huy & Hung, 2022).

2 .Professional competence and experience of auditors: Specialized skills, up-to-date knowledge, and practical experience of auditors are among the most important factors in improving the quality of internal audit. Highly qualified auditors are able to identify hidden risks and provide effective recommendations (Zaynuri, M., & Kuntadi, 2025).

3 .Senior management support and adequate resources: Allocating appropriate resources, paying attention to auditors' recommendations, and senior management support play a vital role in strengthening the independence and increasing the quality of internal audit (Alqudah et al., 2023).

4 .Using new technologies and data analytics: The use of digital tools and new technologies, including big data analytics and artificial intelligence, increases the accuracy, speed, and efficiency of the audit process (Liu et al., 2024).

5 .Effectiveness of reports and recommendations: The quality of internal audit is also assessed by the extent to which recommendations are implemented and the effectiveness of reports in improving processes and reducing risks (Samagaio & Felício, 2023).

Quality internal audit faces challenges, including lack of resources, organizational resistance to change, and lack of continuous training (Abdullah et al., 2018). However, there are many opportunities to improve quality, including the development of new technologies, strengthening an organizational culture based on transparency, and support from senior management (Tharouma & Oudai, 2022). Research shows that auditors who use advanced technologies provide more accurate reports and more effective recommendations, and as a result, the quality of internal audit in the organization improves (Liu et al., 2024). As a key variable in corporate governance and audit research, internal audit quality plays an important role in improving the transparency and efficiency of organizations. To improve this quality, it is essential that organizations pay attention to management support,

auditor independence, and the use of new technologies in addition to developing the professional skills of auditors (Abdullah et al., 2018; Samagaio & Felício, 2023).

-4-1Research Background

In brief, the following are the previous studies:

A. Domestic Research

A study by Mirzaei et al. (2022) was conducted in Iran that examined the impact of artificial intelligence on audit quality. The results showed that the use of artificial intelligence can help improve the accuracy, speed, and efficiency of internal audit processes, but its acceptance among Iranian auditors faces challenges. A study by Mashayekhi and Amrolahi (2025) was conducted in Iran that examined the impact of auditors' knowledge and professionalism on the acceptance and use of artificial intelligence. The results showed that auditors' knowledge and professionalism have a positive effect on the acceptance of artificial intelligence in audit processes. A study by Gorjani (2024) was conducted in Iran that examined the impact of auditors' technological knowledge on the quality of relationships between internal auditors and audited entities. The results showed that auditors' technological knowledge has a positive effect on the quality of relationships and the effectiveness of internal audit.

B. Foreign Research

A study by Adnan Hamoud et al. (2025) was conducted in developing countries, including Iran, to examine the capabilities of artificial intelligence in improving audit processes. The results showed that artificial intelligence can increase the efficiency and quality of auditing in various economic fields. A study by La (2025) was conducted in different countries to examine the effect of using artificial intelligence on audit costs. The results showed that using artificial intelligence can reduce audit costs, and this is due to improving efficiency and reducing information asymmetry. A study by Al-Kassoneh and Benyata (2024) was conducted in Jordan to examine the extent of the use of information technology in internal audit processes. The results showed that the use of information technology in internal audit processes has a positive effect on the quality of relationships between auditors and audited entities.

-2Conceptual Model of the Research

The conceptual model of this research includes three main variables: artificial intelligence, auditors' technological knowledge, and internal audit quality. In this model, AI as an independent variable represents the capabilities of smart technology and automated systems in internal audit processes, and it is expected that the effective use of these technologies will directly increase the quality of internal audit (H1). In addition, AI can increase the technological knowledge of auditors (H2), because the use of smart tools and algorithms requires high technological mastery and capability of auditors. On the other hand, the technological knowledge of auditors, as another independent variable, plays a vital role in improving the quality of internal audit (H3), because auditors with higher technological knowledge are able to use smart systems effectively and perform audit processes with higher accuracy and precision. This framework clarifies the direct relationships and combined effects of the variables and provides a suitable basis for scientifically testing the impact of AI and technological knowledge on internal audit quality.

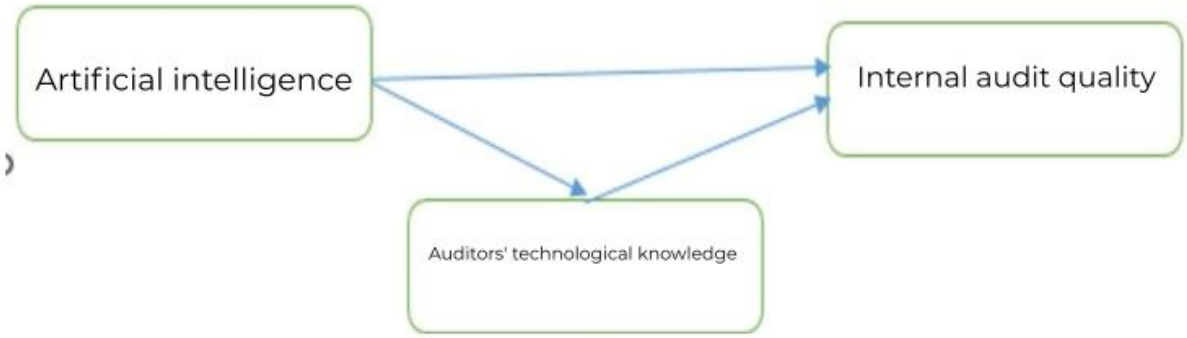

Figure (1) Conceptual research model

Based on the conceptual model of the research, the research hypotheses are presented as follows:
Hypotheses:
H1Artificial intelligence positively and significantly affects the quality of internal audit in Iranian organizations.
H2Artificial intelligence positively and significantly affects the technological knowledge of auditors in Iranian organizations.
H3Technological knowledge of auditors positively and significantly affects the quality of internal audit in Iranian organizations.
-3Research methodology
The present research method is a combination of the library method and the survey method. In the library phase, the necessary data were collected through the study and analysis of sources including domestic and foreign books and articles, related theses, reliable databases, and statistical reports to develop a theoretical framework and research background. In the field phase, a standard questionnaire was used to collect primary data to test the hypotheses. For data analysis, descriptive statistics are used to classify and describe the characteristics of the statistical population, and inferential statistics including correlation analysis, structural equation modeling (SEM), and path analysis are used to examine the relationships between variables and test the conceptual model of the research.
-3-1Statistical population, sampling method, and sample size
The statistical population of the study includes all internal auditors working in Iranian organizations and companies who have at least one year of experience in internal auditing and are familiar with modern tools and technologies in auditing processes. According to domestic research studies, the number of qualified auditors is estimated to be between 260 and 304 people. The sample selection was carried out using a stratified random sampling method, so that the statistical population was divided into different classes based on the type of organization (private, government, and public institutions) and then samples were randomly selected from each class to ensure representation of all organizational levels and types of companies. The required sample size was determined based on the Krejci and Morgan table with a confidence level of 95% and a sampling error of 5% and was calculated to be equivalent to 184 people; considering an additional 20% to compensate for incomplete responses, the final number of distributed questionnaires was 220 questionnaires to perform statistical analyses with appropriate accuracy and generalizability. In the end, we obtained 207 correct questionnaires.
-2-3Questionnaire
A. Demographic questions: These questions were added to the questionnaire by the researcher. In general questions, an attempt was made to collect general and demographic information about the respondents. This section includes 4 questions.
B. Specialized questions: In this study, a standard questionnaire was designed to measure the three main variables of the study, including “Artificial Intelligence in Auditing”, “Technological Knowledge of Auditors”, and “Quality of Internal Audit”. The “Artificial Intelligence in Auditing” variable includes four main indicators, which are respectively: analyzing audit data with artificial intelligence, identifying risk and fraud with artificial intelligence, improving the efficiency and speed of the audit process, and accepting artificial intelligence in audit processes. The number of questions related to each indicator was determined between two and three (Almaqtari & Abdullah, 2024; Bracci et al., 2025). The variable “Auditors’ technological knowledge” includes three key indicators, including mastery of audit software, ability to use modern technologies in auditing, and data analysis skills and use of analytical tools, each indicator being measured with three questions (Almaqtari, 2024). Also, the variable “internal audit quality” is assessed with three indicators of the effectiveness of internal audit processes, accuracy and veracity of internal audit reports, and efficiency and improvement of internal audit processes, and three questions are designed for each indicator (Ananda et al., 2024). Designing a questionnaire based on indicators and questions extracted from reputable articles and in compliance with scientific standards allows for accurate and comprehensive measurement of the effect of artificial intelligence and auditors’ technological knowledge on the quality of internal audit in Iranian organizations.

Table (1) Research variables

Source	Number of questions	Indicators	Research variable
Almaqtari, F. A., & Abdullah., 2024	3	Audit data analysis with artificial intelligence	Artificial Intelligence in Auditing
Almaqtari, F. A., & Abdullah., 2024	2	Identifying risk and fraud with artificial intelligence	
Almaqtari, F. A., & Abdullah., 2024	2	Improving the efficiency and speed of the audit process	
Bracci et al., 2025	2	Adopting artificial intelligence in audit processes	
Almaqtari, 2024	3	Mastery of audit software	Auditors' technological knowledge
Almaqtari, 2024	3	Ability to use modern technologies in auditing	
Almaqtari, 2024	3	Data analysis skills and using analytical tools	
Ananda et al., 2024	3	Effectiveness of internal audit processes	Internal audit quality
Ananda et al., 2024	3	Accuracy and validity of internal audit reports	
Ananda et al., 2024	3	Efficiency and performance improvement of internal audit processes	

-**4**Results of the research findings

In the first step, the reliability of the research questionnaire was measured using Cronbach's alpha, and the results indicated that it had the desired reliability. Next, in order to examine the naturalness of the data distribution, the Kolmogorov-Smirnov test was used, and its result confirmed the normality of the data. Finally, the correlation and regression methods as well as structural equation modeling (SEM) were used to test the research hypotheses. In terms of methodology, this research is classified as a correlational study based on the analysis of covariance matrix.

-1-4Examination of the reliability of the questionnaire

In this research, the reliability of the questionnaire and the questions related to each of the components was examined using the internal consistency method of Cronbach's alpha index, initially by distributing 30 questionnaires as a sample. The analyses performed indicated that the Cronbach's alpha for all the questionnaire questions was greater than 0.7, which confirms the acceptability of the questionnaire questions.

Table (2) Cronbach's alpha

Stability Status	Cronbach's alpha coefficient (α)	Number of questions	Number of indicators	**Research variable**
Stable	0,87	9	4	**Artificial intelligence in auditing**
Stable	0.85	9	3	**Auditors' technological knowledge**
Stable	0.89	9	3	**Internal audit quality**
Stable	0.90	27	10	**Total questionnaire**

-2-4Results obtained from descriptive statistics

The demographic information of the participants including gender, age, educational degree, work experience and type of organization where they work was collected. The gender distribution showed that 65% of the respondents were male and 35% were female. In terms of age group, 40% were between 30 and 39 years old, 35% between 40 and 49 years old and 25% over 50 years old. In terms of educational degree, 50% had a bachelor's degree, 40% a master's degree and 10% a doctorate. Also, in terms of work experience, 30% had less than 5 years, 45% between 5 and 10 years old and 25% had more than 10 years of experience. The distribution of respondents based on the type of organization where they work showed that 40% worked in government organizations, 35% in private companies and 25% in public institutions. This demographic information shows that the selected sample was a

suitable representative of the statistical population and the statistical analyses of the study can be generalized to the entire statistical population. Based on the information obtained from the first part of the questionnaire, general questions, the people who responded to the questionnaires in this study have demographic characteristics as shown in the table below:

Table (3) Demographic information of the study

Percentage (%)	Frequency (people)	Classification	Variable
65.2	135	Male	Gender
34.8	72	Female	
40.1	83	30–39 years	Age
34.8	72	40–49 years	
25.1	52	50years and over	
50.2	104	Bachelor's Degree	Educational qualification
40.1	83	Master's Degree	
9.7	20	Doctorate	
30.0	62	Less than 5 years	Work history
44.9	93	5 to 10 years	
25.1	52	More than 10 years	
40.1	83	Government	Organization type
34.8	72	Private	
25.1	52	Public Institutions	

-3-4Measuring the normality of the distribution of variables

Before performing parametric statistical analyses, it is essential to check the normality of the distribution of variables. For this purpose, the skewness coefficient, the elongation coefficient, and the Shapiro-Wilk test have been used. These indicators examine the data distribution in terms of symmetry and centrality and determine whether parametric analyses such as correlation and regression are reliable or not.

Table (4) Results of normality test for research variables

Result of being normal	Sig value	Shapiro-Wilk (W)	Elongation coefficient	Skewness coefficient	Research variable
Normal	0.12	0.985	0.85	-0.30	Artificial intelligence in auditing
Normal	0.15	0.983	1.00	-0.25	Auditors' technological knowledge
Normal	0.18	0.981	0.95	-0.32	Internal audit quality

Based on the above table, all variables have skewness and kurtosis values within ±2 and the results of the Shapiro-Wilk test with Sig > 0.05 indicate that there is no significant difference from the normal distribution. Therefore, it can be concluded that the data are suitable for parametric analyses and the research hypotheses will be tested using methods such as Pearson correlation and linear regression. This review ensures the validity and reliability of the statistical analyses of the research.

-4-4 Description of the variables under study

For a detailed analysis of the research data, descriptive statistics of the research variables including artificial intelligence in auditing, auditors' technological knowledge and internal audit quality are first presented. These statistics include the mean, standard deviation, minimum and maximum values and provide an overview of the respondents' status and data dispersion. Presenting these statistics allows the researcher to have a basic understanding of the data distribution and the degree of concentration or dispersion of the responses and provides a basis for conducting more advanced statistical analyses.

Table (5) Descriptive indices of research variables

Maximum	Minimum	Standard deviation	Average	Research variable

5.0	2.5	0.54	3.98	**Artificial intelligence in auditing**
5.0	2.8	0.59	4.05	**Auditors' technological knowledge**
5.0	2.6	0.61	3.95	**Internal audit quality**

Based on the above table, it can be seen that the average of all three variables is higher than 3.9, indicating a desirable level of artificial intelligence, technological knowledge, and internal audit quality in the sample population. Also, the standard deviation values are less than 1, which indicates a relatively low dispersion of the data and homogeneity of the responses. These results provide a background for subsequent analyses such as hypothesis testing and regression and ensure that the data are suitable for parametric analyses.

-5-4Standardized factor loading coefficients and t-significance value

In order to evaluate the convergent validity and fit of the measurement model of the research variables, standardized factor loadings, t-statistic values, and model fit indices were examined for each of the main constructs. Examining these indices allows the degree of compliance of the collected data with the theoretical structure of the research to be measured. In this regard, the results of confirmatory factor analysis are reported in the table below.

Table (6) Standardized load factor value and t-statistic

Model fit indices	**Meaningful Result**	**Standardized factor loading**	**Standardized factor loading**	**Indicators**	Research variable
X²/df=2.15 ،GFI=.٠92 ، CFI=.٠95 ،TLI=.٠94 ، RMSEA=٠.٠55	Meaningful	0.72 – 0.80	0.72 – 0.80	Analysis of audit data with artificial intelligence (3 items)	Artificial Intelligence in Auditing
	Meaningful	0.68 – 0.76	0.68 – 0.76	Identification of risk and fraud with artificial intelligence (2 items)	
	Meaningful	0.74 – 0.82	0.74 – 0.82	Improvement of efficiency and speed of the audit process (2 items)	
	Meaningful	0.70 – 0.79	0.70 – 0.79	Adoption of artificial intelligence in audit processes (2 items)	
X²/df=2.08 ،GFI=0.93 ، CFI=0.96 ،TLI=0.95 ، RMSEA=0.052	Meaningful	0.73 – 0.81	0.73 – 0.81	Mastery of audit software (3 items)	Auditors' technological knowledge
	Meaningful	0.71 – 0.79	0.71 – 0.79	Ability to use modern technologies (3 items)	
	Meaningful	0.75 – 0.83	0.75 – 0.83	Data analysis skills and analytical tools (3 items)	
X²/df=2.21 ،GFI=0.94 ، CFI=0.95 ،TLI=0.94 ، RMSEA=0.057	Meaningful	0.76 – 0.84	0.76 – 0.84	Effectiveness of internal audit processes (3 items)	Internal audit quality
	Meaningful	0.70 – 0.78	0.70 – 0.78	Accuracy and correctness of audit reports (3 items)	
	Meaningful Result	0.72 – 0.80	0.72 – 0.80	Efficiency and performance improvement of audit processes (3 items)	

The results of the table show that all factor loadings are above the threshold value of 0.6 and all t-values are greater than 1.96, indicating the significance of the relationships between the indicators and latent variables. In addition, the fit indices (X^2/df, GFI, CFI, TLI and RMSEA) for each variable are within the acceptable range and all exceed the minimum standards recommended in the research literature. Accordingly, it can be concluded that the measurement model of the research variables has a good fit and sufficient validity and the collected data have the ability to explain the desired theoretical concepts.

-4-6 Pearson correlation coefficients between research variables

In order to examine the relationship between the main research variables, the Pearson correlation coefficient test was used. This test has the ability to measure the intensity and direction of the linear relationship between variables and is one of the most widely used statistical methods in social and behavioral science research. In the present study, the correlation between artificial intelligence in auditing, auditors' technological knowledge and internal audit quality was examined, the results of which are presented in the table below**.**

Table (7) Correlation matrix between variables

Internal audit quality	Auditors' technological knowledge	Artificial Intelligence in Auditing	**Variables**
0.72**	0.68**	1.00	**Artificial Intelligence in Auditing**
0.75**	1.00	0.68**	**Auditors' Technological Knowledge**
1.00	0.75**	0.72**	**Internal Audit Quality**

The findings of the table show that there are positive and significant relationships between all research variables. The correlation between artificial intelligence in auditing and internal audit quality (0.72) is significant at the 0.01 level, indicating that the use of artificial intelligence-based technologies can lead to improved quality of internal audit processes. Also, a strong correlation was observed between auditors' technological knowledge and internal audit quality (0.75), which indicates the determining role of auditors' technological skills and abilities in improving internal audit quality. Finally, the positive and significant relationship between artificial intelligence and auditors' technological knowledge (0.68) confirms that the adoption and application of new technologies is directly related to the development of auditors' technological skills. These results are in line with the research literature and previous studies and provide a basis for testing the hypotheses of the conceptual model.

-7-4Structural Equation Modeling

The hypotheses of this study were examined using the t-statistic and standardized regression beta coefficients (path coefficients). The t-statistic indicates the statistical significance of the hypotheses, while the standardized path coefficients indicate the direction and intensity of the effects of the variables on each other. These coefficients should be analyzed in terms of magnitude, sign, and significance level in order to gain a complete understanding of the relationships between the research variables.

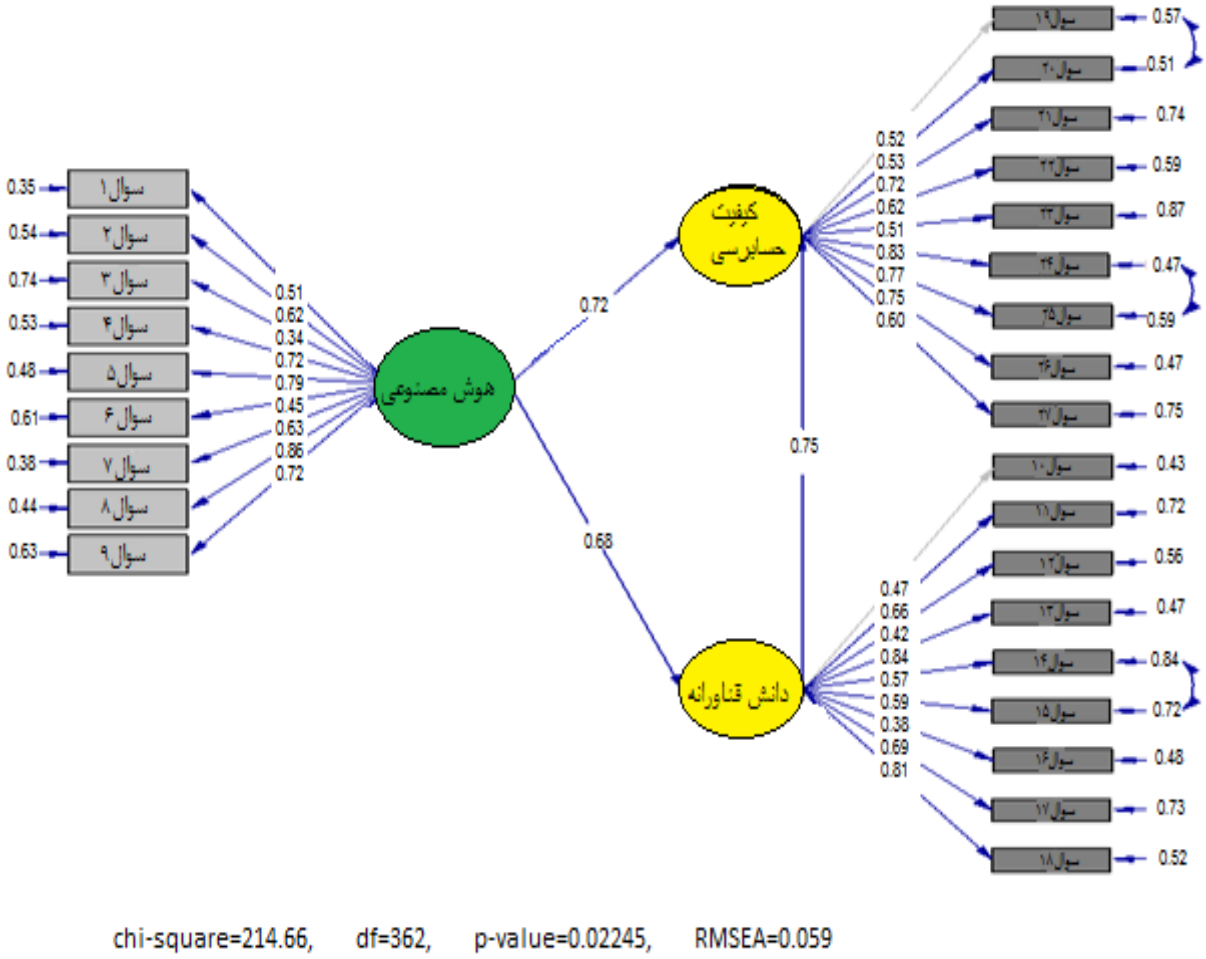

Figure (2) Standardized path coefficients between the main variables studied

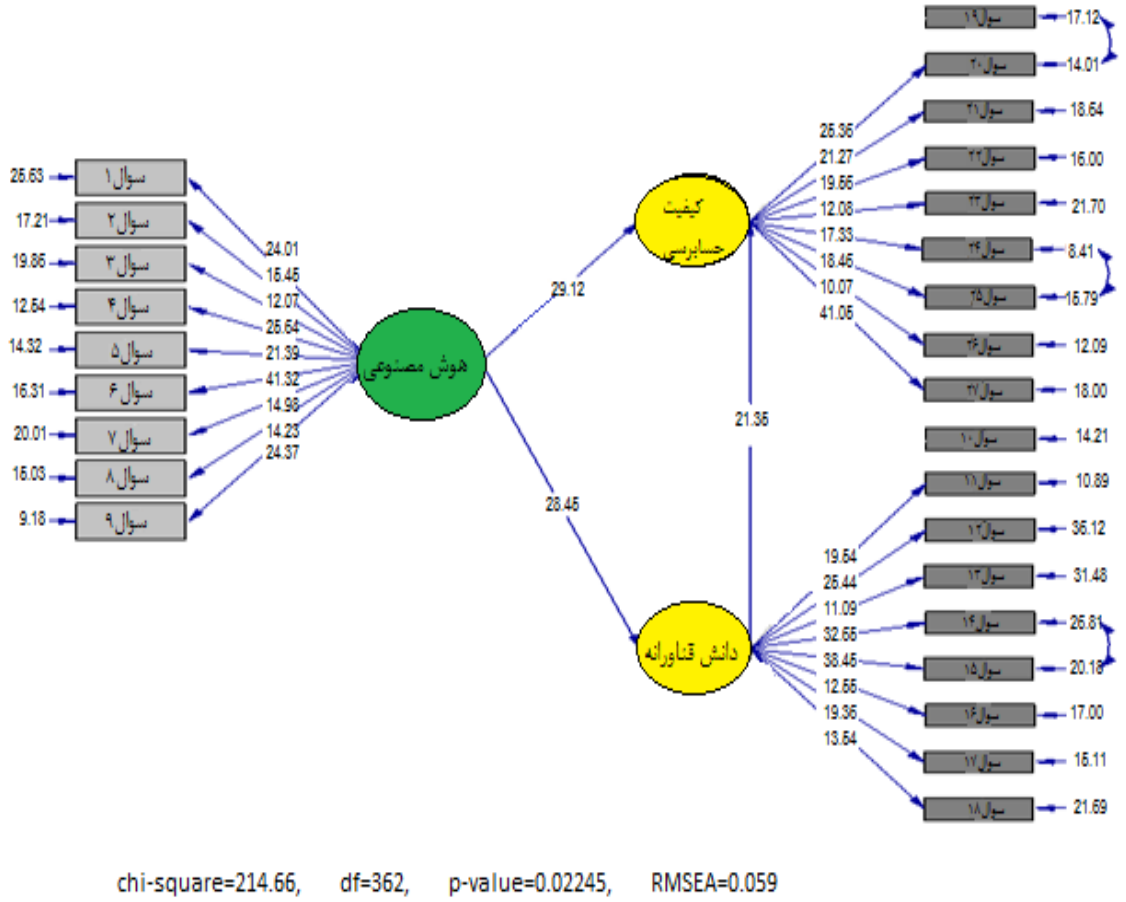

Figure (3)

T-statistic value between the main variables studied

In order to examine the adequacy and fit of the conceptual model of the research, a set of well-known indices in structural equation modeling were used. These indices include the ratio of chi-square to degrees of freedom (χ^2/df), goodness-of-fit index (GFI), adjusted fit index (AGFI), comparative fit index (CFI), smoothed fit index (NFI), unsmoothed fit index (NNFI), and root mean square error of estimation (RMSEA), each of which shows different aspects of the fit of the empirical data to the theoretical model of the research. In the methodological literature, compliance with the permissible limits of these indices is considered a prerequisite for confirming the validity of the measurement and structural model. The values obtained for the aforementioned indices in the present study are presented in the table below.

Table (8) Model fit indices

The obtained value	Permissible limit	Index	Index name
2.15	Less than 3	χ^2/df	**Ratio of Chi-square to degrees of freedom**
0.92	Above 0.9	GFI	**Goodness of fit index**
0.059	Less than 0.08	RMSEA	**Root mean square error of estimation**
0.94	Above 0.9	CFI	**Adaptive fit index**
0.90	Above 0.9	AGFI	**Adjusted fit index**
0.91	Above 0.9	NFI	**Softened fit index**
0.93	Above 0.9	NNFI	**Unsoftened fit index**

Examination of the results in the table shows that all the model fit indices are within acceptable and even desirable ranges. The value of the chi-square ratio to the degree of freedom (2.15) is less than 3, which indicates the adequacy of the overall model fit. The goodness-of-fit indices (GFI=0.92), adaptive fit

(CFI=0.94), adjusted fit (AGFI=0.90), smoothed fit (NFI=0.91), and unsmoothed fit (NNFI=0.93) all obtained values higher than 0.9, indicating a good fit of the theoretical model with the experimental data. In addition, the RMSEA value was 0.059, which is less than the threshold of 0.08 and, as a sensitive index, indicates a good fit of the model at a low error level. Therefore, it can be concluded that the conceptual model of the research has a good fit and has the necessary reliability to test the research hypotheses. In order to test the research hypotheses and examine the relationships between the variables of artificial intelligence, auditors' technological knowledge and internal audit quality, structural equation modeling (SEM) was used. To determine the significance of the relationships, the standard path coefficients (β) and the corresponding t-statistic were analyzed at a 95% confidence level ($p \geq 0.05$). Also, valid indices were used to measure the overall fit of the research model. The following table presents a summary of the findings from the hypothesis testing and model fit indices.

Table (10) Summary of hypothesis testing

Result	Significance level (p)	t-value	Path coefficient (β)	**Hypothesis Statement**	Hypothesis number
Confirmed	0.001	29.12	0.72	Positive Impact of Artificial Intelligence on Internal Audit Quality	H1
Confirmed	0.001	28.45	0.68	Positive Impact of Artificial Intelligence on Auditors' Technological Knowledge	H2
Confirmed	0.001	21.35	0.75	Positive Impact of Technological Knowledge on Internal Audit Quality	H3
Result			> 0.33	0.63	Coefficient of determination (R^2)

All hypotheses of this study were confirmed. Accordingly, the standard path coefficient for the first hypothesis is 0.72 and the t value is 29.12, which is significant at the 99.9% confidence level ($p = 0.001$). This result indicates that artificial intelligence has a positive, strong, and direct effect on improving the quality of internal auditing. Also, the results of the second hypothesis ($\beta = 0.68$, $t = 28.45$, $p = 0.001$) indicate that artificial intelligence plays a significant role in developing and strengthening the technological knowledge of auditors. Finally, the third hypothesis was also confirmed with a path coefficient of 0.75 and strong significance ($t = 21.35$). In addition, the coefficient of determination (R^2) of 0.63 indicates that the independent variables of the study are able to explain 63% of the changes in the dependent variable.

-5Discussion, Conclusions, and Suggestions

This study aims to investigate the impact of artificial intelligence and auditors' technological knowledge on the quality of internal auditing, in the context of Iranian organizations and on a community of internal auditors familiar with new technologies; because, given the global digital developments and the movement of Iranian organizations towards implementing complex systems, examining this relationship is considered a strategic need and a practical necessity to improve the accuracy, efficiency, and reliability of internal auditing processes in the country and fills the existing research gap in this field. According to the results of the first hypothesis of the study, which indicates a positive and significant effect of artificial intelligence on internal audit quality (with a path coefficient of 0.72 and a significance level of 0.001), and also in line with the findings of previous studies (such as Mirzaei et al., 1401; and Adnan Hamoud et al., 2025), it can be concluded that artificial intelligence acts as a fundamental change in the internal audit profession and significantly improves the final quality of the audit by increasing the accuracy, speed, and efficiency of review processes, advanced data analysis, and fraud detection. This finding is particularly important in the context of Iranian organizations because, despite the cultural and technological challenges in accepting these tools, its effectiveness in improving audit quality has been proven. Accordingly, it is suggested that Iranian organizations invest in technological infrastructure related to artificial intelligence and develop documented training programs to empower internal auditors in using this technology, thereby providing a platform for the benefits of artificial intelligence to be fully utilized in improving the quality of internal auditing. Considering the results of the second hypothesis of the study, which indicates a positive and significant effect of artificial intelligence on auditors' technological knowledge (with a path coefficient of 0.68 and a significance level of 0.001), and also in line with the findings of previous studies (such as Mashayekhi and Amrolahi, 2025; and La, 2025), it can be

concluded that artificial intelligence is not only an auxiliary tool, but also a strong driver for improving internal auditors' technological knowledge and skills. The use of this technology forces auditors to update their knowledge in areas such as data analysis, programming, and understanding intelligent systems, which ultimately leads to increased professionalism and efficiency. This finding is especially important in the dynamic auditing environment of Iran, as it shows that investing in artificial intelligence can reduce the existing skills gap and prepare auditors to face the challenges of the digital age. Accordingly, it is suggested that auditing organizations and institutions should provide a platform for continuous learning for auditors by developing artificial intelligence infrastructures and designing training courses tailored to technological needs, so that they can improve their knowledge in line with technological developments and play a more effective role in improving audit quality. According to the results of the third hypothesis of the study, which indicates a positive and significant effect of auditors' technological knowledge on internal audit quality (with a path coefficient of 0.75 and a significance level of 0.001), and is also in line with the findings of previous studies (Gorjani, 1403; Elkasone and Benyata, 2024), it can be concluded that technological knowledge acts as a pivotal and facilitating factor in improving the quality of internal audit. This knowledge enables auditors to use modern technologies to perform more accurate analyses, process complex data, and establish more effective communication with audited entities, which ultimately leads to increased accuracy, depth of investigation, and effectiveness of audit reports. This finding is of particular importance in the context of Iranian organizations, as it shows that investing in developing auditors' technological capabilities can, as a key strategy, improve not only the quality of audit processes, but also the quality of their professional interactions. Accordingly, it is suggested that organizations develop internal auditors' technological knowledge continuously by developing documented training programs and operational workshops and by creating the necessary technological platforms, enable the application of this knowledge in all stages of the audit, in order to achieve a significant improvement in the quality of internal audit. Considering the coefficient of determination (R^2) equal to 0.63, which is significantly higher than the standard criterion of 0.33, it can be concluded that the research model has a very high explanatory power. This value shows that about 63 percent of the changes in the dependent variable (internal audit quality) are explained by the independent variables of the model (artificial intelligence and auditors' technological knowledge). This result indicates that the presented model has a favorable predictive power and is able to significantly explain the variance of internal audit quality.

Resources

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