



The Modern Trends in Internal Auditing and Their Role in Enhancing the Efficiency and Effectiveness of Performance in Governmental Units

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Abstract

This research aims to explore and analyze the modern trends of internal auditors in the Iraqi public sector and their role in enhancing the efficiency and effectiveness of performance, with the objective of developing their professional practices. It examines how recent advancements, such as advanced technology and risk-based practices, improve the efficiency and effectiveness of internal auditing within the governmental environment. The study provides data-supported recommendations for policymakers and managers in governmental units to enhance transparency and efficiency through the adoption of best global practices. To achieve the research objective, the researcher designed a questionnaire containing (47) variables distributed across three axes. The first axis (fundamental trends of internal auditing) included (22) items covering aspects of this axis. The second axis (the contemporary role of internal auditing in risk management) comprised (3) main items and (15) sub-items covering all variables of this axis. The third axis (the reflection of internal auditing in improving the efficiency and effectiveness of the economic unit) included (10) items. The study reached several conclusions, the most significant being that internal auditing according to modern trends is not limited only to assessing compliance and financial control, but its role extends to vital aspects such as risk classification, risk management evaluation, and fraud and fraud prevention. Internal auditing is a crucial tool not only in control and compliance but also in enhancing efficiency and effectiveness within institutions.

Introduction

In light of the rapid developments witnessed by the contemporary business environment, economic entities have found themselves compelled to expand their operations and transactions. This expansion has led to an increase in various risks, most notably internal control risks. These risks arise either from a lack of full awareness of internal control frameworks within institutions or from their imperfect implementation due to flaws in the internal control system. Consequently, there has emerged an urgent need to develop and adopt new tools and methodologies that assist in accurately assessing and estimating these risks, in order to enable economic entities to address any deviations that may arise. Internal auditing, as an independent activity with an intrinsic character, emerges as an effective means in this context for measuring the efficiency and effectiveness of various operations and activities within these entities. However, traditional methods of internal auditing have suffered from the burden of excessive costs and excessive time consumption, prompting the emergence of new approaches that focus more on the aspects most susceptible to risks in economic entities. These risk-based approaches aim to enhance auditing and improve internal control systems more effectively.

Chapter One: Research Methodology

First: Research Problem

Despite the attention paid by many global organizations involved in auditing and control in the public sector, represented by the International Organization of Supreme Audit Institutions (INTOSAI), the Institute of Internal Auditors (IIA), the International Federation of Accountants (IFAC), and many other global organizations, such attention is not reflected in Arab countries, particularly in Iraq. This affects the performance and work of the internal auditor. The research problem can be articulated through the following question: (1) Does the nature of internal auditing in Iraqi economic units meet the requirements for improving the efficiency and effectiveness of government units? (2) To what extent does the internal auditor in the Iraqi public sector adhere to international standards of internal auditing?

Second: Importance of the Research

The importance of researching internal auditing, especially the modern trends in this field within government units, includes: (1) Enabling internal auditors and policymakers to understand the current challenges and developments in the field of internal auditing, including regulatory changes, technological developments, and changes in international standards; (2) Assessing the effectiveness of current internal auditing methods and how they can be improved through studying the results and other practices, as government units can improve their processes and increase their efficiency; (3) In the face of rapid technological developments, internal auditing needs to research how to optimally exploit these technologies, such as artificial intelligence and big data analytics, to enhance auditing and control processes; (4) Internal auditing plays a pivotal role in ensuring the success and sustainability of any institution, as it is the only independent entity that can provide reasonable assurance to the board of directors that the institution is moving in the right direction to achieve the strategic objectives set by the board.

Third: Research Objective

The research aims to identify and analyze the modern trends of internal auditors in the Iraqi public sector and their role in improving the efficiency and effectiveness of performance in order to develop their professional practices by committing to the following: (1) Examining how modern developments, such as advanced technology and risk-based practices, improve the efficiency and effectiveness of internal auditing in the governmental environment; (2) Analyzing the practical impact of these trends on the operational efficiency of government units, including assessing how these trends improve auditing and internal control processes; (3) Identifying challenges faced by government units in implementing modern trends of internal auditing and suggesting practical solutions to overcome these challenges; (4) Providing data-supported recommendations to policymakers and managers in government units to enhance transparency and efficiency through the use of best global practices; (5) Seeking to explore opportunities for innovation and improvement of existing practices in internal auditing, which contributes to enhancing overall performance and effective response to environmental and technological changes.

Fourth: Research Hypothesis

The research hypothesis can be formulated to find a statistically significant correlation between modern trends in internal auditing, including adherence to internal auditing standards and actual measures towards auditing risks, in improving the efficiency and effectiveness of government units. The following are the subsidiary hypotheses:

The first subsidiary hypothesis, the presence of a statistically significant impact in the fundamental trends of internal auditing.

The second subsidiary hypothesis, the presence of a statistically significant impact of the contemporary role of internal auditing in risk management.

The third subsidiary hypothesis, the presence of a statistically significant impact of the reflection of internal auditing in improving the efficiency and effectiveness of the economic unit.

Chapter Two: Modern Trends in Internal Auditing

The modern concept of internal auditing extends beyond merely checking compliance with financial policies and procedures of the economic unit. It encompasses a comprehensive evaluation of the effectiveness of risk management, control, and corporate governance. Modern internal auditing is considered a strategic function that helps the economic unit achieve its objectives effectively and efficiently by providing independent and objective reports on financial and operational processes.

First: The Modern Concept of Internal Auditing

Several key aspects define internal auditing in the modern concept: (1) Focus on Strategy: Internal auditing now includes assessing how risks are managed in a way that supports the strategic objectives of the organization; (2) Technology and Innovation: Utilizing modern technologies such as big data analytics and artificial intelligence to enhance the efficiency and effectiveness of auditing processes; (3) Effective Communication: Internal auditing involves effectively communicating audit findings to senior management and the board of directors, enhancing transparency and accountability; (4) Continuous Development: Internal auditors continuously work on improving their skills and knowledge to stay informed of the latest developments in the fields they operate in; (5) Focus on Risks: Modern internal auditing emphasizes identifying, assessing, and managing risks that impact the economic unit.

According to Marks (2015), the modern definition of internal auditing emphasizes its role as a consultative and objective function aimed at adding value and improving the operations of the economic unit. It assists in achieving organizational goals by applying a systematic and organized approach to evaluate and enhance the effectiveness of risk management, control, and governance processes. This definition is supported by professional bodies such as the Institute of Internal Auditors (IIA), which serves as the global benchmark for internal audit practices.

In this context, internal auditing is not limited to the review of financial records. It also encompasses the identification and assessment of risks that could impact the achievement of the organization's strategic objectives, the examination of the effectiveness of control systems in place to ensure the accuracy and reliability of financial and operational information, and the provision of recommendations to improve processes and efficiency, thereby contributing to enhancing the operational performance of the organization (Reding, 2009).

Secondly: Objectives of Internal Auditing

The objectives of internal auditing can be identified as follows (Al Emara, 2017): (1) The adequacy, reliability, and effectiveness of Accounting, administrative, and operational controls' (2) Determining the extent of the bank's compliance with policies, instructions, decisions, systems, and laws that impact its operations; (3) The internal control system ensures accurate recording of transactions and provides appropriate protection for assets; (4) Customer service is always a top priority, and this service is delivered with the utmost accuracy, speed,

and required quality to achieve customer satisfaction; (5) Reports issued from various information systems, whether financial or administrative, are sound and sufficiently reliable; (6) The risks the bank faces, whether financial, credit, operational, service delivery, computer system risks, and others, have been reduced to acceptable limits or minimized as much as possible; (7) Computer systems include control points and controls that ensure information is not tampered with and communication lines are not breached, and necessary controls for dealing with systems and devices have been established; (8) Provisions and reserves are adequate and calculated according to the directives of regulatory authorities and commonly accepted Accounting principles.

Building on the above, it can be said that the objectives of internal auditing, whether in economic units in general or in banks specifically, focus on ensuring the efficiency and effectiveness of all unit activities and ensuring accounting protection within them and minimizing the potential risks they face as much as possible.

Thirdly: International Organizations Concerned with Auditing and Internal Control in the Public Sector

There are several international organizations that play a significant role in the field of auditing and control in the public sector. Among the most prominent of these organizations are the following:

International Organization of Supreme Audit Institutions (INTOSAI)

INTOSAI is an independent organization that includes supreme audit institutions from various countries around the world. It aims to enhance international cooperation in the fields of government auditing and to improve public oversight through the exchange of knowledge and experiences.

The Institute of Internal Auditors (IIA)

The Institute of Internal Auditors is a global professional body that provides standards for the practice of internal auditing and offers training and certifications for internal auditors.

International Accounting Standards Board (IASB)

Although primarily focused on accounting standards, IASB's work also impacts the auditing field, especially regarding the application of International Financial Reporting Standards.

International Federation of Accountants (IFAC)

This global organization works to enhance professional standards in accounting and auditing. Its efforts include developing auditing and ethical standards for professionals in accounting.

Anti-Corruption Working Group (ACWG) of the G20

This group works to promote transparency and combat corruption in both the public and private sectors.

European Organization of Supreme Audit Institutions (EUROSAI)

This is a regional version of INTOSAI, focusing on enhancing auditing and financial control in European countries (Stephenson, 2017).

These organizations contribute effectively to setting the regulatory framework and international standards related to auditing and control, and they enhance the exchange of best practices globally.

Fourthly: The Modern Connection between Internal Auditing and Internal Control

Internal control shares many systems and functions such as Accounting, administrative control, risk management, human resources, legal resources, information technology, performance and quality, and security. Internal control in an organization is implemented at three or four levels. This multiplicity of actors can create difficulties which, in turn, may reduce the effectiveness of control. Thus, an organization may suffer from control by different structures that partially share the same subject, where each entity might at any given moment think another is handling a particular risk or control, without benefiting from the level of intelligence and expertise required to manage risks. Therefore, proper coordination of this group is of great importance, and each organization must establish the appropriate mechanism to achieve its objectives, culture, and vision to ensure the effectiveness of internal control (Yılmaz & Karakaya, 2020; Felício et al., 2021).

The profession of internal auditing is one of the most important elements of an effective internal control system with its various types, including directive, preventive, and corrective controls. Furthermore, the function of internal auditing is not just a part of the internal control system but also represents a focal point for it, especially after it has evolved into a globally recognized profession. Here, the role of the internal auditor is confined to testing compliance with control procedures, as well as evaluating these procedures and monitoring the availability of the elements of the internal control system, whether administrative, Accounting, or general (Ayvaz & Pehlivanli, 2010).

The connection between them (Leung et al., 2024):

Internal auditing relies heavily on internal control: (1) Control Evaluation: Internal auditors assess the effectiveness of internal controls to ensure that the implemented procedures are adequate and functioning properly; (2) Continuous Improvement: Through internal auditing, weak points in internal control can be identified and recommendations for improvement can be made; (3) Independence: Since internal auditing is conducted independently, it provides an objective assurance about the efficiency and effectiveness of internal control.

It can be said that internal control forms the foundation upon which internal auditing is built, and internal auditing helps ensure that internal controls are functioning effectively and provides suggestions for continuous improvement. Internal auditing can be seen as playing an analytical and evaluative role, where auditors review existing systems and processes and offer recommendations for improvements. Following these recommendations, the implementation phase of these improvements occurs, which is a part of internal control. In this phase, procedures and policies are modified or new ones are introduced to address the deficiencies identified during the audit (Alabdullah, 2023).

The researcher believes that internal auditing helps diagnose problems and opportunities for improvement, while internal control applies and monitors these improvements periodically and continuously. Therefore, it can be said that internal auditing and internal control complement each other in a continuous cycle of assessment and improvement.

Fifthly: The Use of Modern and Advanced Technologies in Auditing

The use of modern technologies not only leads to accuracy and speed of accomplishment but also helps to improve the quality of the audit. Internal auditing, like any other function, can be developed by relying on advanced technical methods to access information about the best and most effective applications, setting them as a goal to be achieved. During the preparation of his risk-based plan, an internal auditor follows specific steps and uses risk assessment methods to

build the annual audit plan, through identifying and measuring risks, then prioritizing them. These steps include: (1) Big Data Analysis: Using big data analysis tools enables auditors to process and analyze vast amounts of data quickly and accurately. This helps in identifying unusual patterns and potential risks with high efficiency. (2) Artificial Intelligence and Machine Learning: Artificial intelligence and machine learning can enhance auditing processes by providing technologies such as text recognition and behavior analysis to detect fraud and errors. These technologies can also be used to improve the accuracy of risk assessments and forecasts. (3) Robotic Process Automation (RPA): Automation allows auditors to improve efficiency by automating routine and repetitive tasks, enabling them to focus on more complex and significant tasks. (4) Geographic Information Systems (GIS): Geographic Information Systems can provide valuable insights into spatial data, helping in analyzing geographical patterns and distributions related to assets and risks. (5) Integrated Audit Platforms: Investing in integrated audit platforms can facilitate communication and collaboration between audit teams and other departments, enhancing coordination and the effectiveness of auditing processes.

The researcher believes that by using these tools and methods, internal auditors can more effectively build the annual audit plan by identifying, measuring, and prioritizing risks, thereby enhancing the quality and efficiency of the auditing processes.

Regarding the self-assessment of risks in internal control, it is seen (Postula et al., 2020)

Identifying the units or activities to be audited: These are placed within a schedule and can be in the form of projects, operations, branches, locations, or departments. Identifying key risks: These are the risks that the organization faces which may impede its efforts to achieve its goals. Choosing weights for measuring risk elements, because risk measurement depends on a set of tools that determine the importance and impact of each element. Setting a specific range for each risk element, for example choosing a range (1 - 7), and determining the weight of each risk element within this range, where (1) represents minimal impact and risk, while (7) represents significant and widespread impact and risk. Aggregating the risks of each audit unit, meaning gathering the risk points of each unit under audit to reach the total risk points for each unit. Ranking the units subject to audit, where a ranking is done based on the total calculated risk, then determining the levels of high, medium, and low risks, depending on the risk points. Finally, determining the annual audit plan based on the ranking achieved in the previous step, taking into account the frequency of visits and tasks of the audit staff to all high-risk units and reducing the frequency of visits to units with lower risks.

Chapter Three: Field Study on the Contribution of Internal Auditing to Enhancing the Efficiency and Effectiveness of Economic Units

The researcher, through a field study, aimed to assess the extent of internal auditing's contribution to improving the efficiency and effectiveness of the unit, using a questionnaire designed for this purpose. For data analysis, the Statistical Package for Social Sciences (SPSS) was used. The survey was distributed among a selected sample from the economic units concerned to gather their opinions on modern internal auditing trends and their role in enhancing the efficiency and effectiveness of governmental units. This section will discuss the descriptive analysis of the data obtained from the questionnaire, test the responses of the sample members, and present the study's findings.

First: Description of the Economic Units in the Study Sample

The researcher's attempt to address the topic of modern trends in internal auditing and their role in enhancing the efficiency and effectiveness of government units included a diverse group

of economic units striving to implement best practices in internal auditing to enhance transparency and accountability. In this context, the economic units within the study sample can be classified based on several criteria, such as the size of the unit, the type of services they provide, and the current level of international auditing standards implementation. The study aims to evaluate the effectiveness of internal auditing and its impact on improving the overall performance of these units, focusing on identifying areas needing improvement and proposing suitable solutions to enhance efficiency. This type of study requires collecting detailed and accurate data about the selected units, including knowledge of their internal systems, organizational structures, financial and administrative procedures, and the methods used in internal auditing.

It is worth noting that the researcher distributed (60) survey forms, all of which were retrieved completely. The researcher visited the respondents at their workplace, which required a lot of time and effort, especially after adopting the method of personal interviews with most of the respondents to clarify the sections of the form. Table (1) provides details of the distribution of the forms.

Table 1. Distribution of Questionnaire Forms Among the Respondents in the Sampled Units

Organization	Sample Population	Number	Percentage (%)
College of Administration and Economics, University of B'adad	7	7	6.1
College of Administration and Economics, Al-Mustansiriyah University	7	7	6.1
College of Administration and Economics, University of Karbala	9	9	10.2
Institute of Administration, Baghdad - Al-Rusafa	9	9	10.2
General Directorate of Education, Baghdad – Al-Rusafa	9	9	12.3
General Company for Electrical and Electronic Industries	9	9	16.3
General Company for Food Products	10	10	18.4
Total	60	60	100

Thirdly: Analytical Method Used and Analysis of Sample Responses

The responses of the sample, consisting of 60 specialists, will be analyzed to express their opinions about the modern trends of internal auditing and its role in enhancing the efficiency and effectiveness of government units through forty-seven variables distributed across three axes. The first axis (Basic Trends of Internal Auditing) included (22) items covering aspects of this axis. The second axis (Contemporary Role of Internal Auditing in Risk Management) comprised (3) main items and (15) sub-items, encompassing all variables of this axis. The third axis (Reflection of Internal Auditing on Enhancing the Efficiency and Effectiveness of the Economic Unit) included (10) items. The following describes the statistical analysis method, the tools used, and the analysis of the sample responses, where the (SPSS Amos) software was used for data analysis, and (Excel) was used for graphical presentations.

Additionally, the methods and tools used in measurement and analysis are:

Standard Deviation (S)

One of the most important descriptive measures is the mean, which is a measure of central tendency, and the standard deviation (Std. Deviation), which is a measure of dispersion. The

mean measures the balance point in a dataset, while the standard deviation measures the extent of value dispersion around the mean, either above or below it (De Ridder et al., 2022).

The standard deviation is the square root of the variance and is measured by the following relationship:

$$S = \sqrt{\frac{\sum x_i^2 - \frac{(\sum x_i)^2}{n}}{n-1}} \quad (1)$$

Likert Scale 5-Point

The Likert scale is a method used to measure behaviors and preferences and is commonly employed in psychological assessments. It was developed by the psychologist Rensis Likert. This scale is widely used in surveys, particularly in the field of statistics. It relies on responses that indicate the degree of agreement or disagreement with a given statement. The following table illustrates how to interpret the values of the mean scores.

Table 2. Method for Interpreting Mean Values

Mean Value	Interpretation
1.00 - 1.80	Strongly Disagree
1.81 - 2.60	Disagree
2.61 - 3.40	Somewhat Agree
3.41 - 4.20	Agree
4.21 - 5.00	Strongly Agree

Cronbach's Alpha Test

Reliability and validity are among the most important topics that interest researchers due to their significant impact on the importance of research results and the ability to generalize these results. Reliability and validity are related to the tools used in the research and their ability to measure what is intended to be measured, as well as the accuracy of the readings taken from these tools.

To verify the validity and reliability of the study's measures, the researcher used the (Alpha Correlation Coefficient r), sometimes called (Cronbach's Alpha), which is denoted as follows:

$$r = \left(\frac{k}{k-1} \right) \left[1 - \frac{\sum_{i=1}^k S_i^2}{S_T^2} \right] \quad (2)$$

Where:

r : Alpha correlation coefficient (Cronbach's Alpha)

k : Number of items in the scale

$\sum_{i=1}^k S_i^2$: Sum of variances of the scale items

S_T^2 : Total variance

Coefficient of Variation (C.V)

The coefficient of variation is one of the important relative measures of dispersion, characterized by its result being free from or devoid of the measurement unit. This allows for comparisons whether the groups are similar or differ in their units of measurement. The formula for calculating the coefficient of variation is:

$$C.V = \frac{S}{\bar{x}} \times 100\% \quad (3)$$

Where:

S: represents the standard deviation

\bar{x} is the mean of the group values

Cronbach's Alpha for Measuring the Validity and Reliability of the Questionnaire

First, we present the results of Cronbach's Alpha for the validity and reliability of the questionnaire as follows:

Table 3. Cronbach's Alpha Values for Study Variables by Axes

Axis	Cronbach's Alpha	Validity
Basic Trends of Internal Auditing	0.821	0.906
Contemporary Role of Internal Auditing in Risk Management	0.811	0.901
Reflection of Internal Auditing on Enhancing the Efficiency and Effectiveness of the Economic Unit	0.819	0.905

* Validity = the positive square root of Cronbach's Alpha coefficient

Fourth: Analysis of Survey Results and Responses from the Research Sample

The statistical results from the data provided in the survey will be analyzed using a variety of statistical methods aimed at testing the validity of the research hypotheses, as well as evaluating the modern trends of internal auditing and their role in enhancing the efficiency and effectiveness of government units. The statistical analysis will cover the survey's three axes.

First Axis: Basic Trends of Internal Auditing

The responses revealed the mean, standard deviation, coefficient of variation, and the relative weight and agreement level for the overall first axis (Basic Trends of Internal Auditing). The mean for this axis was (4.15), the standard deviation was (0.89), the coefficient of variation was (0.20), and the relative weight was (0.82), with an agreement level of (Agree).

The responses of the sample members to the axis are as in Table (4) below, which provides a clear picture of the variables of the first axis.

Table 4. Weighted Mean, Standard Deviation, Coefficient of Variation, Relative Importance for the Axis of Basic Trends of Internal Auditing

Code	Variable	Mean	Standard Deviation	Coefficient of Variation	Relative Weight	Agreement Level
X ₁	The organization has reliable and documented internal policies and procedures.	4.02	0.998	0.24	0.80	Agree
X ₂	The company follows international or local internal auditing standards.	3.98	0.911	0.22	0.80	Agree
X ₃	The process of defining objectives and guidelines for the	3.97	0.974	0.24	0.80	Agree

	internal audit program is often conducted in the organization.					
X ₄	The organization uses innovative auditing methods or advanced technology in auditing processes.	4.07	1.023	0.25	0.81	Agree
X ₅	The internal auditing department is independent and separate from other departments in the organization.	4.10	0.969	0.17	0.82	Agree
X ₆	The internal audit department evaluates and analyzes based on official documents.	4.02	1.00	0.24	0.80	Agree
X ₇	The internal audit department evaluates any new service the organization plans to offer by identifying the risks and procedures involved.	4.28	0.825	0.19	0.86	Strongly Agree
X ₈	Internal auditing contributes to proposing measures to mitigate risks.	4.18	0.813	0.19	0.84	Agree
X ₉	The internal auditor maintains neutrality and integrity when performing tasks.	4.15	0.880	0.21	0.83	Agree
X ₁₀	The internal audit process requires a professional person from within the organization.	4.05	0.999	0.24	0.81	Agree
X ₁₁	The performance of the internal auditor is objective, which can be verified by an external auditor.	4.22	0.885	0.21	0.84	Strongly Agree
X ₁₂	The internal auditor coordinates efforts with all parties involved in risk management.	4.22	0.885	0.21	0.84	Strongly Agree
X ₁₃	Internal audit activities help to establish effective control mechanisms.	4.17	0.960	0.23	0.83	Agree
X ₁₄	Internal audit activities include monitoring and evaluating the effectiveness of the organization's risk management system.	4.13	0.982	0.24	0.82	Agree
X ₁₅	The internal auditor contributes to improving the internal control system.	4.08	0.926	0.22	0.81	Agree
X ₁₆	Internal audit recommendations are reliable and supported by evidence.	4.08	0.809	0.16	0.81	Agree
X ₁₇	Internal audit records are periodically reviewed to ensure compliance with standards and procedures.	4.15	0.880	0.21	0.83	Agree
X ₁₈	Regular reports on internal audit results are provided to relevant external parties, such as the	4.43	0.673	0.15	0.89	Strongly Agree

	board of directors or regulatory bodies.					
X ₁₉	The operations conducted by the internal audit department are consistent with best practices and applicable legal regulations.	4.33	0.601	0.14	0.87	Strongly Agree
X ₂₀	Internal audit reports are regularly and timely provided to executive management.	4.32	0.833	0.19	0.86	Strongly Agree
X ₂₁	Mechanisms for collecting feedback and suggestions from employees on internal audit processes and improvements are provided.	4.13	0.999	0.24	0.83	Agree
X ₂₂	The organization provides ongoing training and development for the internal audit team.	4.27	0.936	0.22	0.85	Strongly Agree
	Overall Mean for the Axis	4.15	0.89	0.20	0.82	Agree

Table 4 shows that this axis included twenty-two variables focusing on the basic trends of internal auditing within their organizations. By reviewing the weighted means, it is evident that all were above the hypothesized mean (3), with the highest variable completely agreeing with the axis's direction (X₁₈), which concerned providing regular reports on internal audit results to relevant external parties, such as boards of directors or regulatory bodies. This variable had a weighted mean of 4.43, a complete agreement rate of 89%, and a coefficient of variation of 0.15.

The second variable in complete agreement (X₁₉), which states that the operations conducted by the internal audit department are consistent with the best legislative practices and applicable legal regulations, had a weighted mean of 4.33 and a lower coefficient of variation of 0.14 due to the lower standard deviation, with a complete agreement rate of 87%.

Other variables that completely agreed with the axis's title were X₂₀ (Internal audit reports are regularly and timely provided to executive management), X₇ (The internal audit department evaluates any new service the organization intends to offer by identifying the risks and procedures involved), X₁₁ (The performance of the internal auditor is characterized by objectivity, verifiable by an external auditor), X₁₂ (The internal auditor coordinates efforts with all parties involved in risk management), and X₂₂ (The organization provides ongoing training and development for the internal audit team). These seven variables, out of twenty-two, formed 32% of the total variables in the first axis.

The remaining 68% of the variables agreed, with the highest agreement for the variable X₈ (Internal auditing contributes to proposing measures to mitigate risks), having a weighted mean of 4.18, a coefficient of variation of 0.19, and forming an agreement rate of 84%. The other variables followed in sequence according to the value of their weighted mean and the agreement rate of respondents. Notably, all variables were above the hypothesized mean (3), indicating a high homogeneity among the responses of individuals surveyed in this axis. This is further evidenced by the overall average of the axis, which had a weighted mean of 4.15, a standard deviation of 0.89, a coefficient of variation of 0.20, and an agreement rate of 82%. This supports the primary objective of this axis, which is the awareness of the research sample members about the basic trends of internal auditing.

Second Axis: The Contemporary Role of Internal Auditing in Risk Management

The responses of the surveyed participants indicated the mean, standard deviation, relative weight, and degree of agreement for the overall second axis (The Contemporary Role of Internal Auditing in Risk Management). The mean for this axis was 4.24, the standard deviation was 0.82, the coefficient of variation was 0.19, and the relative weight for the overall axis was 0.85, with a high degree of agreement ("Strongly Agree").

The responses of the sample members to the axis are as shown in Table (5) below, which provides a clear picture of the variables of the second axis.

Table 5. Weighted Mean, Standard Deviation, Coefficient of Variation, and Relative Importance for the Axis of the Contemporary Role of Internal Auditing in Risk Management

Code	Variable	Mean	Standard Deviation	Coefficient of Variation	Relative Weight	Agreement Level
Risk Management in the Organization:						
X ₂₃	Risk management is considered a significant department in economic institutions as it integrates all departments and employees.	3.98	1.092	0.27	0.80	Agree
X ₂₄	Risk management is an integrated organization aimed at facing risks with the best means and least costs.	4.10	0.968	0.24	0.82	Agree
X ₂₅	Risks are classified according to their causes into fundamental risks and specific risks.	4.27	0.880	0.21	0.85	Strongly Agree
X ₂₆	The internal auditor evaluates the adequacy of the organization's risk response approach.	4.20	0.879	0.21	0.84	Agree
X ₂₇	The management's response to internal auditor's risk reports is sufficient and leads to reducing risks to an acceptable level.	4.17	0.806	0.19	0.83	Agree
Effectiveness of Internal Auditing in Risk Management:						
X ₂₈	Internal auditing contributes to the assessment of risk management in economic institutions.	4.33	0.757	0.17	0.87	Strongly Agree
X ₂₉	Internal auditing provides assurance services to management and the institution by ensuring proper workflow and inspecting all organizational operations.	3.85	0.515	0.13	0.77	Agree
X ₃₀	The internal auditor focuses on significant risks that may impact the organization's goals.	4.10	0.986	0.24	0.82	Agree
X ₃₁	The internal auditor proposes appropriate methods and mechanisms for dealing with various risks.	4.10	0.933	0.22	0.82	Agree
X ₃₂	The internal auditor contributes to reducing the accounting risks related to fraud and error.	4.15	0.899	0.21	0.83	Agree
Internal Audit Risks of Fraud and Corruption:						
X ₃₃	Internal auditors are well-qualified academically, professionally, and are	4.52	0.701	0.15	0.90	Strongly Agree

	knowledgeable enough to assess and mitigate fraud risks.					
X ₃₄	The internal auditor is aware of the significant potential for serious errors or fraud.	4.47	0.701	0.15	0.90	Strongly Agree
X ₃₅	The internal audit director informs the senior management and the board of directors about significant fraud risk exposures.	4.47	0.769	0.17	0.90	Strongly Agree
X ₃₆	The challenges facing the internal auditor regarding fraud and deception are reviewed periodically.	4.50	0.651	0.14	0.90	Strongly Agree
X ₃₇	The internal auditor in the organization has significant experience in dealing with fraud issues and planning for them effectively.	4.38	0.825	0.18	0.87	Strongly Agree
Overall Mean for the Axis		4.24	0.82	0.19	0.85	Strongly Agree

Table 5 displays the weighted means, standard deviations, coefficients of variation, relative weights, and agreement levels for the axis regarding the contemporary role of internal auditing in risk management. This axis comprised fifteen variables. The variable (X₂₅), which completely agreed and involved classifying risks according to their causes into fundamental and specific risks, had a weighted mean of 4.27, a coefficient of variation of 0.21, and an agreement rate of 85%.

The second variable (X₂₈), which also completely agreed and stated that internal auditing contributes to the assessment of risk management in economic institutions, was the most influential, with a weighted mean of 4.33, a coefficient of variation of 0.17, and a complete agreement rate of 87%.

The variables (X₃₃), (X₃₄), (X₃₅), (X₃₆), and (X₃₇) all completely agreed concerning the internal audit risks of fraud and deception. This was reflected in the overall average of the axis, which had complete agreement at 85%, with a weighted mean of 4.24 and a coefficient of variation of 0.19.

The remaining variables of this axis followed sequentially and all exceeded the hypothesized mean (3), agreeing that there is a significant relationship between the contemporary role of internal auditing and risk management.

Third Axis: The Reflection of Internal Auditing on Improving the Efficiency and Effectiveness of the Economic Unit

The responses from the participants revealed the mean, standard deviation, relative weight, and degree of agreement for the overall third axis (The Reflection of Internal Auditing on Improving the Efficiency and Effectiveness of the Economic Unit). The mean for this axis was 4.29, the standard deviation was 0.79, the coefficient of variation was 0.18, and the relative weight for the overall axis was 0.85, with a high degree of agreement ("Strongly Agree"). The responses of the sample members to the axis are as shown in Table (6) below, which provides a clear picture of the variables of the third axis.

Table 6. Weighted Mean, Standard Deviation, Coefficient of Variation, and Relative Importance for the Axis of the Reflection of Internal Auditing on Improving the Efficiency and Effectiveness of the Economic Unit

Code	Variable	Mean	Standard Deviation	Coefficient of Variation	Relative Weight	Agreement Level
X ₃₈	Internal auditing contributes to improving efficiency and effectiveness within the economic unit.	4.00	0.977	0.24	0.80	Agree
X ₃₉	The recommendations resulting from internal auditing processes lead to performance improvement.	4.22	0.885	0.21	0.84	Strongly Agree
X ₄₀	Internal auditing contributes to reducing costs and increasing profitability for the economic unit.	4.33	0.765	0.18	0.87	Strongly Agree
X ₄₁	Do you believe that the corrective actions proposed by the internal audit team have contributed to improving operational efficiency within the organization?	4.55	0.502	0.11	0.91	Strongly Agree
X ₄₂	Internal auditing processes have enhanced the level of compliance and adherence to local and international standards and legislation within the economic unit.	4.28	0.783	0.19	0.86	Strongly Agree
X ₄₃	There are mechanisms to measure the impact of internal auditing processes on achieving organizational goals.	4.27	0.841	0.19	0.85	Strongly Agree
X ₄₄	Internal auditing processes possess the necessary transparency and objectivity to ensure effective and objective results.	4.30	0.830	0.19	0.86	Strongly Agree
X ₄₅	There are mechanisms to identify and assess potential risks that pose challenges to the economic unit and use internal auditing processes to address them.	4.27	0.800	0.18	0.85	Strongly Agree
X ₄₆	Internal auditing processes have contributed to improving the level of customer or beneficiary satisfaction with the services or products provided by the organization.	4.25	0.836	0.19	0.85	Strongly Agree
X ₄₇	The internal audit team is currently experiencing	4.45	0.723	0.16	0.89	Strongly Agree

	improvements that lead to enhanced efficiency and effectiveness of the organization.					
	Overall Mean for the Axis	4.29	0.79	0.18	0.85	Strongly Agree

The third and final axis, whose results are detailed in Table 6, focused on gathering the opinions of the respondents regarding the impact of internal auditing on improving the efficiency and effectiveness of the economic unit. The axis consisted of ten variables, all of whose weighted mean results were above the hypothesized mean (3), and were concentrated into two opinions only: complete agreement and agreement. However, the scale tipped towards complete agreement for nine variables at a rate of 90%, and the remaining 10% was for one variable (X_{38}) which states that internal auditing contributes to improving efficiency and effectiveness within the economic unit, with a weighted mean of 4.00, a coefficient of variation of 0.24, and an agreement rate of 80%.

The highest complete agreement among the nine variables was for variable (X_{41}) ("Do you believe that the corrective actions proposed by the internal audit team have contributed to improving operational efficiency within the organization?") with a weighted mean of 4.55, a coefficient of variation of 0.11, and a complete agreement rate of 91%, which is the highest rate among all three axes. This confirms that the sample members have a clear understanding of the importance of using corrective measures to increase transparency and reduce potential risks.

As for the remaining eight variables, in general, the opinions of the respondents were in line with the axis's objective of reflecting the positive impact of internal auditing in improving the efficiency and effectiveness of the economic unit, as evidenced by the overall axis average, which reached a weighted mean of 4.292, with a standard deviation, and a complete agreement rate of 86%.

Fifth: Testing the Research

The correlation and regression relationships between the research variables will be analyzed and the hypotheses will be tested, which included a main hypothesis stating: There is a significant correlation between the modern trends of internal auditing, including adherence to internal auditing standards and measuring actual procedures towards auditing risks in improving the efficiency and effectiveness of performance of government units. The following sub-hypotheses were centered around: (1) The first sub-hypothesis: There is a significant effect on the basic trends of internal auditing; (2) The second sub-hypothesis: There is a significant effect on the contemporary role of internal auditing in risk management.

The third sub-hypothesis: There is a significant effect of internal audit reflection in improving the efficiency and effectiveness of the economic unit.

Simple linear regression test

For the purposes of statistical analysis, the following simple linear regression model will be used:

$$y_i = \alpha + \beta x_i$$

Where:

y_i : dependent variable

x_i : the independent variable

α : The model parameter represents the intercept coefficient

β : model parameter and represents the regression coefficient

From applying this model, it will be extracted: (1) Coefficient of determination (R^2): This is what the independent variables explain of the total change in the dependent variable, as this ratio ranges between zero and the correct one. The closer the coefficient of determination is to one, the more it indicates the quality of the model and vice versa; (2) (F) test: It is used to test the significance of the assumed linear relationship to estimate the parameters of the study model; (3) Simple correlation coefficient (r): It is the square root of the coefficient of determination and explains the strength of the relationship between the two variables.

Table 7. Test Results by Axes

Axis	α	β	r	R^2	F	Significance
Basic Trends of Internal Auditing	1.04	2.23	0.89	0.79	26.3	Significant
Contemporary Role of Internal Auditing in Risk Management	2.24	1.13	0.87	0.77	24.4	Significant
Reflection of Internal Auditing in Improving the Efficiency and Effectiveness of the Economic Unit	1.66	2.11	0.92	0.85	35.16	Significant

From the analysis in Table (7) above, we find that (1) :Strong Relationship Between Variables: There is a strong correlation between the dependent and independent variables, with the correlation coefficient for the first axis being (0.89), for the second axis (0.87), and for the third axis (0.92); (2) High Determination Coefficients:** The coefficient of determination was high for all axes, indicating that for the first axis (0.79), 79% of the variability was explained and the remaining 21% was unexplained due to external factors. For the second axis, the determination coefficient was (0.77), explaining 77% of the variability, with the remaining 23% unexplained due to external factors. Similarly, for the third axis, which performed the best, the determination coefficient was (0.85), explaining 85% of the variability with the remaining percentage attributed to external factors; (3) Significant F-values: The F-values were (26.3) for the first axis, (24.4) for the second axis, and (35.16) for the third axis, all showing high significance and greater than the table value of (9.63) for the 1% level; (4) Positive Regression Equations: All the regression equations were positive and are listed as follows according to the sequence of the axes:

$$y_i = 1.04 + 2.23 x_i$$

$$y_i = 2.24 + 1.13 x_i$$

$$y_i = 1.66 + 2.11 x_i$$

The above regression equations indicate that the beta (β) values are positive, which means that a one-unit increase in the independent variable leads to a one-unit increase in the dependent variable, proportional to the regression coefficient.

5- From the results of the variance analysis above, the three hypotheses are accepted : (1)Sub-hypothesis 1: There is a statistically significant effect in the fundamental trends of internal auditing; (2) Sub-hypothesis 2: There is a statistically significant effect of the contemporary role of internal auditing in risk management; (3) Sub-hypothesis 3: There is a statistically significant effect of the reflection of internal auditing on improving the efficiency and effectiveness of the economic unit.

2- Factor Analysis

Factor analysis is a statistical method aimed at interpreting correlation coefficients that have statistical significance between variables. It involves simplifying the relationships between different variables in the analysis to arrive at common factors that describe and interpret the relationship between these variables. There are two types:

Exploratory Factor Analysis (EFA)

This type is used when the relationship between variables and latent factors is unknown, aiming to discover these factors.

Confirmatory Factor Analysis (CFA)

This is used to test hypotheses regarding the presence or absence of relationships between variables and latent factors and their ability to express the dataset.

Below are the results of the factor analysis of the survey data, categorized by axes.

A strong conceptual basis derived from factor analysis requires support through specific assumptions. Two important assumptions should be verified before conducting Confirmatory Factor Analysis. The first assumption includes testing the Kaiser-Meyer-Olkin (KMO) test, which indicates the adequacy and suitability of the sample size for conducting Confirmatory Factor Analysis. The value ranges from 0 to 1, where values below 0.50 indicate that factor analysis would not be suitable for the study's data. The following table illustrates this:

Table 8. Test of Sampling Adequacy (KMO) and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.830
Bartlett's Test of Sphericity	Approx. Chi-Square	1376.819
	df	1081
	Sig.	.000

Based on the information provided in Table (8), we can draw the following conclusions regarding the confirmatory factor analysis: (1) The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) value is 0.830, which exceeds the minimum threshold of 0.50. This indicates excellent sampling adequacy for the measurement; (2) Bartlett's Test of Sphericity yielded a significant result (Sig. = 0.000), indicating that the correlations between variables are sufficiently large for factor analysis to be appropriate.

From the results of the aforementioned tests, we can infer the following: (a) There are no missing values in the initial dataset of the study variables; (b) There are no extreme values in the study's measurement scale; (c) The data follows a normal distribution, indicating that parametric statistics are appropriate for analyzing the study's variables; (d) There is no multicollinearity issue among the dimensions and variables of the study; (e) The first goal of data analysis, which is to assess the accuracy of the measurement scale used in the study, has been achieved; (f) The Cronbach's Alpha test confirmed the reliability and stability of the questionnaire, with values exceeding 0.7 for all dimensions. The questionnaire items are deemed very good for achieving stability and coherence; (g) The respondents' answers were normally distributed, as indicated by the normal distribution plots; (h) Analysis of the respondents' answers indicated strong agreement with the questions posed in the study's dimensions. The standard deviation, variance, and relative importance were within acceptable limits; (i) The hypothesis testing confirmed the acceptance of all three hypotheses, aligning

with the study's objective regarding the practical impact analysis of modern internal audit trends on the operational efficiency of governmental units.

Conclusion

Through the findings outlined in the research, internal auditing within institutions is identified as a complex and comprehensive process that requires deep understanding and continuous efforts to ensure effectiveness and efficiency in organizational operations. The results indicate that participants have a good understanding of the fundamental principles and trends of internal auditing, reflecting a high level of knowledge in this field. The analysis of the research sample responses confirms the existence of effective practices in internal auditing, including the preparation of regular reports and providing recommendations to professionally and regularly mitigate risks. There is a strong inclination among the sampled organizations towards compliance with best practices and regulations, in addition to focusing on developing the skills of auditing teams through continuous training. Variability in opinions among participants reflects diversity in experiences and perspectives. Internal auditing extends beyond assessing compliance and financial oversight to encompass vital aspects such as risk classification, risk management evaluation, and fraud prevention. The results emphasize the urgent need for continuous development and improvement of internal auditing systems to achieve effective and comprehensive risk management. Internal auditing is recognized as a crucial tool not only for oversight and compliance but also for enhancing efficiency and effectiveness within institutions.

Recommendations

Equip internal auditing teams with the necessary skills and knowledge to deal with international standards and laws, and enhance their collaboration with audit teams in other countries. Encourage the establishment of an organizational culture that values the important role played by internal auditing in improving performance and safeguarding resources, through workshops, lectures, and transparent dissemination of audit results. Incorporate monitoring of institutional compliance with environmental, social, and governance (ESG) standards into internal auditing operations. Institutions should invest in new and innovative technologies in the field of internal auditing to enhance their ability to analyze data and detect irregularities more effectively. Conduct regular reviews of policies and procedures related to internal auditing to ensure their alignment with changes in the organizational and economic environment, and to enhance their effectiveness in addressing new challenges. To get the most out of internal audit, communication and interaction channels between audit teams and different departments must be improved to ensure effective implementation of recommendations and proposed improvements. It is important for organizations to pay special attention to internal audit as a tool for early detection and prevention of fraud, emphasizing the importance of good training and equipping of audit teams. Emphasizing the importance of implementing corrective measures suggested by internal audit and monitoring their effectiveness periodically to ensure continuous improvement in internal processes.

References

- Al Emar, M. H. K. (2017). *Microalgae Cultivation and Harvesting for the Production of Biofuels*. University of Surrey (United Kingdom).
- Alabdullah, T. T. Y. (2023). How Do Sustainability Assurance, Internal Control, Audit Failures Influence Auditing Practices?. *Journal of Management, Accounting, General Finance and International Economic Issues*, 2(3), 671-688.
<https://doi.org/10.55047/marginal.v2i3.705>

- Ayvaz, E., & Pehlivanli, D. (2010). Enterprise risk management based internal auditing and Turkey practice. *Serbian journal of management*, 5(1), 1-20.
- De Ridder, M., Grassi, B., & Morzenti, G. (2022). The Hitchhiker's Guide to Markup Estimation.
- Felício, T., Samagaio, A., & Rodrigues, R. (2021). Adoption of management control systems and performance in public sector organizations. *Journal of Business Research*, 124, 593-602. <https://doi.org/10.1016/j.jbusres.2020.10.069>
- Leung, P., Coram, P., Cooper, B., Redgen, K., & Canestrari-Soh, D. (2024). *Audit and assurance*. John Wiley & Sons.
- Marks, N. (2015). *World-Class Risk Management*. CreateSpace Independent Publishing Platform.
- Postula, M., Irodenko, O., & Dubel, P. (2020). Internal audit as a tool to improve the efficiency of public service. *European Research Studies Journal*, 23(3), 699-715.
- Reding, K. F. (2009). *Internal auditing: assurance & consulting services*. Institute of Internal Auditors, Research Foundation.
- Stephenson, P. J. (2017). Norms, legitimacy and institutional independence: the active role of the European Court of Auditors in setting international standards. *Journal of Contemporary European Research*, 13(2). <https://doi.org/10.30950/jcer.v13i2.781>
- Yılmaz, O. K., & Karakaya, G. (2020). A research on the internal control compliance action plans created by the municipalities in Turkey in accordance with COSO Model. *Süleyman Demirel Üniversitesi Vizyoner Dergisi*, 11(28), 753-769. <https://doi.org/10.21076/vizyoner.719677>