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THE INTERNAL AUDIT IN LIGHT OF ARTIFICIAL INTELLIGENCE: AN EXPLORATORY STUDY IN THE IRAQI ENVIRONMENT

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Abstract:

The study aims to illustrate the concept of internal audit as an independent variable with its three dimensions (objectivity and independence, efficiency and technical qualifications, doing professional care) in the light of artificial intelligence as a dependent variable with its three dimensions (experienced systems, representation of knowledge and inference, and automatic learning) and then, determining the relationship of correlation and effect between them. In order to achieve the objectives of the research, a questionnaire that consists of (30) items was designed, and in the light of it, data were collected and analyzed, and hypotheses tested by using the statistical program (SPSS). The study sample consisted of (60) individuals in private banks. Several statistical tools and methods were used to achieve the research objectives, including: frequencies, percentages, arithmetic means, standard deviations, correlation coefficient and regression analysis. The most important results of the research were: the presence of a significant correlation relationship between the two variables, and a strong effect between internal audit and artificial intelligence.

Keywords: Internal Audit, Artificial Intelligence.

INTRODUCTION

Internal audit is one of the most important pillars of successful administration in the banking sector, as it is a source of administration information and a point of examination for procedures and transactions concerning units and divisions in banks. Internal audit has received great attention from writers and researchers, and attention has focused on various aspects related to internal audit. As a result, banks began moving to develop their operations and improve the methods of this function, in order to provide more appropriate and reliable information to achieve their objectives. Therefore, the internal audit function in the late fifties witnessed great developments, especially in the United States of America. On the other hand, the developments that appeared at the level of business in many fields, which called on the countries of the world to start developing this technology in line with the requirements of the modern era, until those developments resulted in the discovery of what is called artificial intelligence. It is the development of technological methods correlated with the computer to design machines that simulate the human mind in several areas, including: response, logic, prediction, development of solutions, obtaining information from available sources, and the establishing a scientific and knowledge base that enables decision-makers to make their different decisions. Due to the importance of internal audit in the banking sector and its role in light of artificial intelligence, this study came to shed the light on the extent to which the internal audit function is applied in private banks in the city of Baghdad.

FIRST TOPIC

First: Study Problem

The banking sector has always been one of the main pillars of the Iraqi economy, which needs to be characterized by transparency and reliability in this sector. Therefore, the subject of this study came to know the role of internal audit in light of artificial intelligence in the Iraqi environment.

Second: Study Importance

The importance of the current study is clarified by discovering the role of internal audit in light of artificial intelligence in an active sector of the economic sectors, which are banks. In addition, this attempt of measuring was based on the reality of the work of private banks in Baghdad, and based on the experience of workers in the banking sector.

Third: Study Objectives

1. Showing the role of internal audit in the banking sector.
2. Revealing the importance of artificial intelligence in Iraqi banks.
3. Clarifying the relationship between internal audit and artificial intelligence.

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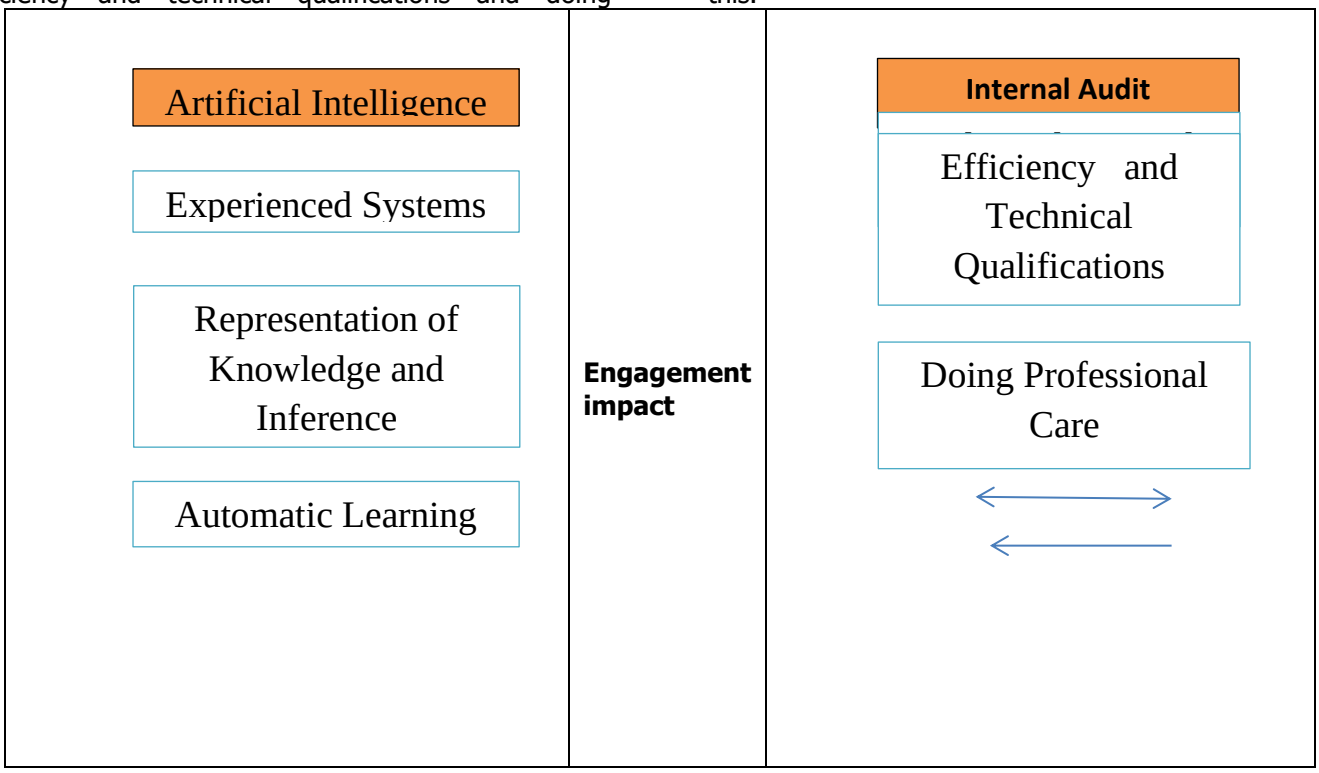
Fourth: Hypothetical Chart of the Study

The hypothetical chart of the study shows the relationship and effect between the main and sub-variables of the study that represented by the independent variable (internal audit), which includes three dimensions (independence and objectivity, efficiency and technical qualifications and doing professional care). The dependent variable (artificial intelligence) included three dimensions (experienced systems, representation of knowledge and inference, and automatic learning), which is according to the hypotheses that will be formulated in order to test them and analyze their results, and Figure (1) clarifies this.



Source: Prepared by the researcher.
Figure (1) Hypothetical Chart of the Study

Fifth: Study Hypotheses

The study is based on testing the following main and sub-hypotheses:

The first main hypothesis: There is a statistically significant correlation relationship between internal audit with its three dimensions and artificial intelligence with its three dimensions. From this hypothesis, the following sub-hypotheses branch out:

The first sub-hypothesis: "There is a statistically significant correlation relationship between independence, objectivity and artificial intelligence".

The second sub-hypothesis: "There is a statistically significant correlation relationship between efficiency, technical qualifications and artificial intelligence."

The third sub-hypothesis: "There is a statistically significant correlation relationship between professional care and artificial intelligence."

The second main hypothesis: There is a significant effect of internal audit with its three dimensions on artificial intelligence with its three dimensions. From this hypothesis, the following sub-hypotheses branch out:

The first sub-hypothesis: "There is a significant effect of independence and objectivity in artificial intelligence."

The second sub-hypothesis: "There is a significant effect of efficiency and technical qualifications in artificial intelligence."

The third sub-hypothesis: "There is a significant effect of doing professional care in artificial intelligence."

Sixth: Study Methodology

The researcher relied on the exploratory method as a means of collecting the necessary data for the study requirements by distributing the questionnaire to the employees of the banks in order to explore their opinions, analyze and interpret the obtained data and draw conclusions from it. Therefore, it is a descriptive

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and analytical method for the research sample, and an exploratory method for using the questionnaire.

Seventh: Study Society and Sample

The study society consists of a group of banks listed in the Iraq Stock Exchange, including financial managers, accountants, audit managers and senior management. A simple random sample was selected from the study society (Union Bank of Iraq, National Bank of Baghdad, Arab Gulf Bank), and (60) questionnaires that designed according to the five-point Likert scale were distributed to reflect the results of the research topic. All the distributed questionnaires were used to analyze their results. The following table shows the features of the sample:

Table (1) The Demographic Features of the Study Sample

Ratio	Frequency	Gender	Variable
%75 %25	45 15	Male female	Sex
%100	60	Total	
%13 %37 %50	8 22 30	30 years and less. From 31 to 40 years. 41 years and above.	Age
%100	60	Total	
%5 %92 %3	3 55 2	Diploma or less Bachelor Postgraduate	Scientific Qualification
%100	60	Total	
%20 %30 %50	12 18 30	5 years and less From 6 to 10 11 years and above	Years of Experience
%100	60	Total	
%18 %32 %42 %8	11 19 25 5	Business Administration Banking Sciences Accounting Computers	Specialization
%100	60	Total	

Source: prepared by the researcher based on computer results.

Eighth: Study Limits

1. Scientific Limits: Internal audit in light of artificial intelligence.
2. Human Limits: A sample of workers in Iraqi banks.
3. Temporal Limits: From 1/3/2013 to 30/3/2023, which is the period for distributing the questionnaire to the employees.
4. Spatial Limits: Iraqi private banks.

Ninth: Study Variables

1. Internal Audit: Internal audit is an independent function that gives the Board of Directors a state of assurance concerning the quality and effectiveness of risk administration, operations and administration systems, in order to help it protect its institutions and reputation.
2. Artificial intelligence: One of the main pillars that computer devices or technology in general is based on. In addition, artificial intelligence is characterized by the ability of technological devices to perform many tasks similar to those carried out by human resources, including driving cars, recognizing images and others.

Tenth: The Used Statistical Methods

a. Descriptive statistical methods such as (percentages, weighted arithmetic means, standard deviations, relative importance).
b. Statistical tools and methods that used in hypothesis testing such as (Spearman's simple correlation coefficient, simple linear regression coefficient).

Eleventh: Data Collection Tools

In the theoretical aspect, books and published researches in various periodicals, as well as on the internet were relied on. As for the practical side, the questionnaire was relied on in order to obtain the necessary data that related to the opinions of the study sample. The questionnaire included three axes: the first axis included metadata, the second axis aimed to clarify the internal audit standards that used in

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banks, while the third axis presented the paragraphs of "artificial intelligence dimensions".

SECOND TOPIC
Theoretical Aspect
First: Internal Audit Concept

Internal audit is one of the most significant means of administration in order to ensure the progress of operations within the organization in terms of ensuring that instructions are followed or ensuring that there is no embezzlement. It is a set of procedures and processes that aim to measure the results of the organization with the purpose of serving the administration (Ali, 2019: 5). The internal audit is also one of the significant tools in the internal control on which the economic units are based on. The need for it has appeared as an internal protection device that achieves a level of reassurance for investors, creditors and other parties, especially since they may not be on the board of directors in the organization, in addition to the high risks surrounding financial activities, not only that, but internal audit maintains the safety of records, accounting data, and assets in the organization, whether this data or information is manual or automated. The internal audit has become equivalent with the external audit that helping to detect errors and fraud, reducing its costs and operating throughout the year (Al-Rikabi and Talib 2020: 8). Therefore, the function of internal auditing has become a necessity that required by the modern scientific administration in order to maintain the available resources, especially the administration on health and safety of work within the organization. Providing accurate periodic data on various businesses and activities, in order to assist them in the decision-making process, whether periodic or routine decisions. Correcting deviations and errors, and draw up future policies (Flayih and Hadi, 2020: 8).

Table (2) Definitions of internal audit according to a group of researchers

Definitions	The Researcher and Year	S.
It is an independent professional test carried out by a practically and scientifically qualified worker based on testing accounting records and books, and ensuring the correctness and safety of financial reports in order to give an independent technical opinion.	Al-Habbo and Hamoudi, 2022: 6	1
An independent evaluation function in the organization, in which the testing and evaluating the activities of organizations is carried out with the aim of assisting all employees in performing their responsibilities effectively.	Robert, 2009: 3	2
"One of the internal functions attached to the administration of organization to express the independent internal activity to establish administrative control, including accounting, to evaluate the extent to which systems comply with administration requirements, and to work towards the best use of resources and achieve the maximum level of them in productive efficiency."	Cgauke , 20218 :	3
An evaluation activity within the economic unit as a place for its services. Among its functions is testing, evaluating and monitoring the suitability of the accounting system, the internal control system and its effectiveness in the economic unit.	Moller, 2004 : 13	4
It is a measure or rule that the internal auditor relies to measure and evaluate their work. It represents a model for performing the tasks and duties of the audit department based on what has been approved by the Institute of Internal Auditors.	Flayih and Hadi, 2020: 4	5

Source: Prepared by the researcher based on the sources that present in the study.

Second: Internal Audit Importance

The importance of internal auditing comes from being an administration tool through which the organization's operations are progressed. As the internal audit does not only reveal errors in the mechanisms of applying laws that govern public activities, but also reveals errors in the same laws, and then improves the entire system (Jawad and Ahmed, 2020: 10). The internal audit function has obtained an important place in most organizations, and is connected to the highest level of the administrative hierarchy, as it is an activity of evaluating, correcting, and testing all different activities and processes for the purpose of development, because of the factors that helped, in

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turn, show the importance of internal audit, and among these factors are the following:

1. Facing difficulties resulting from economic conditions, as the internal audit profession explains the methods and ways in which operations are accomplished within the organization, and this is what helps senior administration in facing economic conditions.
2. As a result of the expansion in the size of units and the complexity of work, the external auditor was forced to change to the test audit, which is auditing a sample that represents the operations society. Accordingly, the test requires providing an effective internal control system, which is represented by presenting an internal audit of the organization.
3. The increasing need of senior administration for reliable and continuous reports.
4. Adopting the method of administrative decentralization as a result of adopting administrative decentralization in large organizations, which had to ensure the proper implementation of the drawn plans for them and public policies through internal audit (Mitieb, 2022: 8).
5. Fighting financial and administrative corruption, as the internal audit plays an important role in preventing those who tempt themselves to carry out illegal acts.
6. The internal audit is a safety valve to protect the state's general budget by monitoring performance to achieve the good use of financial allocations (Al-Jubouri, 2013: 7).
7. Providing the necessary data and information for the administration in order to draw up policies, plans and take decisions.
8. A good internal audit in organizations provides time and effort for the external auditor that represented by the Board of Supreme Audit (Ughla, 10: 2020).
9. The difficulty of the commercial and industrial exchange process.
10. The complexity of direct access to information.
11. The large volume of information.
12. The bias by the data compiler, (Singleton, 2010: 9).

Third: Internal Audit Standards

1. Independence and Objectivity: Independence is defined as setting free from dependence on another individual, institution or state, or being affected by them or submitting to their control. Rather, auditors work for the audited entity and report mainly to them. Internal independence means that the auditor performs his responsibility in an unbiased manner, allowing the internal auditors to give fair and unbiased judgments that are essential for implementing audit operations (Ismael, 2022: 9). This standard is concerned with independence and objectivity in performing the work of the internal auditor, the administrative position of internal audit within the organizational structure, and commitment to neutrality and distancing from everything that may affect the conflict of interests, as well as disclosing everything that affects independence and objectivity, (Hadi, 2020: 5). Independence maximizes the power that the auditor possesses and gives them the greatest hand over administration, and this enables them to carry out their work without effect. The independence of the auditor is known by the extent of their ability to make decisions without bias and realism, and without being affected by others, even if they contradict the desires and interests of higher administration of the economic institution (Mohd-Nassir, 2016: 45).
2. Efficiency and Technical Qualifications: It means that the working individual possesses intelligence, education and training so that they are able to add a certain value while performing the work. Efficiency comes from long and intensive preparation, learning the scientific skills, methods and principles on which those skills and methods are based, and following continuous study. The technical efficiency of internal audit workers also represents the level of education and knowledge of the operations, stages and procedures of the organization, as well as knowing the processes and procedures used in the internal audit department and the quantity and quality of supervision of the activities of that department. Obtaining academic degrees in accounting fields, gaining extensive work experience in the accounting and auditing profession, and continuous participation in professional courses in order to gain access to modern professional knowledge (Al-Kinani, 2019: 7). The complexity of financial means and capital structures in institutions, the appearance of new industries and the creative application of accounting standards all

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together illustrate the importance of auditors who are able to work within the framework of auditing. The experience that the auditors have is one of the important elements, since many of the accounting problems that the auditors should address depend on personal judgment, which is affected by the level of experience of the auditor in the framework of accounting and auditing (12: 2016 Larson).

3. Doing professional care: The internal auditor must show the necessary professional care when conducting the examination and the rest of the other steps, as well as when preparing financial reports and expressing an opinion (Al-Qaisi, 2020: 9). This standard is concerned with the necessary professional skill, care and continuous professional development. As it required that internal auditors acquire efficiency, knowledge and exercise professional care in the performance of work, and that auditors improve their skills and efficiencies through continuous professional development (Saraya, 2013: 120). Doing professional care requires giving attention to the nature of professional services and the manner in which the services are performed. It is important that these provided services are suitable for the task, and are implemented in accordance with professional and behavioral standards when available, that is, applying the care and skill that expected from a wise and competent internal auditor to an acceptable degree. In order for the external auditor to rely on the internal auditors work, they must plan, supervise, examine and document their work. Therefore, the internal auditor must exercise the professional care by taking into account the needs of the external auditors in addition to their expectations (Al-Saabari et al., 2014: 50). This standard includes a number of behavioral rules that must be adhered to, which they are:

1. The services must be performed with the necessary knowledge, skill and experience.
2. The internal audit services must be performed in accordance with the standards of practice of the internal audit profession.
3. The internal auditors must continuously improve their efficiency, effectiveness and quality of their services (Al-Doghaji, 2014: 7).

Fourth: Artificial Intelligence Concept

The term intelligence consists of two parts, the first part "intelligence" according to Webster dictionary means the individual's ability to realize changing circumstances or various situations. As for the second part "artificial", it is represented in the verb to make or to fabricate, and this word is applied to the things that result from the activity or action that took place through the fabrication and making things by distinguishing them from the things that exist in reality without human intervention (Yassin, 2012: 48). The world has seen a lot of rapid changes in many fields, in line with the emergence of the industrial and scientific revolution. One of these fields was the technical and scientific development, which greatly affected the lives of individuals and society, both positively and negatively. The industrial revolution participated in the production of artificial intelligence, which has become an integral part of society's life. Life flourished in all its fields, not only scientific, but also in the fields of human, economic and social sciences (Al-Muqaiti, 2021: 8). Artificial intelligence is a modern cognitive science that began relatively in the fifties of the last century, but before that period, we find that a number of other sciences appointed in one way or another artificial intelligence indirectly by reviewing the science of genetics. We find what is related to intelligence in the field of studying the genes of scientists in an attempt to attribute their intelligence to a science of genetics (Salih, 2009: 32). It is one of the branches of computer science that has been used in software methods to carry out the functions of human mind, as well as to simulate, even with few methods and activities, the intelligence of the individual so that the computer can perform many activities instead of the individual that needs hearing, thinking, speaking, understanding and movement in a developed pattern through the readiness of computer programs that simulate human intelligence (Razzouki and Falta, 2020: 15). There are different concepts of artificial intelligence according to the researchers' opinions in terms of concept, content and purpose, and they sometimes meet with the same idea, so this study will focus on these concepts as shown in Table (3).

Table (3) Artificial Intelligence Concepts from the Point of View of Researchers and Academics

Concept	Researcher, Year and Page Number	S.
"A mechanical simulation system that is based on collecting information and knowledge related to various sectors in the world and	Grewal,2014: 12	1

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working on processing and publishing it to benefit from it in the form of scientific intelligence."		
One of the main pillars on which computer equipment or technology in general is based, in addition to that artificial intelligence is characterized by the ability of technological devices to perform many tasks similar to those carried out by human resources, including driving cars, recognizing images, and others.	Belharet, 2020 : 56	2
One aspect of computer science that is based on providing a number of methods, techniques and tools for creating models and solutions to problems by simulating human behavior.	Ocana, 2019 : 10	3
One of the modern sciences that resulted from the convergence between the technological revolution in the field of systems and computer science and automatic control on one hand, and the science of logic, mathematics, languages, and psychology on the other hand.	Raqiq, 2015: 14	4
It is the science that is able to build machines, which perform tasks that require a measure of human intelligence when performed by an individual.	Salih, 2009: 33	5
A study to make computers do things that humans do in a better way.	Mahmoud, 2023: 8	6

Source: Prepared by the researcher based on the sources that present in the study.

Based on the foregoing, the researcher defines "artificial intelligence as a number of software activities that address reality by assigning a specific machine to perform difficult tasks that exceed the abilities of the individual".

Fifth: Artificial Intelligence Objectives

The main objective of artificial intelligence is to give a comprehensive interpretation and analysis, whether for an individual, or for machines, while clarifying the common unique and distinct principles in all three types. It must be admitted that the problem with this issue is that we know very little of these common principles at the present time (Tahir and Ahmed, 2022: 6). The objectives of artificial intelligence are the following:

1. Knowing the nature and methods of human intelligence by creating computer programs that can simulate the behavior and actions of an intelligent individual, which means that computer programs can handle a specific issue or implement a specific decision.
2. Developing computer systems that are able to achieve intelligence similar to the one of the individual or better, by entering human data and knowledge and storing them in the computer's memory. After being analyzed and configured by the used programs and tools, the computer can draw conclusions, make a comparison and identify solutions to the problems it is supposed to solve.
3. Helping the computer to correct the information through the used programs and tools in order to reach the closest way to solve the problem and implement more than one command at the same time (Jabr et al., 2022: 7).
4. Simulating the nervous system and human brain, which is one of the most complex organs through its continuous work in order to recognize things (Al-Taiee, 2022: 4).
5. Making rational decisions by creating or developing information, using computerized knowledge and new experiences and activating them.
6. Processing problems related to loss, damage and forgetfulness through the optimal use of accumulated knowledge and experience.
7. Processing problems by acquiring and renewing accumulated knowledge.
8. Accessing to the facts by storing and interpreting information (Jaslove, 2017: 5).

Sixth: Artificial Intelligence Dimensions

The current study relied on some dimensions of social intelligence, which are the following:

1. Experienced Systems: Experienced systems have appeared as one of the most important applications of artificial intelligence to perform many tasks and roles. It occupied the place of the human expert as a result of its superior ability to solve complex problems that require great human effort and thought, as it is characterized by speed and accuracy in answering questions and problems that the workforce may face at work (Loudan, 2010: 15). They are computer-based information systems that identify solutions to problems

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associated with a specific system, and are known under the name of a system and not a program, because they should include elements in solving a specific problem, and others that support work, and these elements represent the support that enables the working individual to interact with this system. This system can include helping methods at a high level in order to predict future events based on accurate academic foundations. This system also includes the ability to facilitate the working individual in dealing with it when operating it (Amber and Muhammad, 2016: 8). It is defined as designed informational and cognitive programs that can be used to solve problems, or in other words, aiming to simulate human behavior or the methods used by them. That is, it imitates the procedures of the human expert in solving complex problems, and then transforms the experiences of experts into systems that users benefit from in solving problems after programming and storing information in a knowledge base so that the system can solve problems (Ajam, 2018: 44).

2. Representation of Knowledge and Inference: The artificially intelligent system is able to adapt the environment in which it operates, possessing knowledge and inferring from it that describes this environment, and preserving the acquired knowledge in a way through which it can respond quickly and adequately to any stimulus created by this environment, and more precisely means the representation of knowledge and the method of obtaining it (Musa and Bilal, 2019: 20). This dimension has great importance in processing data in an intelligent manner, especially if the data is large and complex. With the increase in the volume and expansion of data in the real world, it has relied on processing its problems on the representation of available knowledge in this field, as it needs intelligent processing of data that is based on the representation of knowledge and inference that uses these systems in the scope of interpretation, analysis and processing (Annamalsi, 216: 7).
3. Automatic Learning: It is defined as a large and varied set of approaches that provide programs with the required data, enabling them to continuously improve their performance and adapt to their environment (Margariata, 22: 2020). It is also one of the types of artificial intelligence that allows software applications to become more accurate in predicting results without explicitly programming them, and enables us to build machines to process data and learn on our own without constant supervision (Jarrah, 2019: 8). Through this type of learning, electronic programs can develop their abilities and potentials to deal with the changes they face without being reprogrammed by an external operator. This learning mechanism is similar to the learning mechanism in humans, as it will lead in the final outcome to a kind of independence for artificial intelligence in decision-making, and it results in difficulty in predicting these decisions for the makers of these programs (Al-Bayyati, 2022: 7).

THIRD TOPIC
Practical Aspect
First: Describing and Diagnosing the Study Dimensions

1. Describing the Variables of Internal Audit: It is inferred from Table (4) that the descriptive statistics and the general arrangement of the dimensions of the internal audit variable in the field reflect the interest of the sample's individuals in these dimensions, as they are arranged as follows: (independence and objectivity, efficiency and technical qualifications and doing professional care), respectively. As for the main internal audit variable, it achieved a weighted arithmetic mean value of (4.12), and its standard deviation was (0.679), which refers to the harmony of the individuals' responses regarding the internal audit variable. The achieved relative importance was recorded (82.4%). As a result, a very high level of response was achieved, which indicates that the variable has a high importance, according to the opinions of the sample's individuals. These results refer to a general agreement among the sample's individuals regarding the presence of internal audit paragraphs in the field.

Table (4) Descriptive Statistics of the Internal Audit Variable and Its Dimensions

Response Level	Relative Importance	Standard Deviation	Arithmetic Mean	Dimensions
Very High	%83.4	0.474	4.17	Independence and Objectivity
Very High	%82.4	0.771	4.12	Efficiency and Technical Qualifications

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Very High	%82	0.793	4.08	Doing Professional Care
Very High	%82.4	0.679	4.12	Internal Audit

Source: prepared by the researcher according to the results of the program (Spss V, 25).

2. Describing the Variables of Artificial Intelligence Dimensions: Table (5) documents that the descriptive statistics and the general arrangement of the dimensions of the artificial intelligence variable in the field reflect the interest of the sample's individuals in these dimensions, as they are arranged as follows: (experienced systems, representation of knowledge and inference and automatic learning), respectively. As for the main artificial intelligence variable, it achieved a weighted arithmetic mean value of (3.83), and its standard deviation was (0.703), which refers to the harmony of the sample's individuals' responses regarding the artificial intelligence variable. The achieved relative importance was recorded (77%), and as a result, a high response level was achieved. This indicates that the variable has a high importance according to the opinions of the sample's individuals. These results refer to a general agreement among the sample's individuals regarding the presence of artificial intelligence paragraphs in the field.

Table (5) Descriptive Statistics of the Artificial Intelligence Variable and Its Dimensions

Response Level	Relative Importance	Standard Deviation	Arithmetic Mean	Dimensions
High	%80.4	0.648	4.02	Experienced Systems
High	%80	0.782	4.00	Representation of Knowledge and Inference
High	%70	0.681	3.48	Automatic Learning
High	%77	0.703	3.83	Artificial Intelligence

Source: prepared by the researcher according to the results of the program (Spss V, 25).

SECOND: TESTING STUDY HYPOTHESES

Correlation Hypotheses

a. Interpreting the results of the correlation relationship between internal audit and artificial intelligence at the total level. The results showed in Table (6) that the result of the correlation coefficient between the two variables is (*0.406), which is a direct significant correlation relationship. This indicates that the more banks pay attention to internal audit, the greater their ability to achieve artificial intelligence.

b. Analyzing the correlation relationship between the first independent dimension represented by independence and objectivity and artificial intelligence, as it formed the result of the correlation coefficient of (*0.431), which is direct and significant at a significant degree (0.000), which is less than (0.05). This indicates the acceptance of the first sub-hypothesis, which is derived from the first main hypothesis, as shown in Table (6).

c. Analyzing the correlation relationship between the second independent dimension represented by efficiency and technical qualifications, and artificial intelligence, as the value of the correlation coefficient was (0.402*), which is direct and significant at a significant degree (0.000) that is less than (0.05). This indicates the acceptance of the second sub-hypothesis, which is derived from the first main hypothesis, as shown in Table (6).

d. Analyzing the correlation relationship between the third independent dimension represented by doing professional care and artificial intelligence, as the result of the correlation coefficient was (*0.381), which is direct and significant at a significant degree (0.000) that is less than (0.05). This indicates the acceptance of the third sub-hypothesis, which is derived from the first main hypothesis, as shown in Table (6).

Table (6) Matrix of Correlation between Internal Audit and Artificial Intelligence

Artificial Intelligence	Dependent Variable / Independent Variable		
0.431*	Correlation Amount	Independence and Objectivity	Internal Audit Dimensions
0.000	Significance Level		

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0.402*	Correlation Result	Efficiency and Technical Qualifications	
0.000	Significance Level		
0.381*	Correlation Result	Doing Professional Care	
0.000	Significance Level		
0.406*	Correlation Result	Internal Audit	
0.000	Significance Level		
* Significant Correlation at the Significance Level (0.05).			
** Significant Correlation at the Significance Level (0.01).			

Source: prepared by the researcher based on the statistical results.

Third: Testing the Effect Relationships between the Research Variables

a. The results indicated in Table (7) that there is a significant effect of internal audit on artificial intelligence at the total level of the studied banks. The calculated F value was (11.05), which is greater than the tabular value of (3.920) at the significance level of (0.05), while the coefficient of determination was (16%), which documents the ratio of the effect of internal audit on artificial intelligence. Based on the foregoing, the second main hypothesis is approved, which states: (It unifies the effect of a significant significance of the internal audit variable with its three dimensions in artificial intelligence with its dimensions).

b. The results indicated in Table (7) that there is a significant effect of the first independent dimension represented by independence and objectivity in the artificial intelligence of the studied banks. The calculated F value was (12.73), which is greater than the tabular value of (3.920) at the significance level of (0.05), while the coefficient of determination was (18%), which documents the effect of independence and objectivity on artificial intelligence. Based on the foregoing, we accept the first sub-hypothesis that stems from the second main hypothesis, which states (It unifies the effect of a significant significance of independence and objectivity in artificial intelligence in its dimensions).

c. The results indicated in Table (7) that there is a significant effect of qualifications and technical efficiency in the artificial intelligence of the studied banks. The calculated F value was (11.05), which is greater than the tabular value of (3.920) at the significance level of (0.05), while the determination coefficient was (16%), which documents the effect of representing the qualifications and technical efficiency in artificial intelligence. Based on the foregoing, the second sub-hypothesis, which is derived from the second main hypothesis, is approved, which states (It unifies a significant effect of efficiency and technical qualifications in artificial intelligence with its dimensions).

d. The results indicated in Table (7) that there is a significant effect of doing professional care in the artificial intelligence of the studied banks. The calculated F value was (9.44), which is greater than the tabular value of (3.920) at the significance level of (0.05), while the determination coefficient was (14%), which documents the effect of professional care in artificial intelligence. Based on the foregoing, we accept the third sub-hypothesis that stems from the second main hypothesis, which states (It unifies a significant effect of doing professional care in artificial intelligence with its dimensions).

Table (7) The Statistical Laboratory of Effect Hypotheses

Dependent Variable	Sig	The Calculated (F)	Determination Coefficient	Independent Variable	
Artificial Intelligence	0.000	12.73	%18	Independence and Objectivity	Internal Audit Dimensions
	0.000	11.05	%16	Efficiency and Technical Qualifications	
	0.000	9.44	%14	Doing Professional Care	
	0.000	11.05	%16	Internal Audit	

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Source: Prepared by the researcher

FOURTH TOPIC
CONCLUSIONS AND RECOMMENDATIONS

First: Conclusions

1. Through the results of the descriptive statistical analysis of the study variables (internal audit and artificial intelligence), it showed that there is a high level of responses that match the studied sample to exclude the two variables in the studied banks through the consistency of the responses. This indicates the availability of internal audit standards in private banks in light of artificial intelligence.
2. Through the results of the statistical analysis of the arithmetic mean, the answers of the employees in private banks showed the importance of internal audit and its dimensions. The importance of independence and objectivity comes in the first place according to the opinions of the studied sample.
3. The results of the statistical analysis revealed that artificial intelligence achieved a high level, and the experienced systems ranked first in supporting the internal audit process among all dimensions of artificial intelligence.
4. The results of statistical analysis showed that there is a statistically significant correlation relationship between internal audit and artificial intelligence, that is, applying the artificial intelligence increases with internal audit.
5. The results of statistical analysis showed a correlation relationship between internal audit dimensions (independence and objectivity, efficiency and technical qualifications, doing professional care) and artificial intelligence, and the strongest relationship was between the independence and objectivity dimension and artificial intelligence.
6. The results of simple linear regression showed that there is a strong significant effect between internal audit and its dimensions, and artificial intelligence.
7. Experienced systems help employees in the banking sector to take and implement the correct decisions in the fastest time and at the lowest cost by using the information that kept in the databases.
8. Knowledge and inference refer to the use of smart systems that are able to adapt to the banking sector through its contribution to the integration of human knowledge of auditors, and its representation through computer programs to support audit processes in the studied banks.
9. The development by using the dimensions of artificial intelligence by the banking sector has reduced the acts of manipulation, deceit and fraud.

Second: Recommendations

1. The need for banks to sponsor the internal audit profession by laying basis for commitment with the rules of professional behavior on the part of employees in a way that guarantees a high level of performance, and its role in preserving public money.
2. The administration in banks supports the internal auditor in a way that allows him to perform his duties objectively without pressure from other parties, in order to ensure the quality of the audit process.
3. Due to the presence of a significant effect of internal audit in light of artificial intelligence in the studied banks, the researcher recommends to enhance trust between them and the parties that deal with banks, which contributes to enhance the economic development in the country.
4. Adopting internal audit as a value-added function for banks rather than administrative devices with specific tasks.
5. Enhancing the keep of technical developments with regard to artificial intelligence in developed countries by sending training missions to benefit from their expertise and knowledge on how to design highly accurate artificial intelligence systems.
6. Working to maximize the awareness of bank employees of the importance of using the artificial intelligence dimensions, and avoid using the usual methods in the manner of providing services.
7. Encouraging human resources that work in the banking sector to participate in specialized training courses in the field of software and smart applications related to accounting and auditing operations in order to develop their academic knowledge.

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8. The administration of the banking sector must provide modern computer devices and equipment, and keep pace with the development of smart systems for auditing in order to automatically solve problems when they occur.

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Appendix 1 \ Study Questionnaire

First: Independent Variable: Internal Audit: It is an independent professional examination carried out by a practically and scientifically qualified individual, relying on examining accounting records and books, and proving the validity and integrity of the financial lists in order to present a neutral technical opinion.

a. Independence and objectivity: Independence is a general principle agreed upon it by all as one of the determinants of audit effectiveness, as the principle of independence represents an important element for the auditor in order to carry out their control work.

I strongly agree	I agree	Neutral	I disagree	I strongly disagree	Paragraphs	S.
					The Administration Board grants the internal auditor sufficient authorities to carry out their work efficiently and effectively.	1
					The internal auditor presents to reveal the facts by the audit without any external effect.	2
					The internal auditor acquires sufficient freedom in choosing the activities that must be audited.	3
					The Internal Audit Department is technically connected to the highest level in the organizational structure, and administratively to the executive administration (General Manager).	4
					The executive administration of the bank ensures that the observations submitted by the internal auditor are addressed and that appropriate measures are taken to implement the suggestions and recommendations.	5

b. Efficiency and Technical Qualifications: It is one of the things that agreed upon them, as internal auditors must have professional competence, experience, knowledge and skill at a level that enables them to follow up and evaluate internal control systems.

I strongly agree	I agree	Neutral	I disagree	I strongly disagree	Paragraphs	S.
					The level of academic education of the audit employees in the bank is	6

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					acceptable and appropriate to the nature of their work.	
					The auditing experience of the employees of the internal audit unit in the bank is in correspondence with the professional standards	7
					The internal audit employees is keen to follow up the requirements of continuing education and professional standards developments.	8
					Knowing the internal audit employees with the operations, procedures and organizational structure of the bank.	9
					The Bank follows an appropriate employment and training policy for internal audit employees.	10
c. Doing Professional Care: It shows that the internal auditors must continuously maximize their knowledge and skills.						
I strongly agree	I agree	Neutral	I disagree	I strongly disagree	Paragraphs	S.
					The audit operations are pre-planned by an internal audit unit in the bank.	11
					Documenting audit evidences that are based on acceptable conclusions of internal audit.	12
					The internal auditors follow up on the audit operations that have been carried out.	13
					There are programs for internal audit and working papers that are matching with appropriate professional practices.	14
					There is a written guide to the policies and procedures followed in the internal audit.	15
Second: Dependent Variable: Artificial Intelligence: it is the science that is able to build machines, which perform tasks require a measure of human intelligence when performed by an individual.						
a. Experienced Systems: It is a computer-based information systems that works to identify solutions to problems related to a specific system, and it is known as a system, not a program.						
I strongly agree	I agree	Neutral	I disagree	I strongly disagree	Paragraphs	S.
					Experienced systems help workers to find solutions to various and predicted problems in banks.	16
					Experienced systems contribute to workers in making the appropriate decision through information stored in databases.	17
					The use of experienced systems improves the ability of workers to choose the evidence of reliability with	18

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					high accuracy and efficiency.	
					Experienced systems simulate the thinking and method of workers in achieving quality in audit services.	19
					Experienced systems contribute to the users of this system to predict future events based on accurate scientific basis.	20
b. Representation of knowledge and inference: It means the representation of knowledge and the method of obtaining it.						
I strongly agree	I agree	Neutral	I disagree	I strongly disagree	Paragraphs	S.
					Knowledge helps those in charge of the auditing process in banks to recall and infer data when there is a problem and address it quickly.	21
					Knowledge and inference allow auditors to securely store large numbers of data and protect them from manipulating.	22
					Knowledge and inference help smart systems to adapt with the auditing environment of banks.	23
					Knowledge and inference help in accurate interpretation, analysis and accounting treatments.	24
					The use of knowledge and inference contributes to achieve the correlation between the human knowledge of the workers and its representation through computer programming in the auditing processes.	25
c. Automatic learning: It is defined as a wide variety set of approaches that provide programs with the required data, which enable them to continuously improve their performance and to be appropriate with their environment.						
I strongly agree	I agree	Neutral	I disagree	I strongly disagree	Paragraphs	S.
					The audit and control systems in banks are characterized by the ability to automatically observe any manipulation process.	26
					The bank's auditing system can automatically address the problems it faces.	27
					Automatic learning can link accounting systems with auditing systems to computer programs automatically.	28
					The bank's auditor keeps a copy of the accounting and financial data automatically at all times in case a	29

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					defect or problem in the bank's network could occur.	
					Automatic smart programs perform audit operations quickly and accurately in achieving the required quality.	30