

Computerization of Internal Audit Systems and Its Impact on Financial Control in Government Units (A case of Sudan)

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ABSTRACT

This research aims to investigate the problems and risks that threaten the electronic computing of internal auditing and to identify the methods that limit them. To analyze the data, the research adopted (SPSS) program and that is for testing the hypotheses which include: there is a statistically significant relationship between the computerization of internal audit systems and internal control in controlling public funds. The research came out with many results such as computerization of internal audit systems helps in identifying the main and subsidiary goals of departments which helps in achieving the set goals, computerized reports lead to effective managerial supervision of the work environment, and help in controlling public funds and quick interaction with complaints. The research recommended many recommendations, including the need for computerizing of internal audit system which helps in achieving the set goals and activating the continuous evaluation of control methods under the computerized system.

Keywords: internal audit, financial control, Governmental units, computerized system

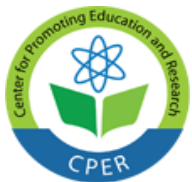
Introduction

Electronic auditing or e-auditing is a computer-assisted auditing that uses electronic records to complete all audit work. If you use a computer to record your business accounting systems have undergone dramatic changes in recent years, out of the major changes is the increasing use of machines, for instance, electronic data processing machine, that is, computers. Computer technology has revolutionized the technique of data processing, Copnell, (1999).

(Attali et al., 2020). Stated. Electronic audit (auditing) is a computer-assisted review of processes that partially use electronic records for auditing purposes. If previous centuries were distinguished by several human revolutions starting with the industrial revolution, such as the knowledge revolution, and passing through the technology and communications revolution, the current century is the century of information technology.

According to (Attali et al., 2020), the audit profession in a digital transformation environment requires firms and other public units to establish the theoretical framework and practical side, high speed in data processing and communicating of resulting information to interesting users to help them in making and rationalizing of decisions. The rapid development in technology has also put the security and safety of these firms and units at stake, requiring them to develop many security procedures that coincide with the use of this technology to protect their valuable information.

The electronic audit process requires advanced technology that differs from the technology used in the traditional audit process, where there should be a coincidence between the system used in the firm or unit operations and the process systems for the electronic audit work. The electronic auditor using the electronic audit process needs to design special software for each electronic data processing process based on the compatibility of the software and operating systems used. (Attali et al., 2020).



The electronic auditor would like to study the internal control system of the firm or the unit where accounts are maintained on a computerized accounting system. Though many internal controls are employed in this system, the allocation of duties and systems of authorization depends on the same principles as that in the same of manual systems. Still, there are many special controls, which are applicable in the electronic processing of accounting data; the study of such controls is very necessary from the point of view of the audit. The auditor should understand the significance of all such controls, since negligence in any of them may mean that the data generated by the such system is not reliable. However, the introduction of computers and other machines in the field of accounting is not a guarantee against all types of errors. In the Electronic data processing (EDP) system, the nature of internal control is different and it is, therefore, necessary for the auditor of any company using electronic data processing (EDP) to open his mind to the changes that this necessitates. It is always suggested that the management should consult the auditor at the time of installation of the system for processing electronic data. Temu and king'ori (2000).

Over centuries, the manual processing of data has often been interspersed by many different processes such as: recording, classifying, summarizing, and arranging, which led to the need of increasing the effectiveness of internal audit systems, especially under the computerization of electronic systems and operating of data to control the public money, where internal audit considered as one of the most important tools of managerial control. Due to the inadequacy of computerized internal audit system under computerized systems, and because of the complexities that have occurred in accounting systems, which require special skills to fit with the nature of the components of computerized internal audit systems, which greatly affected the internal audit process, and failed to protect the public money. (Khalifa, 2017).

Research Problem

Based on the reports of the General Auditor of Sudan, showed increasing assaults on public money in recent years in government units in Sudan. This raises many questions about the feasibility of the internal audit system applied in these units and its ability to detect irregularities to reduce these assaults which are shown in the General Auditor's reports, By searching for the internal audit system adopted by government units in Sudan, it was found that it is a traditional and not computerized audit system. Therefore, the problem of this research comes to find answers to the following questions:

- Does the computerization of internal audit systems contribute to the preservation of public money and limiting assault on it?
- Does the use of a computer in the audit process affect the functions, tasks, and scope of internal audit work?
- Does computerizing of the internal audit system increase the effectiveness of internal control?

The importance of research

The findings from this research provide well guide and become useful for researchers with an interest to carry out research in the same area. The study will enable the expansion of the body of knowledge to professionals, academicians, and the public at large.

Also, the importance of this research is to demonstrate the impact and implications of electronic computing of data on internal audit methods, besides increasing the research and studies that dealt with the impact of computerization of internal audit systems on the control of public funds to help to provide reliable and objective accounting information.

Research Objectives

The objectives of this research are:

- Identifying the concepts of the internal audit systems under the use of manual and electronic operating systems.
- Demonstrate the problems and risks that threaten electronic computing of internal audit and identify the ways that reduce them.
- Identify the impact of computing internal audits on financial control in public units.

Research hypotheses

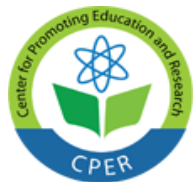
The main hypothesis of this research is: there is a statistically significant relationship between the computerization of the internal audit system and the internal control process in public units in Sudan.

The relationship is defined by the following sub-hypotheses:

- First: There is a statistically significant correlation between the computerization of internal audit systems and managerial control in controlling public funds.
- Second hypothesis: There is a statistically significant relationship between the computerization of internal audit systems and accounting control in the control of public funds.
- The third hypothesis: There is a statistically significant relationship between the computerization of internal audit systems and internal control in controlling public funds.

Research Methodology

The research used the historical approach to review previous studies, the deductive approach to determine the problem of the study, the inductive approach to test the hypotheses, and statistical analysis to study the case and information collection tools.



Sources of data collection

Data has been collected from its primary sources which are represented in questionnaires and observation, as well as from its secondary sources which are: books, journals, references, scientific periodicals, university theses, and websites.

Previous studies

Hardy et al (2000) study

This study aimed at choosing the division of the managers of information systems and internal auditors of the relative importance of regulations of internal control on data exchange systems, testing the extent of significant differences between these assessments electronically. The study concluded that: the categories of controls that do not have significant differences between the evaluation of each information system ' managers and internal auditors of their relative importance, represent practices that have general acceptance in the field of internal control over the electronic data exchange systems, while the categories of controls that have significant differences between the evaluation of the two groups for its relative importance, represent weaknesses of internal control, and need more research and awareness among information systems' managers and auditors for its importance.

Glandont Study (2001)

This study aimed to find out the impact of the adoption of electronic exchange systems and the consequent need to develop control systems that are established in small business firms. I used descriptive and analytical approaches. The study reached several conclusions, the most important of which are: some obstacles prevented the development of control systems, while on the other hand, there is an expected complexity of the new accounting systems after development, which led the members of the board of directors of these organizations to reject this idea.

Achal Study (2004)

This study aimed to identify the computerization of accounting systems in companies, the study tested several hypotheses, including the use of modern accounting systems helping raise the efficiency of management, the study used descriptive, inductive, deductive, and analytical approaches. The study came out with several results, including the automated accounting systems used in the group have been developed to suit the needs of management in providing the necessary data and information, the quick dispensing of accounting books after a short period of using of computer gives a clear indicator of the health and safety of the automated accounting system and the absence of malfunction. The study recommended continuing to update and develop automated accounting systems to ensure their continued validity and effectiveness in the long term, intensifying training courses for computer users, so that they can handle computers well.

Hamali Study (2006)

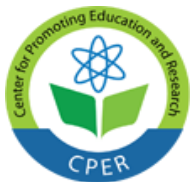
This study aimed to clarify matters related to the automated system and accounting and auditing programs and to provide practical models of those programs currently in existence at the Libyan, Arab, and International levels. The study examined several hypotheses, including there are a set of requirements for the implementation of an automated accounting information system through which it can be depended to achieve the objectives of the accounting system and make it more effective in the production of information, and acceptable to users of financial statements such as the state agencies, banks, shareholders and investors. The study adopted a deductive, inductive, and historical approach, and came out with many conclusions, including there is a general trend towards the use of electronic systems in the field of accounting and bookkeeping, although the majority of Libyan accountants and auditors support the benefit of using electronic systems, there is still a part of them that have not seen electronic systems. The study recommended that the related authorities, Accounting Bureau, and Tax Authority should adopt the proposed tools to activate the use of electronic systems and keep up to date with the technical progress in the field of accounting and bookkeeping.

Beasley & Others Study (2008)

The study entitled "Impact of enterprise risk management on the internal audit function", the study based on a survey of 122 organizations to illustrate the impact of enterprise risk management on the internal audit role. It found that the internal audit function is influenced by the risk management of organizations and it can play a leading role in activating it when: organizations apply enterprise risk management model overall activities, the existence of audit committees that support the role of internal audit in organization's risk management, Internal Audit Manager shouldn't be replaced for a reasonable period. However, the researcher believes that this study, like other studies that are presented in the last years of the current century, has linked risk management and its estimate or assessment to the work and role of internal audit, without delving into how to identify or assess those risks, without focusing on who can do so, which has been so much of a concern for researchers.

Alsaed Study (2018)

This study aimed at developing the role of internal audit using the quantitative approach for risks assessment, especially when preparing financial reports, and also aimed to activate the internal control structure, which has become based on identifying and assessing risks to minimize them as minimum as possible as the one of the most dangerous that face



organizations and demand for the users of financial statements and reports and stakeholders. The study found that the success of using the quantitative model in evaluating the risks of preparing financial reports led to the development of the role of internal audit, which contributes to activating the internal control structure based on risk management and assessment, as well as that developing the role of the internal auditor by depending on the model which provides a positive return by activating the control structure. Also, the study confirmed that the quality of the internal control structure helps in minimizing the risks of financial reports, and the quantitative model helps the internal audit department in assessing the risk of reports, and the development of the role of internal audit in a quantitative manner helps to activate the internal control structure.

Mohammed Study (2019)

The study aimed to use the information technology system in the internal audit process to control the financial performance of government institutions in Sudan, and to know the methods used to obtain the evidence electronically. The study adopted the descriptive and analytical approach to testing the hypothesis. The study came with many results including the scientific and practical qualification of internal auditors and the rules of professional and ethical conduct are insufficient to keep up to date with the technological progress in the internal audit process, internal auditors must have special qualifications such as a professional qualification. The study recommended that: the need for continuous training of auditors and the need to comply with the rules of professional conduct.

Comment on previous studies

The above review of previous studies shows the need to develop these studies, where the majority of their objectives were to identify the computerization of accounting systems in companies, to clarify matters related to automated systems and accounting and auditing programs, and to develop the role of internal audit using the quantitative approach to risk assessment, as well as to use the information technology system in the internal audit process to control financial performance in government units. By reading these objectives, it is clear that the objectives of the current research differ from the objectives of the previous studies, where the current research aims to identify the concepts of the internal audit system under the use of manual and electronic operating systems, show the problems and risks that threaten the electronic computing of internal audits in government units, and determine the tools that limit them, and also to identify the characteristics of internal audit and the availability of these characteristics under electronic computing in government units, which confirms the need to the necessity to develop the previous studies.

Data Analysis and Testing of Hypotheses

Population and Sample of the Research

The research population means the total set of elements to which the research seeks to generalize the results related to the studied problem. The research population consists of the Ministry of Finance of White Nile State in Sudan, which is closely related to the research topic. Where the research sample was selected randomly from financial managers, financial controllers, accountants, internal auditors, and external auditors. Many (105) questionnaire forms were distributed to the targeted group, and almost (95%) responded.

Research Variable

It is that variable related to hypotheses to identify the actual reality of respondents' opinions representing the target community and has been expressed in the respondents' form in the form of phrases and each of them has five options (strongly agree, agree, neutral, disagree, strongly disagree). Values (5,4,3,2,1) were given to these options respectively to subject them to quantitative statistical analysis.

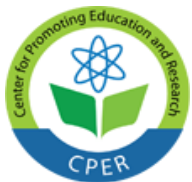
Data Analysis and Testing of Hypotheses

Below table No. (2) shows the analysis of personal data which is a description of the research sample.

General Characteristics of the Sample

Table No. (1)
General Characteristics of the Sample

Statement	Frequency	Percentage
Age:		
Less than 30 years old	23	23
30 to 40 years old	56	56
41 to 50 years old	13	13
More than 50 years	8	8
Total	100	100%
Level of Education:		
Diploma	4	4
Bachelor degree	61	61
High Diploma	8	8
Master degree	20	20
Ph.D.	4	4



Other	3	3
Total	100	100%
Scientific Specialization:		
Accounting	71	71
Business Administration	8	8
Economics	14	14
Banking Studies	3	3
Information Systems	0	0
Other	4	4
Total	100	100%
Job Description:		
Accountant	30	30
Administrative	6	6
Auditor (internal or external)	51	51
Financial Manager	3	3
Other	10	10
Total	100	%100
Professional Qualification:		
SCA (Sudanese)	4	4
ACA (Arab)	2	2
ACCA (British)	1	1
CPA (American)	1	1
Other	5	5
No professional qualification	87	87
Total	100	%100
Years of experience:		
Less than 5 years	26	26
5 to 10 years	42	42
11 to 15 years	22	22
16 to 20 years	8	8
More than 20 years	2	2
Total	100	100%
Participation in Training Courses:		
In accounting field	47	47
In audit field	35	35
Other	18	18
Total	100	100%
Computer Training:		
Trained	92	22.0
Untrained	8	50.0
Total	100	100%

Source: Research data, 2022

Table (1) shows the following

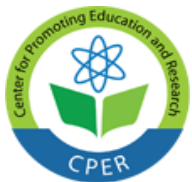
-For age, the mode is the age sample from 30 to 40 years, and at 56%, that is. The age concentration of the researched sample in this age category in making decisions, sobriety of comments with a reasonable degree of practical experience, and a level of education will be explained later, and all these factors indicate the sobriety of the group's opinion, so it can be used in statistical analysis related to research.

-For the level of education, the mode is the group with a bachelor's degree with a percentage of 61%, and the group with a postgraduate degree is 32%. It can be seen that no respondent had no education as this was done randomly and purposely to those groups of people who have education or an understanding of accounting, finance, or auditing, or those who were aware of the whole internal audit. The concentration of the researched sample in the level of university education and above provides academic awareness and culture to give an opinion related to the topic of the research which can be used in statistical analysis.

-Considering scientific specialization, the mode is the group that specialized in accounting, with a percentage of 71%, which is the most capable specialization of evaluating and giving an opinion related to the research's topic, so that it can be used in statistical analysis related to research.

-For the job description, the mode is auditors group with a percentage of 51%, which is a job related to the fieldwork that makes the group more capable to give an opinion concerning the research topic which can be used in the statistical analysis.

-For professional qualification, the mode is the group with professionals with a percentage of 87%, where the rest of the respondents are distributed between ACCA, CPA, and SCPA.



-For years of experience, the respondents with an experience between 5 to 10 years represent 42% of the researched sample, whereas those who have more than 10 years of experience represent 32% of the researched sample, so the majority of the respondents have a reasonable experience and practical skills.

-For training courses, the mode is the group who attended training courses in the accounting field with a percentage of 47%, where 38% of the researched sample have attended a training course in auditing.

-For computer training courses, 92% of the respondents have obtained training courses in computers, and that is an indicator of the awareness of the Ministry of Finance, White Nile, Sudan for the need for developing the skills and experiences of employees.

Presentation and Discussion of First Hypothesis's Phrases

Table No (2)

Presentation and Discussion of the first hypothesis's phrases

Phrase	Agree		Neutral		Disagree	
	Frequency	Percentage	Frequency	percentage	Frequency	Percentage
1/ Computerization of internal audit systems help in determining the main and sub-goals of managements and departments.	97	97%	2	2%	1	1%
2/ Computerization of internal audit systems help in achieving the set goals through control over the organizational plan.	91	91%	9	9%	1	1%
3/ Computerization of internal audit systems helps in achieving the optimal use of resources.	89	89%	7	7%	4	4%
4/ Computerization of internal audit systems help in achieving managerial control through budgetary planning.	92	92%	7	7%	1	1%
5/ Computerization of internal audit systems prevents frauds and errors through flexibility and simplicity of the organizational plan.	82	82%	13	13%	5	5%
6/ Computerized reports help in controlling over public funds.	94	94%	4	4%	2	2%
7/ Computerization of internal audit leads to a good managerial supervision over the work environment.	86	86%	9	9%	5	5%
8/ Computerization leads to quick interaction with complaints	81	81%	13	13%	6	6%
9/ Computerization of internal audit helps raising the level of job performance through delegating of some powers.	87	87%	12	12%	1	1%
10/ Computerization internal audit systems helps control over implementation of managerial policies	85	85%	13	13%	2	2%

Source: From questionnaire data

Table (2) shows the following

-97 of the respondents (97%) agree that computerization of internal audit systems helps in determining the main and sub-goals of management and departments, while one respondent (1%) disagree and two (2%) are neutral. So the agreed respondents of the researched sample are significantly higher (97%), while those who disagree with the phrase are very low (1%), and the neutrals are only (2%), which makes the statistical decision more likely to accept the hypothesis of the study and reject the null hypothesis within the limits of phrase 1.

-(91%) of researched sample agree that computerization of internal audit systems helps in achieving the set goals through control over the organizational plan, while (9%) are neutral and those who disagree with the phrase are (0%), and this is confirmed by the deviation of expected frequencies from the observed ones in the direction of agreement, which makes the statistical decision more likely to accept the hypothesis of the study and reject the null hypothesis within the limits of phrase 2.

-The percentage of the research sample who agree that computerization of internal audit systems helps in achieving the optimal use of resources, is (89%), while those who disagree with the phrase represent (4%), and (7%) are neutrals, which makes the statistical decision more likely to accept the study hypothesis and reject the null hypothesis within the limits of phrase 3.



-92 of the researched sample (92%), agree that computerization of internal audit systems helps in achieving managerial control through budgetary planning, and (1%) are disagree with the phrase, while (7%) are neutrals, which tends to be the statistical decision to accept the study hypothesis and reject the hypothesis of null within the limits of phrase 4.

-The percentage of those who agree that computerization of internal audit systems prevents fraud and errors through flexibility and simplicity of the organizational plan, is (82%), while those who disagree with it represent (5%) of the respondents, and (13%) are neutrals, and this is confirmed by the deviation of expected frequencies from the observed ones in the direction of agreement, which makes the statistical decision more likely to accept the hypothesis of the study and reject the null hypothesis within the limits of phrase 5.

-The proportion of the respondents who agree about the phrase that says computerized reports help in control over public funds, is (94%), while (4%) are neutrals and only (2%) disagree, which is confirmed by the deviation of expected frequencies from the observed ones in the direction of agreement and makes the statistical decision more likely to accept the hypothesis of the study and reject the null hypothesis within the limits of phrase no. 6.

-The proportion of those who agree about the phrase - computerization of internal audit leads to good managerial supervision over the work environment is significantly higher (86%), while those who disagree with the phrase are (5%), and neutrals are (0%), and the deviation of expected frequencies from the observed ones in the direction of agreement, confirms that and makes the statistical decision more likely to accept the hypothesis of the study and reject the null hypothesis within the limits of phrase no. 7.

-The mode is the proportion of those who agree with the phrase that says: computerization leads to quick interaction with complaints, and the percentage of it is significantly higher (81%), while those who disagree with the phrase are (6%), and the neutrals are (13%). That is confirmed by the deviation of expected frequencies from the observed ones in the direction of agreement, which makes the statistical decision more likely to accept the study hypothesis and reject the null hypothesis within the limits of phrase 8.

-The percentage of those who agree that computerization of internal audit helps raise the level of job performance through delegating of some powers, is (87%), while those who disagree with the phrase represent (1%) of the respondents, and (12%) are neutrals, and this is confirmed by the deviation of expected frequencies from the observed ones in the direction of agreement, which makes the statistical decision more likely to accept the hypothesis of the study and reject the null hypothesis within the limits of phrase 9.

-The mode is the proportion of those who agree with the phrase computerization internal audit systems help control over the implementation of management policies which reached a percentage of (85%), and is higher than the percentage of those who disagree with the phrase (2%), regarding that (13%) are neutrals, and that confirmed by the deviation of expected frequencies from the observed ones in the direction of agreement, which makes the statistical decision more likely to accept the hypothesis of the study and reject the null hypothesis within the limits of phrase 10.

Chi-squared test for the first hypothesis's phrases

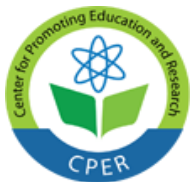
Chi² box is tested the first hypothesis's phrases in table number (3) below:

Table No (3)
Chi² Test Box for First Hypothesis's Phrases

Phrase Number	Chi ²	Level of significance	Degree of freedom	Ranking
1	52.341	.000	3	A
2	4.878	.027	1	B
3	66.390	.000	3	A
4	55.659	.000	3	A
5	16.780	.000	2	C
6	54.878	.000	3	A
7	60.244	.000	3	A
8	54.541	.000	3	A
9	4.478	.027	1	B
10	62.290	.000	3	A

Source: From questionnaire data

Table (3) shows that the level of significance is zero and below 0.05. (which represents the percentage of acceptable error that is assumed at the beginning of the search to obtain a degree of confidence with the answers not less than 95%) for all phrases, which means that there are no significant differences in the responses and findings that are included in the related analysis, and that also means computed Chi-squared value is less than the critical Chi-squared value under the level of



significance less than 0.05, which is likely to be the statistical decision to accept the hypothesis of research and reject the null hypothesis within the limits of the phrases of the first hypothesis.

Presentation and Discussion of the Second Hypothesis's Phrases

The second hypothesis's phase is analyzed in table no. (4), as shown below:

Table No. (4)

Presentation and Discussion of Second Hypothesis's Phrases

Phrase	Agree		Neutral		Disagree	
	Frequency	Percentage	Frequency	percentage	Frequency	Percentage
1/ Computerization of internal audit systems help in implementation of accounting operations in accordance with the established authorization procedures.	94	94%	5	5	1	1%
2/ Computerization of internal audit systems facilitates provision of financial reports and statements in a timely manner.	94	94%	5	5%	1	1%
3/ Computerization of internal audit systems leads to preservation and control of assets.	91	91%	8	8%	1	1%
4/ Computerization of internal audit systems helps to control and protect the enterprise's resources and properties to ensure that they are used for the purposes for which they are allocated.	86	86%	9	9	5	5%
5/ Computerization of internal audit systems leads to preparation of regular and systematic trial balances.	91	91%	5	5	4	4%
6/ Computerization of internal audit systems assists in counting of enterprise's assets and properties in accordance with accepted accounting rules.	89	89%	3	3%	2	2%
7/ Computerization of internal audit systems helps in integration of accounting system's operations.	91	91%	6	6%	3	3%
8/ Computerization of internal audit systems helps in ensuring that various operations are authorized in accordance with the established policies	89	89%	8	8%	3	3%
9/ Computerization of internal audit systems helps in achieving the public control through following correct managerial policies.	88	88%	6	6%	6	6%
10/ Computerization of internal audit systems helps to identify the organizational structure and channels that work on the workflow and identify responsibilities	87	87%	10	10%	3	3%

Source: From questionnaire data

Table No. (4) shows the following

-The mode is the group of respondents who agree that computerization of internal audit systems helps in the implementation of accounting operations under the established authorization procedures, and at a percentage of (94%), which is higher than the percentage of those who disagree with the phrase (1%), regarding that (5%) are neutrals, and that is confirmed by the deviation of expected frequencies from the observed ones in the direction of agreement, which makes the statistical decision more likely to accept the hypothesis of the study and reject the null hypothesis within the limits of phrase 1.

-The mode is the group of respondents who agree that computerization of internal audit systems facilitates the provision of financial reports and statements promptly, and at a percentage of (94%), which is higher than the percentage of those who disagree with the phrase (1%), regarding that (5%) are neutrals, and that confirmed by the deviation of expected frequencies from the observed ones in the direction of agreement, which makes the statistical decision more likely to accept the hypothesis of the study and reject the null hypothesis within the limits of phrase 2.

-The mode is the group of respondents who agree with the phrase; computerization of internal audit systems leads to preservation and control of assets, and at a percentage of (91%), which is higher than the percentage of those who disagree with the phrase (1%), while (8%) are neutrals, and that confirmed by the deviation of expected frequencies from the observed ones in the direction of agreement, which makes the statistical decision more likely to accept the hypothesis of the study and reject the null hypothesis within the limits of phrase 3.

-The mode is the group of respondents who agree that computerization of internal audit systems helps to control and protect the enterprise's resources and properties to ensure that they are used for the purposes for which they are allocated, and at a percentage of (86%), which is higher than the percentage of those who disagree about the phrase (5%), regarding that (9%) are neutrals, and that confirmed by the deviation of expected frequencies from the observed ones in the direction of agreement, which makes the statistical decision more likely to accept the hypothesis of the study and reject the null hypothesis within the limits of phrase 4.

-The mode is the proportion of those who agree that computerization of internal audit systems leads to the preparation of regular and systematic trial balances, and the percentage of it is significantly higher (91%), while those who disagree with the



phrase are (4%), and the neutrals are (5%). That is confirmed by the deviation of expected frequencies from the observed ones in the direction of agreement, which makes the statistical decision more likely to accept the study hypothesis and reject the null hypothesis within the limits of phrase 5.

-The mode is the group of respondents who agree that computerization of internal audit systems assists in the counting of enterprise's assets and properties under accepted accounting rules, and at a percentage of (89%), which is higher than the percentage of those who disagree with the phrase (2%), regarding that (3%) are neutrals, and that confirmed by the deviation of expected frequencies from the observed ones in the direction of agreement, which makes the statistical decision more likely to accept the hypothesis of the study and reject the null hypothesis within the limits of phrase 6.

-The mode is the group of the researched sample who agree that computerization of internal audit systems helps in integration of accounting system's operations, and at a percentage of (91%), which is higher than the percentage of those who disagree with the phrase (3%), regarding that (6%) are neutrals, and that confirmed by the deviation of expected frequencies from the observed ones in the direction of agreement, which makes the statistical decision more likely to accept the hypothesis of the study and reject the null hypothesis within the limits of phrase 7.

-The mode is the group of respondents who agree that computerization of internal audit systems helps in ensuring that various operations are authorized under the established policies, and at a percentage of (89%), which is higher than the percentage of those who disagree with the phrase (3%), regarding that (8%) are neutrals, and that confirmed by the deviation of expected frequencies from the observed ones in the direction of agreement, which makes the statistical decision more likely to accept the hypothesis of the study and reject the null hypothesis within the limits of phrase 8.

-The mode is the group of the researched sample who agree that computerization of internal audit systems helps in achieving public control through following correct managerial policies, and at a percentage of (88%), which is higher than the percentage of those who disagree with the phrase (6%), regarding that (6%) are neutrals, and that confirmed by the deviation of expected frequencies from the observed ones in the direction of agreement, which makes the statistical decision more likely to accept the hypothesis of the study and reject the null hypothesis within the limits of phrase 9.

-The mode is the group of respondents who agree that computerization of internal audit systems helps to identify the organizational structure and channels that work on the workflow and identify responsibilities, and at a percentage of (87%), which is higher than the percentage of those who disagree with the phrase (3%), regarding that (10%) are neutrals, and that confirmed by the deviation of expected frequencies from the observed ones in the direction of agreement, which makes the statistical decision more likely to accept the hypothesis of the study and reject the null hypothesis within the limits of phrase 10.

Chi-squared test for the second hypothesis's phrases:

Chi-squared box for testing the second hypothesis's phrases in table number (5) below:

Table No. (5)

Chi² Test Box for Second Hypothesis's Phrases

phrase Number	Chi ²	Level of significance	Degree of freedom	Ranking
1	19.512	.000	1	A
2	42.976	.000	3	B
3	60.732	.000	3	B
4	41.512	.000	3	B
5	47.293	.000	2	C
6	59.463	.000	3	B
7	83.561	.000	3	B
8	42.512	.000	3	B
9	45.293	.000	2	C
10	43.976	.000	3	B

Source: From questionnaire data

Table (5) shows that the level of significance is zero for all phrases of the second hypothesis, which means that there are no significant differences in the responses and findings that are included in the related analysis, and that also means computed Chi-squared value is less than the critical Chi-squared value under the level of significance less than 0.05, which is likely to be the statistical decision to accept the hypothesis of research and reject the null hypothesis within the limits of the phrases of the second hypothesis.

Presentation and Discussion of the Third Hypothesis's Phrases

The third hypothesis's phase is analyzed in table no. (6), as shown below:



Table No. (6)
Presentation and discussion of third hypothesis's phrases

phrase	Agree		Neutral		Disagree	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
1/ Computerization of internal audit systems helps in coordination and coherence of documentary, accounting and managerial organization.	91	91%	6	%6	3	3%
2/ Computerization of internal audit systems helps in sound decisions through preventing duplication of documents.	89	89%	7	%7	4	4%
3/ Computerization of internal audit systems simplifies administrative and office work by reducing the number of documents required for each operation.	84	84%	7	%7	9	9%
4/ Computerization of internal audit systems helps in clearly defining cost centers.	82	82%	14	14%	4	4%
5/ Computerization of internal audit systems helps in adopting fair and appropriate bases for allocating the costs of industrial services.	75	75%	21	21%	4	4%
6/ Computerization of internal audit systems helps in adopting scientific methods to determine the cost of finished products.	83	83%	9	9%	8	8%
7/ Computerization of internal audit systems ensures continuous control over the adequacy of carrying out tasks through appropriate reports for control and follow-up performance evaluation.	93	93%	6	6%	1	1%
8/ Computerization of internal audit systems helps in identifying the role of each document through the clear design of required books, cards and documents.	96	96%	2	%2	2	2%
9/ Computerization of internal audit systems helps in clearly identifying the requirements of production process in terms of commodity and service needs.	84	84%	12	%12	4	4%
10/ Computerization of internal audit systems helps in the implementation of regulations and decisions regulating the process of purchasing and storage.	88	88%	9	%9	3	3%

Source: From questionnaire data

Table No. (6) shows the following

-The mode is the group of respondents who agree that computerization of internal audit systems helps in coordinating and coherence of documentary, accounting, and managerial organization, and at a percentage of (91%), which is higher than the percentage of those who disagree with the phrase (3%), regarding that (6%) are neutrals, and that confirmed by the deviation of expected frequencies from the observed ones in the direction of agreement, which makes the statistical decision more likely to accept the hypothesis of the study and reject the null hypothesis within the limits of phrase 1.

-The mode is the group of respondents who agree that computerization of internal audit systems helps in sound decisions through preventing duplication of documents, and at a percentage of (89%), which is higher than the percentage of those who disagree with the phrase (4%), regarding that (7%) are neutrals, and that confirmed by the deviation of expected frequencies from the observed ones in the direction of agreement, which makes the statistical decision more likely to accept the hypothesis of the study and reject the null hypothesis within the limits of phrase 2.

-The mode is the group of respondents who agree that computerization of internal audit systems simplifies administrative and office work by reducing the number of documents required for each operation., and at a percentage of (84%), which is higher than the percentage of those who disagree with the phrase (9%), regarding that (7%) are neutrals, and that confirmed by the deviation of expected frequencies from the observed ones in the direction of agreement, which makes the statistical decision more likely to accept the hypothesis of the study and reject the null hypothesis within the limits of phrase 3.

-The mode is the group of respondents who agree that computerization of internal audit systems helps in clearly defining cost centers, and at a percentage of (82%), which is higher than the percentage of those who disagree with the phrase (4%), regarding that (14%) are neutrals, and that confirmed by the deviation of expected frequencies from the observed ones in the direction of agreement, which makes the statistical decision more likely to accept the hypothesis of the study and reject the null hypothesis within the limits of phrase 4.

-The mode is the group of respondents who agree that computerization of internal audit systems helps in adopting fair and appropriate bases for allocating the costs of industrial services, and at a percentage of (75%), which is higher than the percentage of those who disagree with the phrase (4%), regarding that (21%) are neutrals, and that confirmed by the deviation



of expected frequencies from the observed ones in the direction of agreement, which makes the statistical decision more likely to accept the hypothesis of the study and reject the null hypothesis within the limits of phrase 5.

-The mode is the group of respondents who agree that computerization of internal audit systems helps in adopting scientific methods to determine the cost of finished products, and at a percentage of (83%), which is higher than the percentage of those who disagree with the phrase (8%), regarding that (9%) are neutrals, and that confirmed by the deviation of expected frequencies from the observed ones in the direction of agreement, which makes the statistical decision more likely to accept the hypothesis of the study and reject the null hypothesis within the limits of phrase 6.

-The mode is the group of respondents who agree that computerization of internal audit systems ensures continuous control over the adequacy of carrying out tasks through appropriate reports for control and follow-up performance evaluation, and at a percentage of (93%), which is higher than the percentage of those who disagree with the phrase (1%), regarding that (6%) are neutrals, and that confirmed by the deviation of expected frequencies from the observed ones in the direction of agreement, which makes the statistical decision more likely to accept the hypothesis of the study and reject the null hypothesis within the limits of phrase 7.

-The mode is the group of respondents who agree that computerization of internal audit systems helps in identifying the role of each document through the clear design of required books, cards, and documents, and at a percentage of (96%), which is higher than the percentage of those who disagree with the phrase (2%), regarding that (2%) are neutrals, and that confirmed by the deviation of expected frequencies from the observed ones in the direction of agreement, which makes the statistical decision more likely to accept the hypothesis of the study and reject the null hypothesis within the limits of phrase 8.

-The mode is the group of respondents who agree that computerization of internal audit systems helps in clearly identifying the requirements of the production process in terms of commodity and service needs, and at a percentage of (84%), which is higher than the percentage of those who disagree with the phrase (4%), regarding that (12%) are neutrals, and that confirmed by the deviation of expected frequencies from the observed ones in the direction of agreement, which makes the statistical decision more likely to accept the hypothesis of the study and reject the null hypothesis within the limits of phrase 9.

-The mode is the group of respondents who agree that computerization of internal audit systems helps in the implementation of regulations and decisions regulating the process of purchasing and storage, and at a percentage of (88%), which is higher than the percentage of those who disagree with the phrase (3%), regarding that (9%) are neutrals, and that confirmed by the deviation of expected frequencies from the observed ones in the direction of agreement, which makes the statistical decision more likely to accept the hypothesis of the study and reject the null hypothesis within the limits of phrase 10.

Chi-squared test for the second hypothesis's phrases:

Chi-squared box for testing the second hypothesis's phrases in table number (5) below:

Table No. (7)

Chi² Test Box for Third Hypothesis's Phrases

phrase Number	Chi ²	Level of significance	Degree of freedom	Ranking
1	23.146	.000	2	A
2	17.146	.000	2	A
3	48.829	.000	3	B
4	50.780	.000	3	B
5	51.537	.000	4	C
6	63.268	.000	3	B
7	41.146	.000	2	A
8	53.680	.000	3	B
9	54.237	.000	4	C
10	60.568	.000	3	B

Source: From questionnaire data

Table (7) shows that the level of significance is zero for all phrases of the third hypothesis, which means that there are no significant differences in the responses and findings that are included in the related analysis, and that also means computed Chi-squared value is less than the critical Chi-squared value under the level of significance less than 0.05, which is likely to be the statistical decision to accept the hypothesis of research and reject the null hypothesis within the limits of the phrases of the third hypothesis.

Chi-squared test for the research's hypotheses

Chi-squared box for testing the research's hypotheses in table number (8) below:

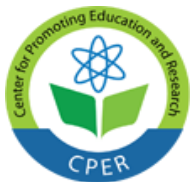


Table No. (8)
Chi² Test Box for research's hypotheses

Hypothesis	Chi ²	Level of significance	Degree of freedom	Ranking
First	60.244	.000	3	A
Second	65.415	.000	3	A
Third	51.756	.000	3	A

Source: From questionnaire data

Table (8) shows that the level of significance is zero for all hypotheses' phrases, which means that there are no significant differences in the responses and findings that are included in the related analysis, and that also means the computed Chi-squared value is less than the critical Chi-squared value under the level of significance less than 0.05, which is likely to be the statistical decision to accept all research's hypotheses and reject the null hypotheses within the limits of phrases of all hypotheses.

Results

Based on the previous presentation and discussion of the research's hypotheses, the followings results were reached:

- Computerization of internal audit systems help in determining the main and sub-goals of departments and achieving the set goals.
- Computerization of internal audit systems help in achieving managerial control through budgetary planning which prevents fraud and errors through flexibility and simplicity of the organizational plan.
- Computerized reports lead to good managerial supervision over the work environment, help in controlling the public, and promote interaction with complaints.
- Computerization of internal audit systems help in carrying out accounting operations under the established authorization procedures to raise the level of job performance in controlling the carry out of managerial policies by delegating some powers.
- Computerization of internal audit systems facilitate the provision of financial reports and statements promptly, and the preservation and control of assets.
- Computerization of internal audit systems help to achieve public control by following correct managerial policies.
- Computerization of internal audit systems lead to ensuring continuous control over the adequacy of implementation of tasks through the implementation of the organized regulations and decisions and follow-up performance evaluation.

Recommendations

Through the results reached, the research recommends the following:

- The need to computerize the internal audit systems that help achieve the set goals and managerial control.
- Work on the expansion of computerization of internal audit systems which achieves managerial control.
- The need to develop a good control system that leads to the implementation of accounting processes under the established authorization procedures.
- Develop a computerized control system to protect the enterprise's resources and property and ensure that they are used for the purposes for which they were allocated.
- Work on developing a computerized system that defines the organizational structure and channels that work on the workflow and determine responsibility.
- Activate the continuous evaluation of control methods under a computerized system.
- The need for continuous training and qualifying of internal auditors to keep up with electronic development to take benefit from the advantages of computers in auditing processes.
- The need to follow accepted standards leads to the development of the auditing profession in the computer environment.

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