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The Impact of Using Information Technology on Enhancing the Quality of Joint Audit an Empirical Study in the Egyptian Business Environment

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أثر إستخدام تكنولوجيا المعلومات علي تحسين جودة المراجعة
المشتركة "دراسة ميدانية في بيئة الأعمال المصرية "

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Abstract

Auditors increasingly using neural networks and artificial intelligence (AI) in their audit and advisory functions for numerous benefits such as time savings, faster data analysis, greater accuracy, deeper insights into business processes, and improved accuracy for their work especially in joint audit activities .In the Egyptian environment, the joint audit is implemented voluntarily and mandatory before the European Commission publishes its report in 2010. It is implemented voluntarily for the first time in 1981 for joint stock companies, Egyptian insurance and factoring companies.

Purpose–Examining the relationship between using the information technology on enhancing the quality of joint audit

The study hypothesis states that: - The first hypothesis there is no statistically significant relationship between using the information technology on enhancing the quality of joint audit. The second hypothesis: - there is statistically significant relationship using the information technology on enhancing the quality of joint audit.

Design/methodology/approach–The methodology adopted was survey method to collect primary data using a structured questionnaire. A total of 100 copies of questionnaire were distributed with 71 answered correctly and fully retrieved. Data was analyzed using statistical package for social science (SPSS) was used to measure the influence of the information technology on enhancing the quality of joint audit at 95% confidence level.

The study results and statistical show that the information technology enhances the quality of joint audit and using digital technology play an important role in improving the quality, reliability, and overall efficiency of audits. It also helps in detecting errors and misstatements. The Study recommended that using of artificial intelligence applications in joint audit lead to reducing costs, save time, and provide additional information to users of financial statements easily, and Publishing new standards and regulations to govern using the information technology and artificial intelligence applications on joint audit to secure and protect users Finally, the profession of audit should leverage their strategic ways and methods of work to be adapted for the new generation of technology otherwise they face a problem of how to justify their costs. Based on the results and recommendations of this study, the researcher suggests the following future studies:-The effect of artificial intelligence on audit fees in the era of epidemics, and the effect of information technology on external audit activities and its impact on accuracy of the auditor's report.

Key Words: Information technology, Joint Audit, Artificial Intelligence (IA)

1. Introduction

The importance of the information technology has been increased in this era especially on the audit quality for improving the financial reporting quality and providing reliable financial information (Crucean, A. C., & Hategan, C. D., 2023). IT audit activities can provide additional value and it can be effective tools to facilitate knowledge gathering and sharing (Siew et al., 2020). With IT, it is now economically possible for professionals to collect and share valuable information, knowledge and ideas across functions, divisions and geographical boundaries (Pedrosa et al., 2019).

Major news stories demonstrate the importance and vulnerability of information technology (IT), underscoring the need to understand how to reduce risk. As technology continues to advance and become more prevalent in our lives and businesses, an increase in IT threats and disruptions follows. These impact every industry and take different forms such as data breaches, external threats and operational issues. These risks and the need for high levels of assurance increase the need for IT audits to verify the performance of companies' IT systems and reduce the likelihood and impact of technological threats and disruptions. (Liu, H., 2022)

Furthermore, the joint audits and professional accountants face a complex and challenging task of mandating information systems implemented by companies that represent a major departure from the individual and departmental information systems that previously prevailed (Free et al., 2020; Thottoli et al., 2019a). Audit firms and individual auditors are largely hindered and many challenging issues remain to be investigated (Holtzblatt et al., 2020).

Joint audit is an audit consortium where two or more different independent audit firms jointly audit a client's accounts, share the audit work and jointly sign the audit report. Joint audit consortium is one of the most controversial mechanisms aimed at improving audit quality by strengthening auditor competence and independence (BEIS, 2021; ICAEW, 2019).

Many researchers believe that the auditing profession will be transformed from traditional methods to auditing using software or IT (Choi, 2020; Damerji, 2020). They predict that new technologies will have a huge impact on the audit profession through automation, increased audit scope, shortened turnaround times and, consequently, enhance joint audit

2. Literature Review

Study of Ibrahim (2019) demonstrated the impact of joint audit on audit quality through a set of dimensions related to joint auditing (professional experience and competence, distribution of audit work, control and mutual review, communication and coordination, independence and impartiality). The study reached that laws and regulations and their amendment in accordance with recent developments in the professional field and in accordance with environmental conditions to address the shortcomings and shortcomings therein, in particular working on the development of explicit and direct legal texts regarding the multitude of auditors.

Study of Lamboglia, R., Lavorato, D., Scornavacca, E., & Za, S. (2021) aimed to map the conceptual structure of the body of knowledge linking digital technologies and audits, with the aim of contributing to a better understanding of this research stream. The study concluded that three main topics regarding the use and application of technology in the audit profession: the adoption of continuous auditing and continuous monitoring in the audit profession; the use of software tools in the audit profession; the connections between information systems and audit. This paper contributes to the field by examining the current state of the art of research on the use and application of technology in the audit profession and by addressing current gaps in the literature and, most importantly, proposing a research agenda for the field.

Study of Crucean, A. C., & Hategan, C. D. (2023) aimed to identify the reports in which the financial auditors considered the impact of information technology on companies' financial statements as a Key Audit Matter (KAM) and what was the approach taken in

assessing this issue. The study concluded that: Information technology and its impact on audit quality and automation remain a growing topic, especially in this pandemic period that caused more changes in the planning and risk assessment of financial audits. Auditors were forced to conduct remote audits and use information technology more than in previous years.

Study of Abu Raya, R. (2023). aimed to investigate the impact of audit consortium on audit quality assessment in Egypt. Specifically, it examines whether the level of audit opinion change is caused by the existence of joint and dual audits and whether it is influenced by the relative importance of the combination types of the auditor pair. The study concluded that both joint and dual audits significantly increase auditors' propensity to change audit opinions compared to companies conducting separate audits. However, this increase in audit quality is not supported by the presence of Big 4 lead auditors or affiliated joint auditors, while the impact of Big 4 dual auditors cannot be confirmed. Nevertheless, such potential increase in audit opinion change is enhanced by the presence of affiliated dual auditors, which appears to translate into higher quality.

After reviewing all previous studies, researcher concluded that: -

-They are related to the research topic including artificial intelligence techniques and joint audit activities. This study is one of the first studies that addressed The Impact of using information technology on enhancing joint auditing activities.

-The scarcity of researches conducted in developing countries regarding The Impact of using information technology on enhancing joint auditing activities.

-Through The previous studies the researcher concluded that there are deficiencies in the quality of joint auditing activities resulting from the weakness from the failure to use artificial intelligence techniques and delaying in issuing the financial reports that misled investors and other consumers of financial information in making their decisions.

3. Study problems

Technology is an inevitable part of businesses and human lives has caused substantial changes in the way business and operations are carried out. A business organization has to audit that involves analyzing and testing a large volume of financial transactions. In the manual audit,

Testing and analyzing all transactions in a business are not possible the use of artificial intelligence (AI) and Machine Learning (ML) not only allows testing the complete financial transactions in a business, but also helps improve audit efficiency (Puthukulam et al., 2021)

Joint audit tasks within large organizations are slowed by the volume of documentation. Slow audit response time, sampling-based audit planning, and reliance on keyword searches are all indicators that automation is required to accelerate joint audit tasks. Audit quality also suffers when relevant gaps or risks are not disclosed to stakeholders in a timely manner. This work outlines a workflow automation solution called AuditMap.ai. The solution contains several artificial intelligence models that read in thousands of audit reports in various languages to continuously identify and organize the relevant text within. Rather than replacing the auditor, AuditMap.ai assists in the human-centered audit planning and execution process.

From the above discussion, the main problem can be formulated as follows:

There are deficiencies in the quality of joint auditing resulting from the failure to use information technology and artificial intelligence techniques and delaying in issuing the financial reports that misled investors and other consumers of financial information in making their decisions. **The research problem can be summarized on the following question: Does using information technology effect on the quality of joint auditing?**

4. Hypotheses

To achieve the goals of this study the following hypotheses will be tested:

The first hypothesis: - there is no statistically significant relationship between using information technology and the quality of joint auditing.

The second hypothesis: - there is statistically significant relationship between using information technology and the quality of joint auditing.

5. Study Objectives

The main objective of this research is examining the relationship between using information technology and the quality of joint auditing.

6. Methodology

An Analytical Study: -through the analysis of what was mentioned in books and periodicals, which deals with measures are analytical and that helps for obtaining information and evidence sufficient to enable him to carry out an analytical study for information technology and the quality of joint auditing.

An Empirical study: - adopted was survey method to collect primary data using a structured questionnaire. A total of 100 copies of questionnaire were distributed with 71 answered correctly and fully retrieved. Data was analyzed using percentage, tables and spearman rank order correlation techniques and with statistical package for social science (SPSS) was used to test the regression analysis was employed to measure the influence of using information technology on enhancing the quality of joint auditing at 95% confidence level.

7. Research Structure:

Introductory section: introduce introduction, the literature review the study problem, the study objectives, the hypotheses, methodology and the research structure.

The first section deals with the Theoretical background

The second section deals with the empirical study.

The third section deals with conclusions, findings, recommendations and future studies

The first section

Theoretical background

1. Information technology

Today's world is moving rapidly towards digital transformation, which makes it necessary for professional fields such as accounting and auditing, as well as joint audit, so that the Profession should be developed with the progress of the surrounding environment.

Institutions have become heavily dependent on information technology to support the distribution of personalized materials, digital content, interactive courses and more. These institutions are gradually moving to cloud computing technology (Radwan, H., Zeidan, A.et.al 2021). As a result, the Egyptian government is investing a lot of effort these time and money to move to e-government, including audit services.

IT has become an integral part of accounting in every organization and has become an essential building block to support and sustain business growth. (Thottoli, M. M., & KV, T., 2022) Productivity elements have recently been considered as an important issue for auditors to adopt and implement various computer tools to support their assigned tasks. (Stoel and Havelka, 2020; Bradford et al., 2020). The performance of audit firms adopted by IT can be more efficient. Computerized audit software and CAATs and tools are essential tools for the auditor, being a mechanism that helps achieve audit objectives with efficiency, quality and increase reliability in data analysis and evidence collection. (Bradford et al., 2020).

The support the IT team provides to auditors to improve the usability of the audit software, resulting in increasing managers' approach to adopting technology in auditing and thereby increasing the overall firms' performance. (Manita et al., 2020)

Digital transformation is the process of using digital technologies to create or change new or existing business processes, culture and customer experiences to meet changing businesses and needs market demands. Digital transformation marks a rethinking of how an organization uses technology, people and processes in search of new business models and new revenue streams, focused on by changing customer expectations for products and services (Peter et al., 2020). It is the ability of businesses to create and reinforce disruption within society and industry. For businesses, a digital business strategy is seen as a way to transform their business, streamline their processes, and use technology to improve their interaction with customers and employees while providing an excellent customer experience.

Researchers believe that auditors could use Big Data to perform a continuous audit on a total population of documents instead of using a sampling method. Second, audit firms could expand their offering by offering new services such as real-time verification, exhaustive analysis of data from certain systems and processes, validation of forecast data, etc. Digitalization is indeed a considerable opportunity for audit firms to improve their offering and their image among the various stakeholders who perceive the audit as a cost without much added value. Third, digitalization will improve audit quality. New digital tools, comprehensive data processing and coverage of all customer data will enable more relevant analysis of different customer processes and detect most errors; this is consistent with work on big data, which shows that moving to the full use of data could improve the quality of financial statements.

Finally, although there is no common universal definition of IT audit, the definition of IT audit applied within this paper will be in line with INTOSAI (2019) ISSAI 5330. An IT audit can be defined as the examination and evaluation of an organization's information technology infrastructure, policies, and operations. IT audit can be thought of as the process of collecting and evaluating evidence to determine whether computer systems protect assets, maintain data integrity, effectively achieve organizational goals, and utilize resources. Allows for efficient use. Like other types of audits, such as

financial audits and operating audits, IT audits also focus on the security of assets and/or the effectiveness and efficiency of activities embedded in the information technology environment. (Nguyen, A. H., Ha, H. H. et al, 2020).

Researchers suggest that information technology will countenance the joint audit to evolve towards a real-time audit and towards the validation of the forecast data, further limiting the risk of embezzlement and the opportunistic behavior of managers. The further development of auditing through digitization will also improve the transparency of the annual financial statements and enable the board of directors to make the right decisions. Finally, the technological evolution of this audit could also allow the audit committee to enhance the internal systems and processes to produce accounting information based on the auditors' recommendations. This would also limit the risk of earning management by directors and improve corporate governance.

2. Joint Audit

A global debate provoked by the financial crisis of 2008/09 and the general observation that more precise tools are necessary to guarantee the veracity of companies' financial statements in order to stakeholders have resulted in extensive empirical research on joint audits in terms of audit quality, audit costs and market concentration from an international perspective.(Patrick,2017)

Laws of a number of Arab countries permit the joint audit process. In Egypt, the law decided in article (103) of the law (159) for the year 1981 so that companies contribute to a large number of references share the joint responsibility of expressing an opinion on the fairness of the financial statements. (Mahmoud, 2015)

Joint audit can be defined as an audit in which the financial statements are audited by two or more independent auditors in a manner that involves: coordination of audit planning; shared audit effort; cross-reviews and mutual quality checks; and delivery of a

single auditor's report signed by the jointly responsible auditors. (Ratzinger-Sakel, 2013)

A joint audit mechanism involves conducting joint audit planning, joint audit work, systematic cross-assessments and mutual quality control, and jointly issuing and signing the audit report, with auditors taking joint responsibility for the entire audit (Marnet, 2021; AbuRaya, R., 2023).

These fundamental characteristics of the joint audit regime – independent collection of evidence by the two audit firms with review of the work of each, joint agreement on the report to be issued and separate and proportionate responsibility for undetected material anomalies. (Deng, 2014))

Researchers suggest that Joint audit means the participation of more than one external auditor and they issue one report, based on a joint assignment to audit a company's accounts, and it is defined also as: assigning two or more audit offices that are not related to each other to review the financial statements of one client, as they participate together to express one perspective.

Thus, there is joint responsibility between offices when auditing financial statements and publishing reports on business results during this period, as they jointly participate in planning audit procedures, distributing tasks and the exchange of supervision, whether the verification is optional or mandatory (Muttair, H. A., 2022).

2.1 Table (1) Advantages of using the joint audit:

•Raising the professional competence of the auditors through the diversity of expertise and specializations in the two offices.
•Enhancing the independence of the auditors as a result of the administration's inability to influence the two audit offices.
•Reducing the dominance of international auditing companies, especially the Big4
•Enhancing professional skepticism as a result of the existence of reciprocal supervision of all audit procedures.
•Submitting an accurate and clear report as a result of the joint responsibility between those conducting the audit.
• Provide a clear picture to investors and stakeholders about the quality of work within the economic unit under audit.

Source :- (Ibrahim, 2019)

The objectives of mandating joint audits are to reduce the extent of audit market concentration. By mandating joint audits by one big firm and one small firm, and small firms can have access to big companies and thus reduce the dominance of the Big 4. This may well be effective in the long run in increasing competition among auditors. (Deng, 2014)

Researchers believe that Joint audits can improve audit quality due to preventing auditor dependency. A long term a single contract between the client and the auditor seems reasonable, independence in appearance could be limited due to a particular relationship of trust between management and auditor as part of a long-term mission. Proponents of joint audits often argue that two pieces of evidence produce more accurate overall information than a single piece of evidence.

2.2 Table (2) Negative Effects of using the joint audit

<ul style="list-style-type: none"> •Difficulty in selecting audit firms due to the limited market for audit services.
<ul style="list-style-type: none"> •Difficulties arise in the coordination and information exchange between auditors in audit offices.
<ul style="list-style-type: none"> •This can lead to a kind of dependency, as individual agencies depend on each other, leading to less evidence, less effort and lower quality of control.
<ul style="list-style-type: none"> •The audited organization incurs additional costs as it pays fees to two offices.
<ul style="list-style-type: none"> •Sometimes auditor independence is affected as a result of inter-agency competition, which may lead to agencies seeking administration approval to maintain it.
<ul style="list-style-type: none"> • Joint auditing can become a routine process as a result of informal agreements between the two auditing firms.

Source :- (Abdollahiebli, 2018)

Although two heads are better than one, free-riding can reduce the accuracy of information and, therefore, reduce audit quality and information quality in a joint audit carried out by a large audit firm and a small audit firm compared to an audit carried out by one. Large auditing firm. Furthermore, audits of a single large audit firm dominate the market, because the quality of information in joint audits is not higher than that of audits of a single large audit firm and fixed costs of coordination between joint audit firms can wipe out the savings achieved through collaboration.

3. The relationship between information technology and the quality of joint audit

IT tools and techniques in joint audit tended to reduce the number of non-professional (administrative) staff and junior auditors in audit firms/departments, while its senior professional staff numbers tend to increase their independence. Similarly, audit automation is said to have flattened the organization structure of most audit firms and

departments as IT has taken over the mechanical and routine roles of most junior auditors in a more efficient and effective way. Also, Joint Audit automation could lead to a disaggregated leadership structure, decentralization of role and responsibilities and restructuring to cater for specialized auditors such as IT auditors.

Researchers suggests that information technology mechanisms help joint audit provide consulting and assurance services to help management achieve business goals, application of digital technologies in audit activities helps provide information to decision makers within the company, the use of digital technologies in audit activities strives to support the independence of the auditors, the use of digital technology in the framework for managing audit activities aims to protect information and maintain backup copies for use when necessary, applying digital transformation mechanisms to audit activities that improve communication and monitoring in providing written channels, consistent plans and structured procedures and digital transformation mechanisms have communication channels between audit parties, the board of directors and stakeholders to coordinate work between them and review internal communication protocols and external.

IT skills are currently perceived to have a small indirect impact on the recruitment of new auditors but a fairly significant impact on auditors' promotion. Furthermore, IT enhances the profile of auditors who are more proficient in its use.

Researchers believe there is a good cause why this business information cannot remain on paper in the digital age. Annual reports are a key part of any company's understanding of its financial position. Moving all business information to a standardized digital format will improve transparency and make annual financial statements easier to analyze, compare and accessible to internal and external stakeholders of the general public. Regulators have recognized this shift to digital and are doing everything they can to embrace it.

Joint audit, artificial intelligence and COBIT are expected to gain more prominence in the near future while there is still a need for new

audit software to help auditors gain a better understanding of their clients' businesses and to match the complexity of their clients' information systems.

Researchers suggest that moving toward digital information as the norm means many companies may think that such regulation is far away and that it is now too early to act. This may be a viable strategy for some organizations, but for most businesses that want to make better use of the financial data available to them, moving to XBRL reporting now will yield immediate benefits and provide many business benefits.

Researchers suggest that the audit will become more relevant and add value to the client. Digitization will save the auditor's time on boring and repetitive tasks, which is consistent with previous studies on robotic process automation. The researchers also see that digitalization could help audit firms optimize operational flow. By reducing the data collection schedule and providing advanced prognostic solutions, optimizing and automating processes, improving productivity and efficiency. Furthermore, digitalization will transform current audit practices from a sampling approach (risk approach) to one using data completeness.

Researchers believe that the application of digital transformation mechanisms in operational audit helps to increase the efficiency and effectiveness of operations within the company. Internal audit quality in light of digital transformation contributes to create value for the company and provide suggestions, advice and guidance to make continuous improvements to governance systems, which improves the quality of financial reporting, The emphasis placed by the internal audit function, in light of the use of digital technologies, on verifying compliance with existing rules and policies improves the quality of financial information The internal audit function, in light of the digital transformation environment, plays a key role in helping departments fulfill their governance responsibilities, thereby improving quality of financial reports, The application of digital transformation mechanisms helps to increase the predictive ability of economic events for users of financial reports, The application of digital

transformation mechanisms in internal audit allows to perform appropriate analysis and a logical interpretation of the collected data, which leads to the improvement of the quality of financial information and The use of digital technologies leads to the completeness of information in financial reports and their presentation in an orderly and adequate manner.

Finally, it is recommended that in the future an assessment of the degree of integration of IT and Joint Audit be carried out. Since structure and interaction are considered both the medium and outcome of each other, a Field Study over is likely to yield a better understanding of the impact of IT at Joint Audit.

The second section

An Empirical Study

The previous sections dealt with the theoretical background of the study by referring to the various literatures. This section covers the field study, which includes a description of the study methodology and the study population and sample, as well as the study used the methods of preparation and the validity and reliability tool. This section includes a description of the procedures carried out by a researcher at the codifying of the study, implementing, and finally statistical treatments adopted by the researcher in analysis the empirical study and Showing the results.

(A)Objectives of the field study:- This study aims to examine the association between using the information technology on enhancing the quality of joint audit

(B)Study Hypotheses

The hypotheses are based on the theoretical part of the study as follows:

The first hypothesis: there is no statistically significant relationship between using the information technology on enhancing the quality of joint audit.

The second hypothesis: there is statistically significant relationship between using the information technology on enhancing the quality of joint audit.

(C) Study Population and Determination of Sample Size

The type of data used in this study is the primary data source; the technique of collecting data is by distributing a questionnaire statement and received responses. In this study, the questionnaire was filled with: internal auditors, external auditors, accountants, university professors and financial manager.

Determine The Population size & selecting the sampling

The difficulty countless study sample either: internal auditors, external auditors, accountants, university professors and financial manager, so it was determined the sample number as one hundred respondents were used the following formula used to calculate the sample size to get proper estimates and to estimate the allowable error, namely

$$n = \frac{z^2(p(1-p))}{e^2} = \frac{(1.96)^2(0.50)(0.50)}{e^2} = \frac{(1.96)^2(0.50)(0.50)}{(0.01)} = 100$$

Whereas:

N: Refers to The sample size;

E: Refers to The amount of allowable error;

Z: Refers to Standard degree with 95% Confidence;

P: Refers to Availability Population assumes that 50% of the community.

It is the formula the researcher finds that the size of the sample that was used, one hundred respondents lead to get the correct estimates are consistent with rates in the community 95% confidence level with a margin of error in the range of 10%.

Analyzing Characteristics of the Sample(I)

It can clarify the classification of the sample in the light of the valid responses for statistical analysis, which has been obtained; the

researcher has the characterization of the sample which is to Job title variables, the number of years of experience, and educational level. This is also evident from the following figures and tables as following:-

Table (3):- Distribution of sample items by Careers illustrated by the following table

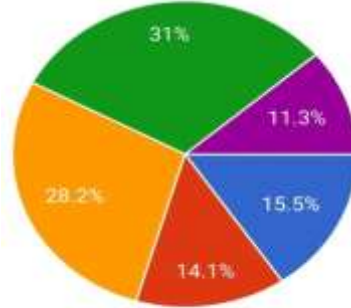
Statement	Number of Distributed and questionnaires	Percentage of Number of valid Questionnaires
University Professors	22	9.8%
Internal auditors	7	18.3%
Financial managers	9	28.1 %
External auditors	13	12.8%
Accountants	20	31%
The Total	71	100%

Source: Prepared by the researcher.

Source: Prepared by the researcher Source: relying on SPSS program outputs.

Through the above figure is study sample consisted of 100 respondents that which represents the questionnaires that have been distributed to the study sample; but what has been recovered from these questionnaires is 71 questionnaires which represent almost 70% of the number of questionnaires, it has been discussing what was in it from Information about the study sample were processed and analyzed and enter data into the statistical program in order to complete the study and in the light of the above table also shows that good lists rate for statistical analysis of each category of the study groups is the appropriate rate, which can be relied upon to test the research hypotheses.

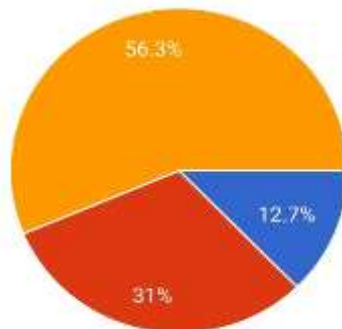
Figure (1) Distribution of sample items by The Scientific Qualification



Source: prepared by the researcher relying on Excel program Outputs.

Distributed sample study on the respondents in terms of professional qualification where the researcher finds that the largest proportion recorded was Obtaining from doctorate degree and their number were 22 respondents, equivalent to the proportion of 31%, and followed by master degree with a total 20 per person equivalent to the proportion of 28.2%, followed by bachelor total number of members of the 11 respondents the equivalent ratio of 15.5%, followed by diploma total number of members of the 10 respondents the equivalent ratio of 14.1%, and finally professional certifications, which represented the number of 8 respondents, equivalent to 11.3%, due this difference to the diversity found in the sample of the study in terms of academic certificates.

Figure (2):- Distribution of sample items by years of experience



Source: prepared by the researcher by relying on Excel program outputs.

The study sample and the degree of experience of the sample have differed as shown in the previous table, which shows that the largest proportion of experienced registered for the category experience more than 10 years total number of members of the 40 respondents the equivalent ratio of 56.3%, and then followed by the category experience from 5 to 10 years, the equivalent ratio of 31%, finally by a category ranging experience less than 5 years and represents a 12.7% ratio.

After reviewing the survey forms, the data encoding, and enter their answers on a computer using Statistical Package for Social Sciences program Version23 (SPSS). In order to make a statistical analysis of the field study data, and it was also rely on the Excel program.

The researcher used the following statistical methods:

Statistics Reliability:

It is the methods that are interested in the extent of the reliability of the results of the survey based data analysis, in the sense of how homogeneous the respondents answers between them and the possibility of circulating the results to the community, through the reliability coefficient tests and coefficient of honesty. It was relying on the Cronbach's alpha coefficient (Cronbach Alpha) and the more factories increased from 0.5 indicates that the stability of coefficient in the community and the possibility of circulating the results to the community.

Validity

In order to verify the Validity of the apparent scale submitting it to the research supervisor intent to modify or cancel some paragraphs within the questionnaire, making the questionnaire more accurate and objectively measurement.

Stability

In order to make sure of the reliability of study tool, Cronbach's alpha test

(Reliability Analysis) was used.

The researcher based on Cronbach's alpha coefficient, one of the reliability Statistics methods that are interested in the extent of the reliability of the results list data survey analysis of the sense of the extent of the homogeneity of the answers between the respondents of them and the possibility of circulating the results to the community, through consistency and Validity coefficient tests. The results of coefficient as follows:

Table (4):- Summary results of Cronbach's coefficient alpha for study sample

the dimension	Number of Questions	Cronbach's Alpha
includes statements measuring the effect of using the information technology on enhancing the quality of joint audit	12	.612
The Total	12	.612

Source: prepared by the researcher by relying on SPSS program outputs.

Consequently, the researcher finds that the Cronbach's Alpha coefficient results about (.612) which indicates the relative validity of most of the answers to the hypothesis of the laboratory use.

The following is a presentation of the results of the descriptive statistical analysis of the data, which is the value of the arithmetic means, the standard deviations, the arithmetic relative importance of all dimensions of the study and the paragraphs constituting each dimension, taking into account that the scale used in the study should be included as follows:-

Strongly	Agree	Neutral	dis Agree	Strongly dis
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Agree				Agree
5	4	3	2	1

Based on this, the values of the arithmetic averages reached by the study will be dealt with to interpret the data as follows

High	Medium	Low
More than 3.5	2.5 - 3.49	1- 2.49

Accordingly, if the arithmetic mean value of the items is greater than 3.5, then the level of perceptions is high, and this means that the sample members agree on the item. But if the value of the arithmetic mean is 2.5-3.49, then the level of perceptions is medium, and if the arithmetic mean is less than 2.49, then the level perceptions is low (Hawamdeh 2006).

(E)Analysis and testing of data related to the study hypothesis

H0: there is no statistically significant relationship between using the information technology on enhancing the quality of joint audit.

H1: there is statistically significant relationship between using the information technology on enhancing the quality of joint audit.

To accept the null hypothesis or alternative hypothesis, the researcher used to means, standard deviations, and the importance of the paragraph, as shown in the following table :-

Table (5):- The dimension includes statements measuring the effect of using the information technology on enhancing the quality of joint audit.

Serial	The dimension includes statements measuring the effect of using the information technology on enhancing the quality of joint audit.	Mean	Std. Deviation	Arranging Materiality of	Materiality
1	Using of information technology efficiently and effectively enhancing professional skepticism in the audit process and link multiple data sources, and provide a unified and integrated view of the company's business.	4.08	.996	3	High
2	Artificial intelligence techniques have channels of communication between the joint audit, the board of directors and stakeholders to coordinate work between them and examine internal and external communication protocols.	3.97	1.11	6	High
3	The application of expert systems in the joint audit works to increase the efficiency and effectiveness of operations within the company.	4.04	.932	5 4	Hig
4	The techniques of neural networks help the joint audit to provide advisory and assurance services to help management achieve the company's goals.	3.86	1.07	10	High
5	-using neural networks in joint audit activities works to support the professional competence of the auditors, through the speed of addressing problems by revealing new ways to search, analyze problems and propose solutions.	3.86	1.06	10	High
6	Continuous monitoring of the newly developed technology systems contributes to expanding the scope of application of the regulatory audit to include the changes that have occurred in the control environment of the company.	3.91	1.05	8	High

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7	Using digital technologies in joint audit activities increase the effectiveness of coordination, cooperation, and planning of the audit process and enhancing the independence of the external auditor and achieving a high level of quality in the joint audit process.	4.07	1.07	4	High
8	The application of digital technologies in joint audit activities contributes in reducing the time, effort and cost of joint audit process and it reduces the complexity in joint audit procedures and it works to balance the relationship between the two parties of the joint audit.	3.94	1.16	7	High
9	Digital security contributes to the implementation of control measures related to joint audit activities to protect information and the confidentiality of its circulation, as well as to prevent intrusion and unauthorized access.	4.13	.89	1	High
10	Using digital technology in joint audit requires periodic training for auditors, which affects their professional competence and experience and obtaining reasonable assurance about whether the financial statements as a whole are free from misstatement and it increasing the effectiveness of mutual quality control devices, issuing a single strong audit opinion, and better applying audit procedures.	3.57	1.24	11	High
11	Using digital technology in joint audit activities increase the effectiveness of joint audit process, protect information and keep backup copies for use when needed and reduces the risk of losing information during the audit process.	4.11	.95	2	High
12	Applying information technology mechanisms to joint audit activities that improve communication and oversight by providing written channels, consistent plans and structured procedures	3.87	1.18	9	High
the mean of the arithmetic mean of the total questions		3.95			

Source: prepared by the researcher by relying on SPSS program outputs.

The first dimension: includes statements measuring the effect of using information technology mechanisms on enhancing joint audit, ranging averages between it (3.57- 4.13) compared to The arithmetic mean of all questions Where it reached (3.95), where paragraph which states” **Digital security contributes to the implementation of control measures related to joint audit activities to protect information and the confidentiality of its circulation, as well as to prevent intrusion and unauthorized access**” came in first place with a mean (4.13) and a standard deviation was (.893) compared with the overall general average mean and general standard deviation. While paragraph “**using digital technology in joint audit requires periodic training for auditors, which affects their professional competence and experience and obtaining reasonable assurance about whether the financial statements as a whole are free from misstatement and it increasing the effectiveness of mutual quality control devices, issuing a single strong audit opinion, and better**” got on final place with a mean (3.57) and a standard deviation was (1.24) compared with the overall general average mean and general standard deviation.

Researchers finds that this is a clear indication of the respondents through sample survey responses that there is agreement between the respondents in the questionnaire that information technology mechanics enhance the quality of the joint audit, because the arithmetic mean of the questionnaire questions in the dimension is greater than 3.5, and also that the mean of the arithmetic mean of the total questions of dimension is equal to 3.95 is high so **researcher accepted the alternative hypothesis that there is statistically significant relationship between using the information technology and enhancing the quality of joint audit** and rejected the null hypothesis .

The third section

Conclusions, findings, recommendations and future studies

After presenting the theoretical side of the study and according to the data collected through the previously analyzed questionnaire and after testing the hypotheses of the study, the researcher will present this section through the following point's conclusions, findings, recommendations and future studies.

Conclusions

Empirical study and its conclusions are consistent with the theoretical study that using the information technology enhancing the quality of joint audit, it provides better understanding of business processes and create competitive advantages for adopters, agreeing with the study of (Nashwan, 2023) which concluded that the necessity for audit entities to design and implement specialized programs for applying electronic brainstorming throughout all stages of joint auditing work. Additionally, it is essential for relevant and responsible bodies to focus on establishing suitable methods to activate and approve the use of electronic brainstorming for the audit team, with the aim of task distribution and coordinating efforts during joint auditing engagements. The study of Puthukulam, G., et al(2021) found that artificial intelligence techniques play an important role in improving the quality and reliability of information contained in financial statements and that they help to verify the complete data of an organization. This means that detecting errors and fraud in artificial intelligence assisted audits is easy and convenient and helped improve overall audit efficiency.

In the light of the previous analysis the alternative hypothesis is accepted: - "that there is statistically significant relationship using the information technology and enhancing the quality of joint audit.

Findings

After discussion of the theoretical and empirical aspects in this research, the researcher reached to important findings for both theoretical and practical fields as follows:-

- 1- Using the information in joint auditing plays an important role in enhancing the quality and reliability of information in financial statements and helps verify the complete data of an organization.
- 2- Using digital technology play an important role in improving the quality, reliability, and overall efficiency of audits. It also helps in detecting errors and misstatements.
- 3- The traditional manual systems used for joint audit activities not consistent with the continuous economic development in business environment; it must be based on artificial intelligence applications.
- 4- Using of artificial intelligence application helps the auditors to conduct a comprehensive evaluation and prepare periodic reports that include the most important observations, discuss them with the Board of Directors, and provide recommendations and appropriate corrective actions to improve the quality of financial reporting.
- 5-

Recommendations

Based on the results of the study, the researcher suggests the following recommendations:-

- 1- Publishing new standards and regulations to govern using the information technology and artificial intelligence applications on joint audit to secure and protect users.
- 2- Using artificial intelligence in all corporate audit activities for reducing the costs.
- 3- Training programs should be design and implemented to qualify accountants on applying the artificial intelligence and to keep up to deal with new developments.
- 4- Continuous revision of mechanisms of artificial intelligence and their use in both remote internal auditing and joint audit in light of epidemics.

Research Orientations and Future Studies

Based on the results and recommendations of this study, the researcher suggests the following future studies:-

- 1- The effect of artificial intelligence on audit fees in the era of epidemics.
- 2- The impact of big data analytics on joint audit procedures.
- 3- A Comparative study between external audit activities and internal audit activities in the light of artificial intelligence and joint auditing.
- 4- The effect of information technology on external audit activities and its impact on accuracy of the auditor's report.

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