



**The 14th Scientific Research Competition organized by the Arab
Organization of Higher Institutions for Public Financial Control
(ARABOSAI)**

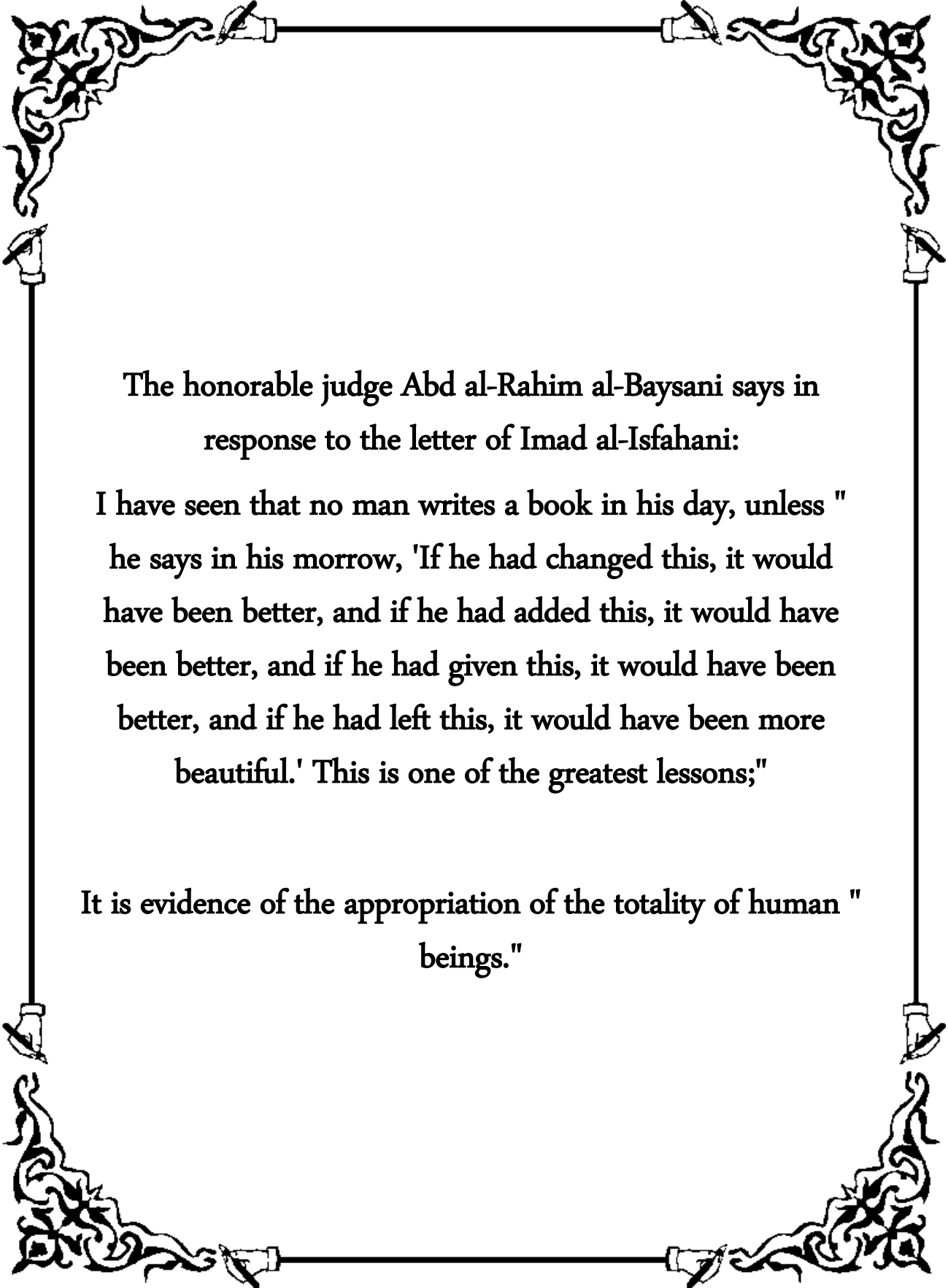
**AxisII Modern scientific methods and innovation in the control
About the topic titled**

**The impact of using modern methods of analytical procedures
in light of information technology on improving the quality of
audit work in the Court of Auditors**

**A field study of performance control for "
Sucotide" – as a model – and a questionnaire applied study" "**

The case of Algeria –

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Algerian Court of Auditors**



The honorable judge Abd al-Rahim al-Baysani says in response to the letter of Imad al-Isfahani:

I have seen that no man writes a book in his day, unless " he says in his morrow, 'If he had changed this, it would have been better, and if he had added this, it would have been better, and if he had given this, it would have been better, and if he had left this, it would have been more beautiful.' This is one of the greatest lessons;"

It is evidence of the appropriation of the totality of human " beings."

Summary

The abstract:

This study aims to shed light on the contribution of using modern methods of analytical procedures in the information technology environment to improving the quality of audit work in the Accounting Council , through relying on quantitative tools, as well as researching the relationship between the use of modern analytical procedures, which include several dimensions, including the availability of information technology infrastructure, the application of modern analytical procedures, and the extent of the auditor's awareness of the importance and requirements of modern methods of analytical procedures

The concept of analytical procedures, their objectives and various modern methods used in the information technology environment were reviewed , and their role in the various stages of the audit process (planning, implementation, and finally reporting) was demonstrated. What is discussed is the impact of these dimensions on improving and raising the quality of audit work in the Accounting Council

The study relied on two tools to collect data , the first is a field study conducted on the performance control of the National Corporation for the Manufacture of Pharmaceutical Products "Socotid". According to the principles and standard of performance auditing ISA the data extracted from modern analytical procedures, such as modern financial ,3000/300 analysis methods and simple regression coefficient model analysis, were used in implementing all stages of the audit process. In the planning stage, some financial ratios and indicators for the years and 2018 were studied, the relationship between the accounts or balances of the "Socotid" 2017 institution was identified, deviations were identified and their causes were identified, as well as financial failure prediction models were evaluated. In the final stage, a predictive study of sales was conducted using the cost of sales through linear regression analysis

The second included an applied questionnaire study to collect primary information by conducting a questionnaire to evaluate the impact of using modern analytical procedures methods on improving the auditing process by the judges and auditors of the Accounting Council, using several advanced statistical tests to analyze the data and study the relationship and strength that links the study variables and the contribution of each dimension in building the relationship between the independent variable and the dependent variable. A statistical model based on neural networks was also added to compare the models and obtain the best model that expresses the impact of using modern analytical procedures methods on improving the quality of auditing work in the Accounting Council in the light of the information technology environment

The results can be summarized as using modern methods of analytical procedures based on statistical and mathematical methods as well as artificial neural networks is one of the most important tools that the auditor relies on to detect errors and manipulations in the financial statements. This use contributes significantly to improving the quality of the auditing process of

Summary

the Accounting Board and enhances the effectiveness of the auditing work on the financial statements, which increases the reliability of financial information. The study showed a statistically significant relationship between the auditor's use of modern methods of analytical procedures in light of information technology and improving the quality of auditing work in the .Accounting Board, at a rate of 86.7%

Based on the findings , the study recommends enhancing the use of modern technology in auditing by developing infrastructure and providing training programs for auditors. It also recommends adopting advanced financial analysis tools such as regression coefficient analysis, mathematical and statistical methods such as sampling method and artificial neural networks, and applying analytical procedures at all stages of auditing. In addition, the study calls for developing accurate predictive models, regularly evaluating performance, and enhancing transparency and .accountability to improve the quality of audit work in the Accounting Council

Keywords Auditing, Modern Analytical Procedures, Information Technology, Oversight .Work, Accounting Council

Content Index

Statement	Page
Abstract	I
Table of Contents	II
the introduction	A
Chapter One The theoretical framework for the role of using modern methods of analytical procedures and information technology in improving the quality of audit work in the Accounting Council	
Introduction	2
The first topic Using modern methods of analytical procedures in the information technology environment	3
Section Two Professional Practices of Supervisory Work In the accounting council	8
third topic The role of using modern analytical procedures in improving the quality of supervisory work In the Accounting Council according to the international standards of supreme financial and accounting oversight bodies	14
Chapter Summary	17
Chapter Two A field study of the use of modern analytical procedures in the stages of the performance control process of the National Corporation for the Manufacture of Pharmaceutical " Products " Socotide	
Introduction	21
using modern analytical procedures in the stages of the The method of The first section performance control process of the National Corporation for the Manufacture of " Socotide " Pharmaceutical Products	22
The second topic Using modern financial analysis models and forecasting models in the planning phase of the performance control process for the National Corporation for the " Socotide " Pharmaceutical Products Manufacture of	24
The third topic Using the linear regression analysis model in the final stage of the performance Pharmaceutical monitoring process for the National Corporation for the Manufacture of " Socotide " Products	32
Chapter Summary	44
Chapter Three An applied survey study of the impact of using modern methods of analytical procedures on improving the quality of audit work in the Accounting Council	
Introduction	46
Chapter One Study Method and Tools	47
Section Two Results and Discussion of the Study	72
Chapter Summary	91
Conclusion	92
References and sources	96

The introduction

Introduction

Modern methods of analytical procedures play a prominent role in analyzing data in its various forms, whether financial or non-financial, making it more qualitative and effective in achieving analytical examination processes. Modern methods of analytical procedures for auditing are among the most important tools used by the external auditor because they contribute to raising the efficiency of the audit process. They are among the most prominent tools of proof used by the external auditor while performing his work

Use of procedures Analytical It is considered Effective in planning And implementation Modern Operations Censorship In a way more effectiveness And effectiveness, Which Reduces from Risks Discoveries not Expected . And used . also As a tool Comprehensive To understand Data The institution Finance And present Reports better.

Problem of the study

Many auditors in the Accounting Board face a challenge in using modern methods of analytical audit procedures, because they help in identifying potential problems and managing them relatively at the lowest cost and with less effort and time. In order to improve the quality of Supervisory work , the essential question can be formulated as follows

❖ **How to contribute Using modern methods of analytical procedures in the in information technology environment to improve the quality of audit work ?the Accounting Council**

C. Sub-questions

Leads us this Question The Jeweler to Subtract group from Questions Sub Which It is manifested in The following

- 1) How much does the auditor rely on information technology at the level of institutions and ?the Accounting Council
- 2) how maybe Use Methods procedures Modern Analytics To discover Items not Regular or ?The abnormal existing in Lists Finance
- 3) Do Contributes Use style Preview Statistics in the field of control tests and basic tests in Supervisory work in to provide the time And reduce Cost and determination And evaluation ?Risks that facing The control process
- 4) Do Affects Use Methods Review Modern on reduction level gap Expectations between ?Parties Beneficiary from Supervisory work
- 5) what bezel There is a statistical significance between the use of Styles Modern analytical ? procedures On functional accreditation and professional practices based on experience
- 6) How much influence Use Auditor For styles Modern For analytical procedures to set And diagnosis Problems potential With the adoption of information technology on Improving ?and raising the level of quality of oversight work in the Accounting Council

h. Hypotheses Search

To answer on The problem Home The proposed, We have identified Hypothesis Home Next

The introduction

Use Methods Modern analytical procedures in the light of information technology – Supervisory work in the Accounting Leads to to improve qualityCourt

On the basis of Hypothesis Home, Lost We have identified Hypotheses Sub Next To answer on **Questions Sub**

- 1) Auditors' reliance on the use of information technology , which supports the importance ; of updating auditors' skills
- 2) It is Methods procedures Analytical Source Basically To determine citizen Danger that may Obstruction The control process And that Items not Regular in Data Finance And ;other Finance
- 3) Use Methods Preview Statistics in the field of control tests and basic tests Leads to Facilitate a job Auditor And provide the time and effort And the cost, leads Accreditation . Auditor on Methods to discount level Risks when to implement Supervisory mission
- 4) that Use Auditor For methods Review Modern Contributes in reduction gap Expectations from during Her ability on discovery Errors and violations And the extent ;commitment Institutions By standards Professional
- 5) There are statistically significant differences between the use of Methods Modern analytical procedures in professional practices of audit work based on functional ; accreditation as well as experience in the Accounting Council
- 6) Contribute Methods Modern analytical procedures using information technology In a way major in to set And diagnosis Problems potential, Therefore more efficiency And effectiveness from during to improve And raising the quality of the oversight work in the AccountingCourt

X. Importance of the study

Since the research topic is new, this research contributes to highlighting the role of modern methods of analytical procedures in enhancing the quality of auditing, through their reliance on experimental sciences, statistical, mathematical and accounting methods combined in performing .the auditing process, which gives the analytical procedures of auditing effectiveness and efficiency In addition, the research addresses the most prominent applied technologies such as the artificial neural network model, and therefore all these models have an effective role in the analytical .review through the process of prediction, application, measurement and development

R. Study objectives

This study aims to

- Addressing the concept of analytical procedures and their most prominent methods and .procedures
- Highlighting the importance of modern analytical auditing procedures by presenting various statistical and mathematical methods and their role in enhancing audit quality, in order to encourage auditors to use them when performing their tasks and making sound .decisions with minimal effort and cost and with the highest quality

Z. Study methodology and tools used

To cover the various aspects of the subject, answer the questions and prove the hypotheses, we relied in the study on the inductive approach with its two tools of description and analysis. In the theoretical aspect, we relied on the tool of description by addressing the basic and theoretical concepts on the subject and collecting information related to the subject, classifying and analyzing it, and describing and diagnosing the research phenomenon for the purpose of understanding the theoretical framework

As for the applied aspect of the study, we relied on the descriptive analytical approach through a field study of the performance control of the Socotid Foundation, as well as a survey study by designing a questionnaire with the aim of collecting data from the target group of the research, which is the auditors of the Accounting Council, including judges and auditors, which was designed specifically for this purpose and distributed to the auditors of the study sample. We collected, unpacked and analyzed the questionnaire using the statistical package SPSS version 2.8 and used appropriate statistical tests with the aim of reaching valuable indications and indicators that support the subject of the study

D. Study limitations

- **Spatial limitations** This study was limited to the National Institution Socotid, and the opinions of the judges and auditors of the Court of Auditors
- **Time limits of the field study** This study was conducted during the period between 2017 and 2018, the Socotid Foundation's performance monitoring was conducted, and the period between March and May 2024, starting from preparing and distributing the questionnaire, through its distribution, and then collecting and processing the forms

K. Study structure

The study was divided into three main chapters as follows

1. **Chapter One** The theoretical framework for the role of using modern methods of analytical procedures and information technology in improving the quality of audit work in the Accounting Council
2. **Chapter Two** Field study of the use of modern analytical procedures methods in the stages of the performance control process of the national institution Socotid
3. **Chapter Three** An applied survey study of the impact of using modern methods of analytical procedures on improving the quality of audit work in the Accounting Court

Introduction

In light of the rapid technological developments and increasing complexities in the economic environment, it has become necessary for accounting boards and supreme financial and accounting oversight bodies to adopt modern analytical methods and procedures to meet the requirements of effective oversight. The use of modern analytical procedures and information technology in these processes enables achieving higher levels of accuracy and efficiency in oversight performance, and contributes to enhancing transparency and credibility in financial oversight reports.

This chapter aims to review the theoretical framework of modern analytical procedures and how to apply information technology in the audit practice environment of the Accounting Council. The focus will be on the basic concepts, technological tools, and modern analytical techniques that can be used to improve the quality of audit operations and enhance the ability of audit bodies to detect corruption and financial manipulation.

The first topic Use of modern methods For analytical procedures in the IT environment

In the digital age, information technology enhances the efficiency of financial control through modern analytical methods such as big data analysis and artificial intelligence . This integration helps to detect financial manipulation quickly and accurately, which enhances transparency and credibility in the financial system . We will review how to apply these technologies to improve .regulatory performance

analytical procedures The first requirement Concepts about modern methods of First Definition

Analytical procedures are " **The process of evaluating and analyzing the financial statements and other financial information of an organization, and it is characterized by the multiplicity of terms used to describe it in contemporary accounting literature**

Analytical review depends on a deep and comprehensive analysis of data, and uses advanced " . analytical techniques and tools to provide comprehensive reports that help management and ¹. shareholders in making sound decisions, as well as auditors in the auditing process

Standard procedures start from the general standards that the auditor relies on to assess the **.1** .status of the institution to be **audited** , as the audit program is created based on these standards

Efficiency procedures , which show interest in determining the level of efficiency of the **.2** institution compared to other institutions in the same sector or industry, and can evaluate the status of the institution through its previous activity and financial performance, in addition to .providing an evaluation of the different levels of management

From the previous definitions, it can be concluded that ' **analytical review includes a set of fundamental tests that the auditor performs on financial and non-financial data, with the aim of examining the relationships between these data and ensuring the accuracy of the accounts and balances in the books of accounts and records. Through this process, the auditor can discover fundamental errors that may affect on accuracy And** . " **reliability Data Finance and reports Finance** " **The final**

Through **the various definitions** mentioned, it becomes clear that analytical procedures include several important aspects

1. Analysis of the main financial ratios and indicators of the company, which helps to understand the company's performance and compare it with previous periods or similar . institutions in the same activity

Farid Halboub , Analytical Review Methods in Improving the Performance of the Auditing ¹ . Process , Al-Ma'rifah Magazine, Issue 50, December 2014 , p. 85

2. Studying key trends and fundamental indicators, which helps identify any deviations or unusual changes in financial data
3. Comparing accounting values to expected values, which are estimated based on historical relationships between financial statements

In general, the primary objective of analytical procedures is to achieve efficiency and effectiveness in the audit process by identifying potential problems objectively and at the lowest possible cost, thus enhancing the quality of financial data and the confidence of stakeholders in it

²Second Objectives of analytical procedures

Seeking procedures Analytical Reflect Purpose from Audit process and clarification Aspects that Focuses On it Auditor to ensure effectiveness And success The process through

- ;Recognition on nature works The institution And specify range Examination and review
- ;to set Areas Risks expected
- ;to set bezel Tests Operations and balances
- ;to set Areas that You need to More from Examination and care
- ;Doing By checking total And comprehensive For information and data Finance
- .Enhance Results that Get in touch To her The auditor

Third The importance of analytical procedures It appears in several Aspects According to (Baruch LevBaruch Lev)³

Discovery Errors Essential .1

Analytical on discovery Errors The essence in Data Finance, This It means that procedures Help . it Contribute in a guarantee accuracy And health Data that Provided by The institution

Evaluation system Censorship Interior .2

Analytical on evaluation system Censorship Interior For the institution, procedures It works . Which Helps on to improve this order And more His efficiency in to forbid Errors And fraud

Discovery Obstacles And the problems .3

Analytical on discovery Obstacles and problems inside The institution, Which procedures Help Allows an opportunity To treat it And improve performance The institution In a way general

Appreciation capacity The institution on Continuity .4

²Farid Halboub , Analytical Review Methods in Improving the Performance of the Audit .Process , Reference previously cited, p. 95

³Auditing Process Performance Using Analytical Procedures in Light , Mohammed Hussein of the Use of Modern Technology , PhD Thesis, University of Barka, Faculty of .Management and Technology, 2015 , p. 110

Analytical Auditor on appreciation capacity The institution on Continuity, procedures Help Which He can from presentation Recommendations suitable For the institution building on this . Appreciation

Orientation practical Auditing .5

Analytical To guide practical Auditing, where It is done analysis Values procedures used Expected And compare it With values The truth existing in Lists Finance, Which maybe Auditor . from directing His interest And his tests In a way better during practical Review

In a way general, Then Review Analytical It is considered tool Strong For the auditor to understand the situation Financial And operational For the institution, And it helps in presentation Recommendations Important that Contribute in to improve performance The . institution And guarantee Its continuity in the future

modern analytical procedures in The second requirement Methods and purposes of light of information technology

First The purposes of analytical procedures

⁴ Analytical procedures are used throughout the audit process to achieve three main points

1. Use of analytical procedures as evaluation procedures Risks

One of the most important is Purposes procedures Analytical he evaluation Risks potential that . facing The institution And specify procedures essential To reduce This is amazing Risks

2. Use of analytical procedures as procedures Objectivity

Help procedures Analytical in presentation evaluation objective For data Finance and operations Commercial For the institution . Used . Analytical Auditor Methods and tools Scientific and analytical To submit evaluation precise And objective For the situation Financial and . performance Operational For the institution

3. Use of analytical procedures as procedures Final Comprehensive at the end of the audit process

It is considered Analytical procedures step Final And comprehensive in practical Auditing . And it is done. to implement after Complete all procedures Other in practical Auditing It aims to to .Verification from accuracy And reliability Data Finance And present Recommendations Final

⁵Second Methods procedures Analytical and types of information technology

⁴Hussein Mohammed, Performing the Audit Process Using Analytical Procedures in Light . of the Use of Modern Technology , Reference previously cited, p. 78

⁵Ben Qateeb Ali, The Role of Auditing in Light of Electronic Data Processing in Improving . the Quality of Accounting Information, PhD Thesis, University of Mohamed Boudiaf, M'Sila, .2017

Depends on on group Miscellaneous from Methods To discover Errors and manipulations in Accounts Institutions . Divide . This is amazing Methods to Two types Main Methods Modern . And methods Old

Methods Traditional Depends on Methods Old on Relatives and relationships Finance .1 Traditional . Divide . Methods Old to

Procedures Analytical Descriptive not Quantity .1.1

These procedures involve the use of auditors' inferential assessments and non-quantitative These .information to understand and analyze financial statements and business processes procedures vary in several types, including

- ; Expected results based on previous reviews -
- ; Review external (non-quantitative) information -
- .Reviewing internal information of a non-quantitative nature -

Simple quantitative analytical procedures .2.1

These procedures are used to quantitatively analyze financial data using specific techniques such as horizontal analysis, vertical analysis, forecast testing, and budget variance analysis. Analytical audit techniques provide access to accurate and detailed information about the financial and operating data of organizations, which helps auditors identify risks and opportunities and improve financial and administrative processes. These procedures are divided into several types, including

- ; Horizontal analysis -
- ; Vertical analysis -
- ; Predictive testing -
- .Budget variance analysis -

Financial ratios .3.1

procedures involve the use of general financial ratios during the planning and final review phase of a financial statement audit. This use is important for a comprehensive understanding of the current financial position and current financial events. This analysis can also help examine the financial statements from the user's perspective. General financial analysis can be effective in identifying areas that may contain problems and require additional analysis and focus through the .use of analytical review procedures

Modern methods .2

based Modern analytical review procedures are sophisticated quantitative analytical procedures on mathematical and statistical techniques and modern technology. These methods involve the

use of mathematical models to analyze financial data and statistics to identify abnormal patterns⁶ Among the most important of these methods are the following .and detect exceptions

Analysis Model Slope .1.2

He depends model analysis Slope on Relationships between Variables And predictions . It is possible. For auditor use Models analysis Slope For expectations Finance and operational Using Data Economic And the environment, and depends on study Relationships Sports between group from Variables . Represents this Type from Analysis attempt To understand How to impact change one or more from Variables on variable Another . And helps . analysis Slope Auditor on to understand Relationships between Variables Different And expected Directions . Finance Futuristic

Analysis chains Time .2.2

Based on analysis chains Temporal to comparison Balances and indicators Finance Review With balances and indicators Expected Based to results analysis chains Temporal . Can . For the auditor to determine Deviations in Balances Actual And follow it And appreciation bezel Its reasonableness . It is considered study behavior Data on bitter time, Which Allows For the auditor to understand How to development Numbers Finance and operational on Orbit a period Time Specific, can For auditor use analysis chains Temporal For comparison between Numbers Finance Actual And the numbers expected, Which He can from discovery any Deviations not Expected And specify bezel reasonableness Numbers Finance, help on to set Directions Long . Term and changes Temporal in Data Finance

7 Networks Nervousness Synthetic .3.2

It is considered Networks Nervousness Synthetic Processor Parallel Author from Units to treat Simple It is called Cells Nervousness . Similar . practical Computing in Networks Nervousness Synthetic Operations Arithmetic in brain Human, It is represented by Its strength in Her ability on acquisition Knowledge And store it And use it . storage Knowledge acquired in This is amazing Networks from during Learn it from Its environment And the process Experience, depends on Models Computing Inspired from brain Human, where used To analyze And collect Data, and can For auditor use Networks Nervousness Synthetic To predict In patterns Finance and operational, And also To acquire Knowledge from Data And analyze it In a way Effective

⁶Auditing Process Performance Using Analytical Procedures in , Mohammed Hussein Light of the Use of Modern Technology , PhD Thesis, University of Barka, Faculty of .Management and Technology, 2015 , p. 250

⁷Othman Mahdi Salah Al-Din, Using Expert Systems as an Approach to Developing the Performance of the External Auditor, PhD Thesis, 2012, Amman. .p. 112

Types of information technology .3

Low complexity IT systems .1.3

Low complexity IT systems typically consist of a single small computer system or a small number of small computers that are networked and are generally used to maintain journals, .subsidiary ledgers, and a general ledger

Information technology systems of medium complexity .2.3

An IT system of moderate complexity includes at least one large mainframe or server and may consist of a number of small computers or terminals operating on a network connected to a .mainframe or server

3.3. Advanced IT Systems

Most of the large companies now rely heavily on information technology to have the ability to deal with their advanced needs for information operation as advanced technologies are implemented through these advanced systems and in general, uncomplicated systems can be converted into Complex systems are created by one of the following methods or by⁸combining the following methods

- ; **Direct playback**
- ; **Communication systems**
- ; **distributed operation**
- . **Database management**

In the accounting Section Two Professional Practices of Supervisory Work council

Supervisory work The first requirement concepts about

are among the most important auditing The supreme financial and accounting auditing bodies institutions in contemporary countries. We find the supreme financial auditing bodies, as these bodies differ from one country to another in terms of name, organization and powers. However, what distinguishes these bodies from other auditing institutions is that they enjoy the necessary independence and broad powers to carry out effective post-audit over the management of public .funds

Definition of auditing work .1

It is conformity with the various legal rules that govern it, whether they are within the framework of the legal form, meaning that the financial act is in conformity with the legal action to ensure from Good Use Money ,General And make sure from safety

⁸Din, Using Expert Systems as an Approach to Developing the – Othman Mahdi Salah El .Performance of the External Auditor, previously cited reference, p. 33

Determine results Business ,Finance And improve Rates Performance And the detection on Violations And deviations suggestion a And means Treatment To avoid repeat it ⁹ . In the future

Objectives .2 ¹⁰ Supervision

The objectives of control are as follows

- Verify from adequacy Information and systems and procedures ;used
- Show the extent commitment Management in Implement it For budget In politics ;approved
- monitoring And guarantee bezel Matching Predictions Finance With goals Desired And the ruler in Programs ;development
- .Efficient and rational management of financial resources at the disposal of enterprises .Detection of deviations from standard criteria
- To detect violations of the rules of legality, efficiency, effectiveness and economy in the management of funds quickly enough to make it possible to take corrective action in .individual cases

The second requirement control)audit) exercised by the Accounting Council On the public economic institutions

The Supreme Financial and Accounting Control Bodies are independent and carry out post-audit over the funds of the state, regional groups and public utilities. What distinguishes them is that they supervise the state's commercial capital. The purpose of supervision over public economic institutions is to determine the extent to which public funds are rationalized in the institutions. This law has strengthened the role of the Council in developing good governance ¹¹. and transparency in the management of public funds

1. The Accounting Council is the highest supervisory body

is an independent higher institution for the control of public property and funds. It is responsible for the subsequent control of the funds of the state, local authorities and public facilities, as well as commercial capital belonging to the state. The Court of Auditors also contributes to the promotion of good governance and transparency in the management of public funds and the .deposit of accounts

⁹Abu Ghaya Samir, Modern Trends in Control and Auditing of Electronic Information Systems, . Books, Al-Azhar Trade, 2009 , p. 233 . Egypt , Dar Al-Qalam

¹⁰Abu Ghaya Samir, Modern Trends in Control and Auditing of Electronic Information . cited reference , p. 155 previously ,Systems

.INTOSAI Guidance Manual , p. 11 . ¹¹

2. (International Standards of Supreme Audit Institutions ISSAI) (formerly and IFPP) currently

INTOSAI contributes to the development of public sector audit practices. The new framework of the International Standards of Supreme Audit Institutions (ISAS) will be discussed. INTOSAI, through the XXIII INCOSAI Congress held in Moscow, worked to replace the old (framework of the International Standards of Supreme Audit Institutions ISSAIs) with the new (framework called the INTOSAI Framework of Professional Guidelines and Publications IFPP) under which structural amendments were made to the previous framework, in addition to , amendments to the ISSAIs documents between the process of withdrawing standards in order to . amend them and issuing new principles, standards and guidelines

(The International Standards of Supreme Audit Institutions ISSAIs) include three main levels that aim to ensure the quality of financial oversight and enhance its credibility and transparency . They include three levels

Level One Foundational and Basic Principles .1.2

Founding Principles define the roles and functions that supreme audit institutions should strive to fulfil. These principles are important for governments, parliaments and the general public, and .are used as a reference for defining the mandates of national institutions

Fundamental Principles The founding principles support and clarify the role of supreme audit institutions in society, the conditions necessary for the efficient performance of their tasks and .their professional conduct. This level includes 5 principles

Level Two International Standards of Supreme Audit Institutions .2.2

The purpose of international standards to ensure the quality of auditing processes, enhance the credibility of financial auditing, enhance the transparency of the auditing process, define the responsibility of financial auditors, and provide a common language for financial auditing of the .public sector

Level 3 INTOSAI Guidelines/Directions .3.2

This level is based on a core set of concepts and principles that define financial control of the public sector . This level includes 10 standards, with the use of 37 international auditing standards, .for a total of 46 standards

The guidance and instructions are intended to support supreme audit institutions and individual auditors in applying international standards in practice in financial operations, performance or compliance audits, and in understanding and applying relevant standards. This level includes 24 .guidance

3. . Monitoring performance and detecting deviations

The evaluation of the institution's performance by the Audit Board is a key link in the scientific chain of management and administration, and includes the various operations and activities

carried out by the economic institution, which helps managers to detect deviations and know the extent to which the set objectives are achieved and then take appropriate decisions

Concept of performance control . 1.3

performance control represents the extent of knowledge that considered¹² Some specialists have of the management's ability to make the best use of resources and provide the best benefit. This role comes through analyzing alternatives and finding the best alternative. Therefore,¹³ performance control achieves two main goals, which are

- ;Functional objectives
- .Strategic objectives

The importance of performance monitoring through detecting deviations This can .2.3¹⁴ be summarized as follows

- .Control prevents or reduces the occurrence of errors, especially major and costly ones -
- ;To ensure that the work is going well and according to plan -
- Preventing economic disasters, especially at the state level, the institutional level and the -
- ;macroeconomic level
- Achieving development and progress by helping to implement the plans set and reducing waste, -
- .excess costs and unemployment

The third requirement the main areas and principles of performance control of public economic institutions

Key areas of performance control . 1

Performance auditing is an independent, objective and reliable examination of whether a government's undertakings, systems, operations, programmes, activities or institutions are operating in accordance with the principles of economy, efficiency and effectiveness and whether¹⁵ there is room for improvement

Performance control also means public economic institutions " **The control exercised by various bodies over public bodies in order to monitor the legitimacy of their financial activity and to work on improving their performance and profitability, by evaluating**

¹² ,The National Audit Office in the United Kingdom, translated by Al-Sati Tariq 1989 . The Framework for Financial Control of the Return on Spending Public Funds, p. 5

¹³Omar Muhammad Abdul Halim 1991 Evaluation of Efficiency and Effectiveness in Government Programs Riyadh College of Administrative Sciences King Saud University p. 425

¹⁴Sabah Abdel Rahman 1989 Administrative Control between Theory and Practice . Alexandria University p. 19

¹⁵Accounting Council, Professional Guide for Quality Management Control, 2019, p. 25

the conditions of their use of the public resources and means placed at their disposal, Performance audit also seeks to ¹⁶ . **in terms of effectiveness, efficiency and economy** provide new information, analyses or insights and recommendations for improvement when appropriate. Performance audit provides new information, knowledge or value through the following

- ;(Providing new analytical insights)broader or deeper analysis or new perspectives
- ; Provide an independent and formal opinion or conclusion based on audit evidence
- ¹⁷.Providing recommendations based on the analysis of the audit results

2. ¹⁸Basic elements of performance control

According to ISA 300 “ **Basic Principles of Performance Auditing** ”, within the framework of quality management auditing, the Audit Board should rely on regularity)financial audit and compliance) and on performance principles economy, efficiency and effectiveness. Performance .auditing also seeks to measure the relationship between the various concepts

1. Economy Economy is about minimizing the cost of necessary resources. The means to be used should be available at the right time, in the right quantities and at the best prices. The main question to be asked is The question to be checked is “Are the means used available at the required ” ?time, in the appropriate quantity and quality, and at the best prices

2. Efficiency Efficiency is the ability to achieve the greatest possible results from the available resources. It is the relationship between the means used)financial, human, technical and organizational) and the achievements in terms of quantity, quality and respect for deadlines. The questions that the auditor asks himself are "Will we obtain the maximum achievements in terms of quantity and quality, based on our inputs?" or "Would it have been possible to achieve the same "?achievements with fewer inputs

3. Effectiveness Effectiveness is concerned with achieving the set objectives and obtaining the desired goals. The question asked by the auditor is “To what extent have the objectives been ”?achieved?” and also “Can this be attributed to the achievements of the policy followed

The third topic The role of using modern analytical procedures in improving in the Accounting Council according performance control professional practices for .(to International Standards for Supreme Audit Institutions)ISAIs

¹⁶Mohamed Masai, Public Accounting, Dar Al-Hoda for Printing and Publishing, Ain .Mlila, Algeria, 2013, p. 156

¹⁷.Accounting Council, Practical Guide to Quality Management Control, p. 32

¹⁸Professional Guide to Quality Control of Management of the Court of Auditors, .previously cited reference, pp. 8 and 9

The essential objective of performance control over public institutions in particular is to evaluate performance, which is represented in “the extent to which the available resources are efficiently used in the best possible way, and taking corrective measures to restore the activity paths , thus which allows for the promotion of good governance in the ,”¹⁹ achieving the desired objectives .optimal use of available resources

The first requirement Using modern methods of analytical procedures in the performance auditing mission and their role in improving management performance the principles of performance auditing according toISSAI 300 the performance and auditing standardISSAI 3000.

The role of performance control in improving management performance .1

standard , “The main objective of performance ISSAI 300/ISSAI 3000 ²⁰ According to the auditing is to develop economic, effective and efficient governance in a constructive manner, and to contribute to improving accountability and transparency.” Accordingly, performance auditing contributes effectively to developing management methods in public institutions in ²¹ general and public economic institutions in particular through

- Verifying the extent to which each activity or responsibility center has achieved the effectiveness of its performance in achieving the objectives set for it, while verifying the extent of commitment to what is required by the policies and procedures adopted for that purpose, and verifying the achievement of efficiency in the use of available resources, to obtain the best possible results in the shortest time, and in accordance with the objectives of the facility, which requires ensuring the provision of studied, appropriate and sufficient standards that determine what resources should be used to perform the service, produce a ; commodity, or implement a policy or control procedure
- Detecting deviations and explaining their causes, and making proposals that address deviations and shortcomings in order to direct performance towards achieving greater efficiency, ; economy and effectiveness

¹⁹Ali Abdullah, Environmental Impact On the performance of the public economic ,institution, doctoral thesis .University of Algiers, 1999, p. 6

²⁰ .INTOSAI Guidance Manual , previously cited reference, p . 7 www.issai.org
. Browsing date : 11/15/2021

²¹Muhammad Samir Badri, Evaluation of the Performance of Financial Control Practiced by the Financial and Administrative Control Bureau in Palestine, a thesis to complete the requirements for a Master’s degree in the Leadership and Management Program, 2017, pp. 23- . 25

- Verifying whether the necessary scientific techniques and methods for financial management are actually available and how they are applied, and the possibility of relying on quantitative units of measurement, as the person responsible for control can determine some results .through the type of objectives, whether qualitative or quantitative

Use modern methods of analytical procedures to achieve both economic efficiency .2 and effectiveness

procedures are the process of examining the information contained in the accounts and records of the institution and comparing it with others , according to the International Standard on Auditing **ISSAI 1520 Analytical Procedures** ”. It is considered evidence and its goal is to “ understand the environment of the institution’s or establishment’s activity by analyzing and evaluating the financial data for the purpose of assessing financial risks in general . The most important of these comparisons are

- ;Compare with the data of the activity you are working in
- ;Compared with previous period data
- ;Compared to the institution's expectations
- .Compared with auditor expectations

In it, financial ratios, change ratios, and budget deviations are analyzed. The most important methods used for initial analytical procedures are financial analysis tools and methods , statistical methods, and ready-made programs. The goal of this step is to come up with an opinion about the extent of consistency of information with what is known about the institution, and it also enables the auditor to assess the risks of material deviations in the financial accounts. In order to get a clear idea of the financial data, the overall picture can be in the form of repetitive cylinders . Among these tools, we mention

balance indicators, by financial ratios, financial (A. Financial analysis indicators (leverage

To know the financial status of the facility, its ability to provide various financing methods and formulas, and to analyze the financial status to know the ability to pay, as well as provide quantitative, financial and accounting information that is consistent with the accounting information and the facility’s activity in the financial report of the facility’s activity, treasury, and .inventory

b. Analytical accounting

Analytical accounting is defined as a technique of processing information obtained from general the effectiveness of the determining accounting, in addition to other sources, and allows organization of the institution. It also allows monitoring responsibilities, whether at the ²².implementation level or at the management level

C. Estimated budgets

²².pp. 15, 16 ,Accounting Council, Strategic Planning Strategic Plan 2014–2019

The estimated budget is defined as a pre-digital plan for the institution's activity in its indicator for or implementation during a specific period of time. It is also considered a measure measuring performance, as well as for measuring management effectiveness, which enhances It²³ .adherence to it as a means of control and as a reference for guidance during implementation is used in several areas, including

- ;Planning and preparing various budgets
- ;Coordination between different functions
- .Monitoring and identifying various deviations

T. Strategic Planning

It is known as a systematic approach that anticipates the prospects of the possible and potential future, and prepares to face them by diagnosing the available and expected possibilities, designing alternative strategies, making rational decisions regarding their implementation, and following up on this implementation. It is also an ongoing process aimed at designing and developing plans that include the organization's functions by relying on an effective system for all information and making strategic decisions in light of the continuous evaluation of internal and external environmental variables to discover opportunities and challenges and identify strengths and²⁴ .weaknesses and address them

The second requirement The role of using modern methods of analytical procedures in light of information technology In improving quality Performance monitoring mission.

- Modern analytical procedures can be used in three stages of the audit process. Some of these procedures should be performed at the planning stage to help the auditor determine the nature, extent and timing of the work to be performed. This helps the auditor identify .important matters that require special attention during the performance of the audit
- Artificial neural networks can be used Analytical review, which is applied by the auditor at the beginning or end of the audit process, when he forms his general decision as to whether .the financial statements as a whole are consistent with the auditor's knowledge of the process
- Analytical review procedures can be used at various stages of the audit process. Some procedures must be applied at the planning stage in order to assess risks, understand the nature of the work the client is doing, and determine the nature and timing of the audit procedures

²³Accounting Council, Professional Guide for Quality Management Control, reference .previously cited, p. 29

²⁴Strategic Planning as an Approach to Continuous Improvement in Pre-University Education Institutions in Jordan: An Analytical Study, Journal of the Faculty of Education, Al-.Azhar University, Issue 164

Chapter One Theoretical framework for the role of using modern methods For analytical procedures and information technology in improving the quality of audit work in the Accounting Council

Analytical review procedures are often used in the detailed testing phase in conjunction with other audit procedures applied to financial information items. Analytical review procedures are also required during the completion phase of the audit. These tests serve as a final review material errors or financial problems and help the auditor take an of " **objective overview** " of the financial statements

From the above, it is clear to us that analytical review procedures can be used during three stages of the audit process, and we can explain this in the following points

During the planning stage It helps in identifying the elements that need special attention .1 during the audit process, which are those elements that affect the nature, timing and extent of the work performed. Also, by applying analytical review procedures in the planning stage, it helps the auditor understand the work and identify potential risk areas

During the implementation of the audit process The auditor designs and applies .2 substantive analytical review procedures when performing the audit process in a manner that is appropriate to the substantive risks with the aim of reducing the risk of detection when the level substantive and detailed analytical procedures. From the evaluations of evidence is low, through of financial information through analytical examination of the reasonable relationship between each of the financial and non-financial data, analytical procedures also include according to **the " international standardIS SA 1520 Analytical Procedures"** what is necessary to investigate " the fluctuations and specific relationships that are not consistent with other related information or that differ from the expected values by a large amount, for example using comparisons and relationships such as ratios, for example, to assess the reasonableness of certain balances or other .data appearing in the financial statements

4. **Upon completion of the audit process** A comprehensive audit is conducted to detect any potential material misstatement. This can be illustrated in the following table Using analytical review procedures in the audit process , using procedures Analytical in all phase from practical Auditing, maybe For the auditor to investigate Goals Auditing Effectively And verification from accuracy And believe me Data Finance.

Table No.) 2.1) A table showing control methods in the information technology environment

	Control method	Example of censorship
General control methods	Procedures for documenting, examining and approving systems and .programs .Monitoring of computer and data files	Separation of duties between the computer . programmer and the computer operator Create the appropriate program that contains the .commands to operate the computer Memory failure or hard drive failure causes error .messages to appear on the screen Authorized passwords must be present to operate the .computer terminal

Chapter One Theoretical framework for the role of using modern methods For analytical procedures and information technology in improving the quality of audit work in the Accounting Council

Applied control methods	.Input control .Operational control Output control	Pre-operation license for sales operations. For example Conduct a test to determine the reasonableness of the .unit price sold Conduct post-operational inspection of sales .operations by sales management
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Source Prepared by the researcher

How to application procedures Review Analytical in all phase from (Table No.) 3.1 stages practical Auditing According to the criteria

Audit process stage	The purpose and nature of the procedures used
1. Audit process planning	Understanding the business of the organization and assessing the possibility of misstatement in the unaudited financial statements ISSA 1315 Knowledge of the organization and its environment for the purpose of identifying and assessing the . errors risks of material Setting materiality limits for financial items International Standard ISSA 1320 ; Materiality in Planning an Audit Engagement“ Identify high risk audit areas ISSA 1200 ; ”Audit Risk“ Going Concern Report IFRS 5701 ISSA "Continuity of Activity" ; (Trend analysis and comparison of an organization's data with other organizations ISSA 1505 includes tests of conformity by physical ("External Confirmation" . observation, analytical procedures, and inquiry
2. Basic verification procedures	Obtain ISSA 1500 to verify the validity and accuracy of individual Audit Evidence .balances Analysis of indicators based on direct relationships between individual accounts 1580 ISSA "Written Declarations" . " Syriac and Conformity Tests -ISSA 1520 "Analytical Procedures"
3. Final inspection	.Trend and financial ratio analysis of individual accounts and financial statement data

Source prepared by the researcher

Chapter Summary

Modern analytical procedures and information technology are essential pillars for improving the quality and efficiency of auditing operations in the accounting board. This chapter has explored in depth the technological concepts and tools that enable greater accuracy in detecting financial manipulation and enhancing transparency. Through big data analytics and artificial intelligence technologies, the accounting board can quickly and accurately examine huge amounts of data, which contributes to predicting risks and discovering unusual patterns. ,Despite the challenges related to data protection and the cost of updates

This chapter highlights the importance of adopting modern analytical procedures and information technology in the field of performance auditing of pharmaceutical manufacturing companies . These tools and techniques not only improve audit performance, but also represent a step towards achieving higher levels of transparency and credibility in the financial system. By understanding and applying these methods, the accounting board can enhance its ability to detect corruption and ensure the optimal use of financial

Introduction

In this chapter, we will review the budgets of Socotid Corporation using analytical review methods. In the planning phase, the financial ratios and indicators for 2017 and 2018 will be studied to understand the relationship between the accounts, identify deviations and their causes . and assess the status of the corporation using financial failure prediction models , will be conducted through the cost of sales using simple linear regression analysis, where data for nine years from 2009 to 2017 will be analyzed

This aims to implement the audit process more effectively and improve the quality of the audit work

using modern analytical procedures in the stages of The first section The method of the performance control process of the National Corporation for the Manufacture of " Socotide " Pharmaceutical Products

In this section, we will review the budgets of an organization using analytical review methods at all stages of the control process, where In the planning phase, we will study some financial ratios and indicators for the years 2017 and 2018 , and try to find out the relationship between the accounts or balances of the Socotid Foundation, the entity under control , and then identify the cases of deviation and find out the reasons for these deviations . In the final phase, we conducted a predictive study of sales through the cost of sales using simple linear regression . analysis and unloading sales data and their cost for 09 years from 2009 to 2017

of the request Submission of the institution subject to the supervisory mission

" Pharmaceutical Products " Socotide National Institution for the Manufacture of

The historical aspect of the institution .1

Socothyd is an Algerian company specialized in the manufacture of absorbent cotton. It derives its name from the initials of the phrase Société de Coton Hydrophile, abbreviated as Socothyd (It is a public economic enterprise .EPE) (and a joint-stock company SPA)and is , .one of the most important production companies

The company started its activity in the production of absorbent cotton, then surgical bandages, cotton towels for children in the first and second ages, and periodic towels , with small but encouraging economic capabilities, with an economic base supported by industrial policies. It also witnessed internal growth, as it became ranked first in the manufacture of plaster bandages .in particular, surgical bandages, and others

Objectives of Socotid Foundation Socotid Foundation aims to meet the largest .2 number of consumer needs in two aspects

Quantity and quality .1.2

- ✓ .Production of semi-pharmaceutical surgical dressings as well as plaster dressings
- ✓ .Create jobs to eliminate unemployment

1.2. In terms of development and fame

- Focus on developing the quality of its products by opening new features and developing ; the systems used in production
- Pay more attention to the human structure of the institution, supporting and motivating ; it
- Developing production in terms of quantity and quality while preserving nature)not ; (polluting the environment
- .Maintaining the increase in production

Tasks of the Socotid Foundation .3

Socotid produces several semi-pharmaceutical and health products, through which it seeks to cover national and African demand by exporting its products, in addition to meeting the needs of citizens, national hospitals and health centers, as well as supporting the national market . with various cotton products, plaster and surgical bandages

In addition to these tasks carried out by the Socotid Foundation and the goals it seeks to achieve, the activity of this foundation is of great importance, as it works to cover the needs of the health sector for sterile cotton, plaster and surgical bandages, and its role is to finance the national market with various products, and due to the nature of its activity, hospitals represent its .most important customer in addition to private dealers

The second requirement The methodology of the performance monitoring process of the national institution, Socotid, by the AuditCourt

The institution is considered the main economic unit that forms the national economy. It is the field in which various activities are practiced with the aim of producing and exchanging goods and services from economic agents in order to achieve an added value that allows the institution to cover its costs and ensure its development. It also represents an indicator of its economic balance and weight. To achieve this balance, the institution must collect the necessary information based on studying the internal and external environment because analyzing this information will contribute directly to its progress. Development is also one of the The main .goals that countries seek to achieve

The control process is included in the framework of performance control according to .the ISA standard ISSAI 300/3000 Performance Audit , Process monitoring quality administration Socotid Foundation, Listed in evaluation Policies General in sector Industries . Must. classification This is amazing The process under Priority Strategy Second " Improvement performance Management General and subject First " Update Management General . The performance evaluation of the National Institution Socotid aims to

- ;Assessing its ability to meet customer needs
- Evaluating the process of planning and organizing the institution's resources and means to ; achieve the tasks assigned to it and its strategic objectives

- Evaluating the conditions for using material and financial resources and means in terms of effectiveness and efficiency and evaluating the level of achievement of objectives within the framework of the national plan for economic and social development

The following problem was raised to evaluate the performance of the Socotid Foundation

❖ the human, material and financial resources of the Socotid Foundation managed in the best possible way to achieve its set objectives and implement the strategy followed? In covering the health sector's needs for sterile cotton, plaster and surgical dressings at the national level

To prepare and implement the audit mission, it depends on an index consisting of) (references used in the audit process ; Detailed audit programme ; audit timetable ; audit team in this Part, We will By reviewing Budgets For the institution Using Methods Review Analytical in My stage Planning And the stage Final performance audit assignment, where

- 1) **in phase Planning** We will Study some Relatives and indicators Finance For years We will try . knowledge Relationship that connect the accounts or Balances . 2017,2018 place the study, And then Standing on Cases The abnormal And knowledge Reasons . This is amazing Deviations, and evaluation of financial failure prediction models
- 2) **But in Stage Final** We will I work study Predictive For sales Socotid Foundation, considering its only clients are hospitals, during Cost Sales . That . Using analysis Slope linear Simple And emptying Data Sales And its cost To nine Years from year 2010 to very . year 2019

and forecasting The second topic Using modern financial analysis models in the planning phase of the performance control process for the National models " Socotide " Pharmaceutical Products Corporation for the Manufacture of

the planning stage of the audit process for the Socotid In this section, we will address Foundation . We will study a set of ratios to determine the possibility of errors in the subject Through how to analyze the study sample using financial . auditing financial statements. For analysis methods, statistical methods and observations in order to know the level of the financial situation of the Socotid Foundation to use the data in performance monitoring to ensure the achievement of the three principles effectiveness, economy, and efficiency, as well as forecasting .models to know the financial situation of the institution

Financial performance evaluation models using ratios in Socotid First requirement Foundation during the two years)2017–2018)

After addressing the comprehensive and general view of the Socotid Foundation and everything related to it, in this section we analyze the financial position of the institution through indicators that reflect the financial position that the institution is going through, and among these

to understand the ability of the institution's current indicators is the analysis of financial ratios assets to keep pace with the maturity of short-term debts. By studying the following ratios

1. ; Financial liquidity
2. ;indebtedness
3. Profitability
4. .(Asset management)activity

We only tried to address and analyze the indicators that are related to measuring financial performance and those that are of interest to the concerned parties by analyzing and interpreting those indicators and giving results about them based on budgets, results accounts, and all documents related to the institution

The second requirement Measuring the liquidity of the institution during the two years)2017–2018)

We have relied on evaluating and calculating liquidity through

First General liquidity ratio The table below shows the changes in liquidity as follows

Table No.) 1.2) Represents the calculation of the general liquidity ratio for the year 2018–2017

Statement / Year	2017	2018
General liquidity ratio	%461.87	%290.80

.Source Prepared by the researcher based on the institution's budgets

From the table above, we notice that the general liquidity ratio changes at varying rates, reaching 461.87% in 2017. This increase may be unacceptable due to the exaggerated increase in the cash component compared to previous years or the inflation of customer accounts. The ratio also decreased to 290.8% in 2018, as the ratio decreased by 171.07%. This may be due to the increase in short-term debts and the inability of the institution to pay part of them on their specified dates. It may also be due to the misuse of good policies in collection and follow-up of customer accounts, especially the nature of the institution, which is considered a public economic institution, as most of its transactions and activities are deals with the state, which makes it difficult to implement the institution's collection policy, considering the state as one of the customers under consideration

The general liquidity ratio is considered an approximate indicator for studying and analyzing liquidity because it does not care about collection and payment dates. This ratio expresses the number of times that current assets can cover current liabilities, and the higher this ratio is, the more the institution is able to face the risks of sudden payment of obligations. This can be observed from the table that each unit of current assets covers 4.61 times of current liabilities in 2017, and the same applies to 2018, where each unit of current assets covers 2.9 units of current liabilities. Therefore, it can be said that the ratio expresses the good liquidity of the

institution because current assets cover more than twice the current liabilities during the two .years

Second The abbreviated liquidity ratio)Quick payment ratio)

Table No.) 2.2) Represents the abbreviated liquidity ratio calculation for the year 2018–2017

Statement of the year	2017	2018
Liquidity ratio abbreviated	%297	%217.43

.Source Prepared by the researcher based on the institution’s budgets

The short liquidity ratio or quick payment ratio)quick rate), which shows the extent to which short-term obligations can be paid within a short period, and the inventory component is removed from the total current assets because it is the least liquid component of current assets and also because it is difficult to dispose of it within a short time without incurring losses, as this ratio provides greater assurance of the institution's ability to meet its obligations. What can be observed from the table is that the ratio varies normally between 2017, which amounted to 297%, .and decreased in 2018 to 217.43%, or 79.57%

Third Quick ratio)current liquidity ratio, cash ratio)

Table No.) 3.2) Represents the calculation of the quick liquidity ratio for the year 2018–2017

Statement of the year	2017	2018
Quick ratio	%50	%20.31

.Source Prepared by the researcher based on the institution’s budgets

The ready liquidity ratio is the most stringent ratio for assessing the financial performance of the institution in terms of liquidity. This ratio shows the extent to which short-term obligations can be met. We find that the ratio decreased significantly in 2018 compared to 2017, i.e. it decreased by 29.69%. Therefore, it gives an indication to the management that short-term obligations can be met during the worst times. It is worth noting that the institution’s statements do not contain quasi-cash or anything that can be converted within a short period, such as .securities for trading on the stock exchange

The third requirement Measuring the return)profitability) of the institution during the two years)2017 – 2018)

The performance of the institution can be evaluated through the following relationships

First Net profit margin ratio This can be explained through

Table No.) 4.2) Represents the calculation of the net profit margin ratio for the year 2018–2017

Statement of the year	2017	2018
net profit margin ratio)0.127))0.107)

.**Source** Prepared by the researcher based on the institution's budgets

This ratio shows the ability of the institution to achieve a profit as a result of sales, as each unit of sales will be left behind and achieve a loss of 0.127 in 2017 and 0.107 in 2018, meaning that the loss ratio reached)12.7%) in 2017 and decreased in 2018 to reach)10.7%), which is a bad and unacceptable indicator for the institution, meaning that the institution does not achieve a profit through its sales and thus a decrease and failure to achieve a positive result. The decrease in the latter is due to the cost of sales, which does not include other costs only, but also additional costs from marketing, administrative expenses and loans. In this case, this is an indicator of the success of the basic process, while the institution fails in other aspects, meaning that there is an additional cost charged to the institution's expenses that is not related to the basic cost of the product. We note that the institution incurred losses in 2018 as a result of its warehouse of raw materials being exposed to a fire, which led to an increase in its cost of sales

Second Return on equity ratio)ROE)

Table No.) 5.2) Represents the calculation of the return on equity ratio for the year 2018-2017

Statement of the year	2017	2018
return on equity ratio)0.131))0.142)

.**Source** Prepared by the researcher based on the institution's budgets

This ratio expresses the return that the owners achieve on investing their money in the institution. This ratio is also considered one of the most important profitability or return ratios used, as based on this ratio, the owners may decide to continue the activity or transfer the money to other investments that achieve an appropriate return for that in general. However, the institution, as an institution that has a monopoly on a certain percentage of semi-pharmaceutical products, as we mentioned previously, and as a public economic institution owned by the state, this does not prevent it from continuing the activity and investing in these products. This ratio also expresses the extent of the management's success in increasing the profits of the owners. We note from the table that the ratio is in a continuous decline, as it reached)13.1%) in 2017 and rose to)14.2%) in 2018, i.e. by)1.1%), which is a very weak and bad indicator for the institution and from the point of view of investors, and therefore the institution does not achieve the minimum profits for the benefit of the owners

Third The percentage of return on total assets

Table No.) 6.2) Represents the calculation of the return on total assets ratio for the year 2017–2018

Statement of the year	2017	2018
Return on Total Assets Ratio)0.048))0.045)

.Source Prepared by the researcher based on the institution's budgets

This ratio shows the ability of the institution to invest the assets it owns, such as equipment, buildings, land, inventory, and other assets. It also expresses the ability of the institution to use its assets to generate profit. It is also used to measure the ability of management to achieve a return on all the funds available to the institution from various sources. The higher it is, the more efficient the institution is in exploiting its assets. We notice from the table above that the institution incurs costs without achieving a return on assets. Whenever 1 unit of the value of its available assets is invested, it incurs a cost of)0.048), which was in 2017 and decreased to .in 2018, i.e. by a small amount that has no effect on the institution's result (0.045(

Fourth requirement Measuring the institution's debt during the two years)2017–2018)

The organization can be evaluated and commented on through the following relationships

First The percentage of financial independence

Table No.) 7.2) Represents the calculation of the financial independence ratio for the year 2017–2018

Statement of the year	2017	2018
Financial independence rate	0.37	0.32

.Source Prepared by the researcher based on the institution's budgets

This ratio shows the extent to which total debts can be covered using equity, and also shows the financial independence of the institution. We notice from the table above that the institution does not enjoy financial independence, i.e. an unacceptable situation for the institution, as the ratio decreased from 37% in 2017 to 32% in 2018, considering the ideal case .(greater than 60%(

Second The ratio of debts to total assets

Table No.) 8.2) Represents the calculation of the debt to total assets ratio for the year 2018–2017

Statement of the year	2017	2018
Debt to total assets ratio	0.63	0.68

.Source Prepared by the researcher based on the institution's budgets

This ratio shows the ability of the institution to meet its short- and long-term obligations. This relationship shows the extent to which total obligations can be covered using total assets.

The ratio rose from 63% in 2015 to 68% in 2016. This is not a good indicator for the institution, as the lower this ratio is, the better it is from the point of view of external investors and lenders

Third The ratio of long-term debt to equity

Table No.) 9.2) Represents the calculation of the ratio of long-term debt to equity for the year 2017-2018

Statement of the year	2017	2018
Long-term debt to equity ratio	1.29	1.36

.Source Prepared by the researcher based on the institution's budgets

equity has increased We notice from the table above that the ratio of long-term debt to from 129% in 2017 to 136% in 2018. This indicator is not good for the institution as long-term debt covers private funds to a greater extent. This ratio also shows the extent of the balance between borrowing and equity in the financial structure of the institution. We notice that there is an imbalance between invested private funds and borrowed funds as the institution brought in an investment loan, which is the reason for the increase in long-term debt. This ratio also provides information about the extent of creditor protection with the institution's solvency and its ability to obtain additional financing for investment opportunities

Activity ratios)operation .4)

These ratios are used to determine how effectively a company is using its assets to achieve the highest possible sales levels. Using available financial data, we will analyze these ratios to determine if there are unreasonable collection periods, or if there are high costs in production that are negatively impacting the profit margin

Average collection period .1.4

Table No.) 10.2) Represents the calculation of the average debt collection period for the year 2017-2018

Statement of the year	2017	2018
Average collection period	363	415

.Source Prepared by the researcher based on the institution's budgets

The collection period reached 363 days in 2017 and increased to 415 days in 2018. This is due to the increase in the institution's debts and its inability to collect. The length of the a collection period is also reflected in the type and nature of the institution, as it is considered public economic institution and all its dealings and transactions are with the state (all public institutions). This makes it difficult for it to collect its debts, on the one hand, and on the other hand, it indicates the weakness of the institution's collection management. The length of this period may cause the institution to lose the opportunity to benefit from investing frozen funds with customers, or in the worst case scenario, it may lead to the institution bearing other burdens such as borrowing and bearing interest to meet operational burdens

The model	Year	Comment	
Jordan Springett Model		Privacy Indicator	$Z < 0.862$ The institution is not in danger of financial failure $Z > 0.862$.The institution is threatened with financial failure
		$Z = 1.03 x_1 + 3.07 x_2 + 0.66 x_3 + 0.4 x_4$	
	2017	1. $Z = 0.8984$	$Z = 1.03 (0.31) + 3.07 (0.05) + 0.66 (0.36) + 0.4 (0.47)$
	2018	2. $Z = 0.9224$	$Z = 1.03 (0.47) + 3.07 (0.03) + 0.66 (0.27) + 0.4 (0.42)$
	2017	3. The index for 2017 reached $Z=0.8984$ It is an indicator that the institution is not threatened with financial failure, but the indicator is close to the financial failure zone, as it has decreased compared to last year, and this is due to 4. The ratio x_2 decreased due to a decrease in profit before interest and taxes resulting from a decrease in sales due to machinery downtime of a greater amount than the decrease in the amount of assets 5. The ratio is $3x_3$ because the result before taxes decreased by an amount greater than the amount of the decrease in current liabilities 6. The ratio $4x_4$ decreased due to a decline in sales resulting from machinery downtime of a greater amount than the amount of total assets	

Fifth requirement Predictive models applied through modern analytical procedures in performance control of Socotid

First TheGordon Springate Model

(Table No.) 11.2 Calculating the Z- index for the Gordan Springate model applied in the Socotid Foundation

<p>The index for 2018 was $Z=0.9224$. This is an indicator that the institution and is not threatened with financial failure, as it has increased compared to last year, this is due to</p> <ol style="list-style-type: none"> 7. ratio x_1 It increased due to the increase in working capital resulting from the increase in own funds by an amount greater than the amount of the increase ; in assets 8. The ratio x_2 decreased due to lower earnings before interest and taxes as a ; result of lower sales due to machinery downtime and higher assets 9. The ratio x_3 decreased because the result before taxes decreased by an ; amount greater than the amount of the decrease in current liabilities 10. The ratio x_4 decreased due to lower sales due to lack of maintenance and .higher total assets 	2018	
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Source Prepared by the researcher based on the financial statements of the audited .institution

Second Kida model kida

(Table No.)1 2 .2Calculating theZ- index for the Kida model kida applied in socotid foundation

The model	Year	Comment	
Kida model		Privacy indicator	<p>11. If the indicator is positive, the company is not threatened with financial failure</p> <p>12. If the indicator is negative, the company is at risk of financial failure</p>
	$Z = 1.042 x_1 + 0.42 x_2 + 0.461 x_3 + 0.463 x_4 + 0.271 x_5$		
	2017	$Z = 1.042 (0.03) + 0.42 (0.51) + 0.461 (0.70) + 0.463 (0.47) + 0.271 (0.08)$ <p>Z= 0.80745</p>	
	2018	$Z = 1.042 (0.02) + 0.42 (0.53) + 0.461 (0.46) + 0.463 (0.42) + 0.271 (0.05)$ <p>Z=0.66351</p>	
	2017	<p>The index for 2017 reached Z= 0.80745 It is a positive indicator that the institution is not threatened with financial failure, as it has increased compared to last year, and this is due to</p> <p>13. ratio₁ Decreased due to a significant deterioration in net profit resulting ; from lower sales due to machinery downtime</p> <p>14. The ratio₂ increased due to an increase in private funds by a greater amount ; than the increase in total liabilities</p> <p>15. The ratio₃ decreased due to the decrease in treasury due to the decline in sales and the lack of maintenance of machinery by an amount greater than ; the decrease in current liabilities</p> <p>16. The ratio₄ decreased due to lower sales due to lack of maintenance of ; machinery at a greater amount than the decrease in total assets</p> <p>17. The 5_{ratio} decreased due to lower treasury and revenues and higher total .assets</p>	
	2018	<p>The index for 2018 reached Z=0.66351, which is a positive indicator that indicates that the institution is not threatened with financial failure, as it has increased compared to last year, and this is due to</p> <p>18. ratio₁ Decreased due to a significant deterioration in net profit due to .lower sales due to lack of maintenance of machinery and an increase in assets</p> <p>19. The ratio₂ increased due to an increase in private funds by a greater amount ; than the increase in total liabilities</p>	

		20. The ratio $3x$ decreased due to the decrease in treasury due to the decline in sales and the lack of maintenance of machinery by an amount greater than ; the decrease in current liabilities
		21. The ratio $4x$ decreased due to lower sales due to lack of maintenance of ; machinery and in contrast, total assets increased
		22. The ratio $5x$ decreased due to lower treasury and revenues and higher total .assets

Source .Prepared by the researcher based on the institution's financial statements

Third Shirata model Shirata

(Table No.)1 3 .2 Calculating theZ- index for the model Shirata Shirata Applied in Socotid Foundation

Conclusion

After analyzing and diagnosing the financial statements of the institution, by

The model	Year	Comment
Shirata model		<p>< Z 0.38 .The organization is not at risk of financial failure</p> <p>> Z0.38 .The institution is threatened with financial failure</p>
		Z = 0.014
	2017	<p>$Z = 0.014 (0.52) - 0.058 (0.03) - 0.062 (0.07) - 0.003 (0.73) + 0.7614$</p> <p>23. Z= 0.76</p>
	2018	<p>$Z = 0.014 (0.6) - 0.058 (0.02) - 0.062 (0.11) - 0.003 (1.54) + 0.7614$</p> <p>Z= 0.7572</p>
	2017	<p>The index for 2017 reached Z= 0.76This is an indicator that the institution is not threatened with financial failure, as it has increased compared to last year, and this is due to</p> <p>24. ratio₂ Decreased due to lower pre-tax income and corresponding increase ; in the company's assets</p> <p>25. The ratio₂₄ ; increased due to higher loan expenses and lower sales</p> <p>26. The ratio₃₆ decreased because accounts payable decreased by less than the ; percentage decrease in sales</p> <p>27. The ratio₁₀ decreased because the percentage increase in working capital . last year was greater than the increase this year</p>
	2018	<p>The index for the year 2018 reached Z= 0.75, which is an indicator that indicates that the institution is not threatened with financial failure, as it increased compared to last year, and this is due to</p> <p>28. ratio₂ Decreased due to a decrease in the result before taxes by a percentage less than the percentage of the decrease in the assets of the ; company</p> <p>29. The ratio₂₄ decreased because loan expenses decreased by a greater ; percentage than sales decreased</p> <p>30. ratio x₃₆ ; Increased due to higher accounts receivable and lower sales</p> <p>31. The ratio₁₀ increased because the rate of increase in working capital for . the current year was greater than the rate of increase in the previous year</p>

applying these three models in the Socotid institution, the indicator on my school 2017, .indicates that the institution is not threatened with financial failure 2018

These methods showed that the institution, in terms of financial balance, is not in an optimal state. However, in terms of ratios, some shortcomings and some positives appeared. The management must work to enhance the positives and take decisions to correct the shortcomings to avoid falling into the risk of financial failure

The third topic Using the linear regression analysis model in the final stage of the performance monitoring process for the National Corporation for the Manufacture of " Socotide " Pharmaceutical Products

In this section, we will address the final stage of the control process through a predictive study of sales for the Socotid Corporation through the cost of sales, using simple linear regression analysis and unpacking sales data and their cost . For 09 years from 2008 to 2017

First requirement Applying regression analysis

(\ Using historical financial data, regression analysis can be applied to obtain the values of a (\ and (\b and thus find the general line equation that represents the overall trend of sales (\ .based on cost of goods

To find the general trend equation, we can use linear regression analysis of historical financial data. In this case, we have two variables merchandise sales)dependent variable) and cost of merchandise)independent variable). The relationship between them can be represented by .the equation of a line that represents the general trend of the data

The general equation of the line)using linear regression analysis) is

$$Y = a + bX \text{ where } [\$$

(\ -Y .(is the dependent variable)sales of goods (\

(\ -X .(is the independent variable)cost of goods (\

(\ -a .is the first segment of the)fixed) line (\

(\ -b .is the slope of the line (\

At this stage, we applied a simple linear regression equation to analyze the relationship .between sales and their cost for the period from 2009 to 2017

To calculate the trend equation, we need to use the data provided for sales and cost of goods for the specified years. From the data provided, we have

1. (\ (Sales variable)dependent variable \)
2. (\ (Cost variable)independent variable x \)

We will use a simple linear regression technique to find the equation, where the general form of the equation is as follows

$$y = mx + c \text{ where } [\$$

(\ -m is the slope (\, (\ and it expresses the change in the value of y with respect to (\ (\ the change in the value of x .and it will be calculated from the data ,(\

(\ -c \ is the intercept with the (\)y\) axis .and will also be calculated from the data ,

(\ After calculating the values of m (\ and (\c using the data, we can put them into (\ .the equation to get the general trend equation

(Share the calculated values for slope m) (and intercept c) from the Excel output so we can put them into the equation. From the table given, we have the following data

Table No.)14.2) Unit Algerian Dinar

Year	Cost(x)	Sales(y)
2009	945635322	1057445903
2010	682922104.2	827117674.4
2011	1292220828	1566559441
2012	915324367	1103912613
2013	1026725684	1203307565
2014	935388121.8	1103541955
2015	1016139651	1187032653
2016	1329051657	1579118136
2017	1630039396	1978931051

Using Excel (we can calculate the slope m) (and intercept c) using the regression function `SLOPE` and `INTERCEPT` on the data. After calculating them, the general equation for direction will be

$$y = mx + c$$

Let's share the calculated values for m and c so we can complete the equation

To calculate the general trend equation, we will first analyze the data using Excel to get (the slope m) (and intercept c) and then we will use these values to develop the final equation. , Let's say the cost data x is in the range A2:A10 (and the sales data y) is in the range B2:B10 .

Use the `SLOPE` function to calculate the slope, and type the following formula in a specific cell `=SLOPE(B2:B10, A2:A10)`

Use the `INTERCEPT` function to calculate the intersection, and type the following formula in another cell `=INTERCEPT(B2:B10, A2:A10)`

(Now you can set up the equation using the calculated values for the slope m) and (intercept c).

After you do the above steps and get the values, I can help you to put the final equation. (Please share with me the calculated values for m and c from Excel .

The data you have provided appears to contain the means and standard deviations for the variables "sales of goods" and "cost of goods", as well as the number of observations. According **Table No.) 15.2** to the data, it appears that we have)

variable The	Arithmetic mean	Standard deviation
Merchandise sales	1,289,662,999	19,351,879.4
cost of goods	1,082,965,870	19,282,834.7

(Based on the data, the general equation of the line is used to calculate the slope a) and (intercept b).

From the formula you provided

$$a = \frac{\Delta y}{\Delta x}$$

Once we calculate the value of a we can use it to calculate the value of b using one of the points we have

Correlation coefficient $R = 0.996$

Coefficient of determination 0.993

By substituting the value of x into the trend equation, we can calculate the estimated sales

Cost of goods for the year 2018 144,456,505.76

Actual sales for the year 2018 124,821,2241.92

Substituting the value of x into the trend equation, we get

$$y = 1.239 \times 144,456,505.76 + 60,000,000$$

$$y = 1,729,816,108$$

Table No. 12.2)

Actual sales	Estimated sales
38,431,153.1	1,248,212,241.92

This table shows the large difference between the two values, indicating that there are unexpected factors that may affect the actual sales performance compared to the forecast based on the linear equation.

analysis in detail with given figures

represents the relationship between the cost of goods (represented by the x -axis) and estimated sales (represented by the y -axis) The linear equation for this line is .

$$y = 1.239x - 6 \times 10^7$$

where

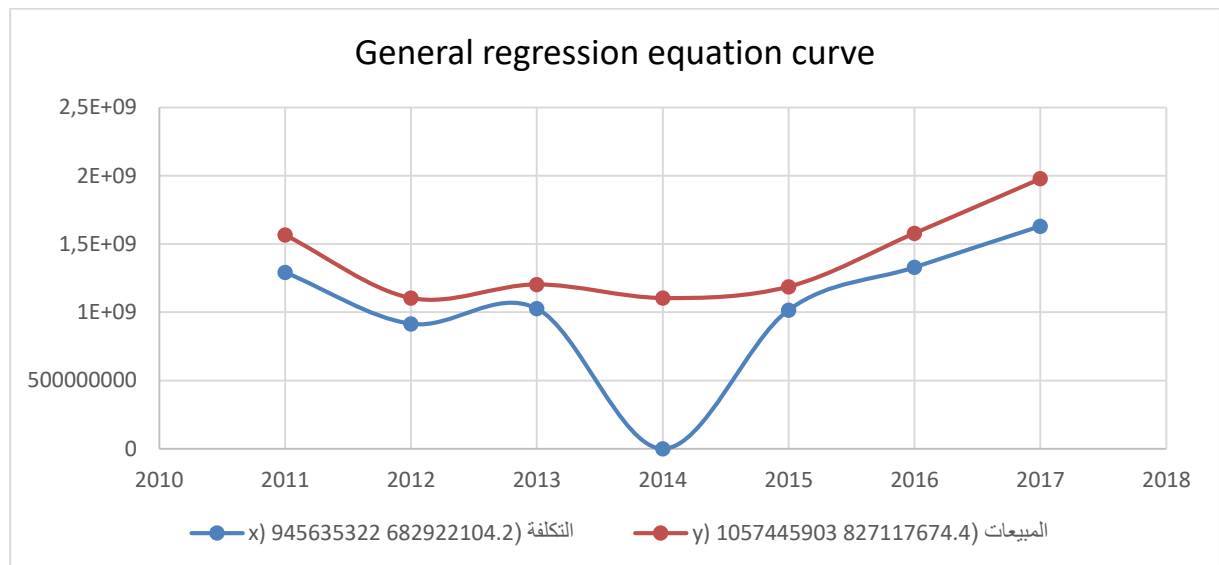
- x is the cost of goods
- y is the estimated sales
- General trend equation** From the previous figure, we find the general trend equation as follows $[y = 1.239x - 6 \times 10^7]$
- Sales comparison** By substituting the value of x into the trend equation, we can calculate the estimated sales y

– Cost of goods for the year 2017 144,456,505.76 DZD

– Actual sales for the year 2017 124,821,2241.92 DZD

Substituting the value of x into the trend equation, we get $[y = 1.239 \times 144,456,505.76 + 60,000,000] [y = 1,729,816,108]$

- Data drawing** This is the graph that shows the general trend equation $[y = 1.239x - 6 \times 10^7]$



The graph includes a point plot of the cost of goods and estimated sales in 2017 , as well as a trend equation that represents the relationship between the cost of goods and estimated sales.

The second requirement Analysis of the results obtained in the final stage of the performance audit of the Socotid Foundation

After analyzing the results obtained in the final stage, we can say that the arithmetic mean and standard deviation of both merchandise sales and merchandise cost are close to each other. This means that the data used to calculate these values were close, which suggests a strong relationship between the two variables

(Moreover, with the Pearson correlation coefficient R)value of +0.99, it can be said that there is a strong positive relationship between merchandise sales and merchandise cost. This means that an increase in merchandise cost coincides with an increase in merchandise sales, and vice versa, indicating a clear trend towards mutual change between factors

Based on these results, it can be concluded that the relationship between merchandise sales and cost of merchandise can be relied upon to guide future decisions of the organization. Specifically, the organization's management can use this information to improve pricing and marketing strategies, plan purchases, and manage inventory more effectively, which contributes to enhancing the company's performance and increasing its profitability

The presented data analysis shows that there is a direct relationship between the two study variables, namely merchandise sales and merchandise cost. In other words, the higher the cost of merchandise, the higher the merchandise sales value, and the lower the cost of merchandise, the lower the merchandise sales value, which is an indication of a strong economic relationship between these two variables

After applying regression analysis, an equation was found for the relationship between merchandise sales and cost of goods. This equation can be used to estimate future merchandise sales based on cost of goods values

(Through the coefficient of determination R^2)the goodness of fit of the model was , measured, as it was found that 99% of the variance in the values of merchandise sales can be explained by the direct relationship with the cost of merchandise, which reflects the strength of .the relationship between them

Comparing the estimated sales with the actual sales, a slight difference was observed between the two values. However, this difference was not large enough to require a close examination of the relationship between the two variables. This difference could be explained by random error .or by factors not included in the current model

This analysis indicates that there is a significant impact of cost of goods on merchandise sales, and the organization can use this knowledge to better manage production costs and improve .profits

The third requirement Analysis of the application of the principle of economy in the performance control of the Socotid Foundation

First Analysis of results and examinations

Increase in costs without a parallel increase in sales (In some years, such as 2011 and costs increased significantly)e.g. from \$945,635,322 in 2009 to \$1,632,003,939 in 2017) ,2017 while sales did not increase at the same rate, indicating that the increase in costs was not accompanied by a parallel increase in revenue.

1. **High cost to sales ratio** An analysis of the ratio between costs and sales may reveal a high ratio of costs to sales, indicating inefficient use of resources . For example , if the ratio is close to or exceeds 1)100%) in some years, this means that costs are eating up a large portion of sales.
2. **Large fluctuations in costs** Costs fluctuating significantly from year to year may indicate instability in spending or lack of an effective financial plan. Costs rising from \$ in 2010 to \$1,292,220,828 in 2011 may indicate uncontrolled spending or an 682,922,104.2 unjustified increase in costs.
3. **No clear direction for improvement** The lack of consistent improvement in the cost-to-sales ratio or the lack of a trend toward reducing costs over time indicates that the economy is not being applied effectively. For example, if costs in 2016 and 2017)1,329,051,657 and respectively) were significantly higher than in previous years without a 1,632,003,939 corresponding increase in sales, this would indicate that efficiency is not being improved.

Second Recommendations for improving performance through the application of the principle of economy

1. **Review and re-evaluate costs**
 - Review all costs and identify items that can be reduced without affecting the quality of performance.
 - Implement a strategy to control costs and ensure they are used efficiently.

2. Application of cost management techniques

- Use modern cost management techniques such as advanced financial analysis and resource management software to reduce waste and improve efficiency.
- Train employees to use these techniques and improve their cost management skills.

3. Improve financial planning

- Develop a long-term financial plan that focuses on reducing costs and increasing efficiency.
- Monitor financial performance periodically and adjust the plan as needed.

4. Increase sales and boost revenue

- Implement new marketing strategies to increase sales and revenue.
- Focus on developing new products or services that better meet market needs.

Fourth requirement Presenting the results of the applied aspect through the use of analytical review methods in the stages of the performance monitoring process of the Socotid Foundation

Through what was presented in the applied study within the framework of the supervisory mission in evaluating performance Public Economic Corporation

Socotid, as one of the most important and oldest institutions in the Algerian market, is distinguished by its quasi-pharmaceutical products and their quality, which made it a pioneer in this field . We reached the following results

- The previous result can be supported by the fact that the financial performance of the institution cannot be known or its positive impact at the beginning of the application, and there is difficulty in measuring it considering that the Socotid institution suffers from some external and environmental factors customs, raw materials, and the main thing is the institution's dealings with the public sector, which negatively affected its liquidity and ;thus caused an imbalance in its financial statements
- Analytical review produces reports that help predict the financial future of the institution ; by forecasting sales
- Analytical review helps in discovering the gaps in the financial statements and books of the institution.
- Experience in analytical review techniques enables the auditor to reach more effective ; results
- It was found that the application of simple descriptive and quantitative analytical review ; techniques helps in planning the audit process
- Analytical review techniques enable the auditor to discover intentional and unintentional ; errors as well as manipulation in sales

- It was found that the application of analytical review techniques enables the auditor to properly implement the audit process
- The possibility of applying analytical procedures in the institution under study in a way that reduces errors and leads to reassurance about the fairness and objectivity of the financial statements

Summary

Through the field study that we conducted at the level of the Socotid Public Economic Institution and based on the analysis of the results of the field study, relying on the descriptive statistical method, whereby we analyzed the results of the analytical procedures of the Socotid Institution through the performance audit mission, and on the method of comparing the results of the financial performance analysis of the financial statements in order to reach results that enable us to know whether the use of modern financial analysis models affected the stages of the performance audit mission of the Socotid Institution and the extent of its contribution to the quality of the audit work, and among what we extracted from this study is the following

- According to the analysis that was done from knowing that the financial performance .results of the Socotid Foundation
- The performance indicators varied, and then there were indicators that witnessed improvement, which helped in exploiting the data resulting from modern analytical procedures, modern financial analysis methods, and regression coefficient analysis in .implementing the audit process

Introduction

After discussing the theoretical framework of the study and its most important features, we will discuss in this chapter the applied aspect of the field study related to the impact of using modern analytical procedures in light of information technology on the professional practices of oversight in the Accounting Council and the methodological framework on which the applied study was built, in addition to testing the proposed hypotheses through the necessary statistical methods and highlighting the prediction models specific to the study and comparing them, and reaching the most important results extracted from the research and the summary of the study. It was also divided into two sections

Study Method and Tools

In this section, we discuss the method of constructing the applied study in terms of the methodology followed, as well as measuring the validity and accuracy of the components of the study tool, in addition to defining the statistical methods followed in analyzing the data

The first requirement the methodological framework for the applied study

First Building the study tool

The questionnaire was used as a basic tool in the study, due to its ability to optimally reach the study community, whether in electronic or paper form, as well as the ease of collecting data and analyzing it statistically

Study axes design It is divided into two parts

Part One Personal and Demographic Information This part aims to identify the demographic factors of the sample under study (gender, age, educational qualification, number of years of experience)

Part Two It contains several axes that include many questions and is divided as follows

Special axis It aims to identify the types of approved information technology that the auditor deals with while performing his work

This axis aims primarily to obtain statistical data that enables identification of the types of technology that the auditor deals with while performing his duties, which provides information about the types of technology whose characteristics the auditor must be familiar with

This axis contains eight statements representing types of information technology. The study sample was asked to identify which of them had been dealt with before during the audit procedures

A table showing the distribution of the paragraphs of the (1.3 (Table information technology types measurement tool

variable	Number of paragraphs
Types of ICT adopted	8

researcher Source Prepared by the

- The importance of modern methods of analytical procedures in The first axis . technology auditing in light of information

the availability This axis includes the independent variable of the study and aims to measure of the physical components and the required efficiency that enables the auditor to understand and deal with the technology adopted by the institutions and realize the risks resulting from it. It is basically formed by two basic dimensions , which are

- **Availability of an adequate IT infrastructure** Measuring the availability of physical infrastructure to support IT in organizations. This dimension includes the availability of modern, high-performance computers, and the efficiency and quality of internal and external communication networks used to transfer data. It also includes the availability of data protection systems and electronic security systems, in addition to the availability of specialized audit software that supports financial analysis and audit procedures. This dimension also includes the provision of qualified technical support teams to maintain and manage the IT infrastructure.
- **Stages of applying analytical procedures for auditing, their requirements and methods** This dimension aims to measure the availability of the requirements necessary for applying analytical procedures and methods of implementing them during the audit process. This includes the efficiency and effectiveness of collecting the financial and non-financial data necessary for analysis, and the use of financial ratios and standards to identify and analyze financial relationships. It also includes comparing actual results with ; expectations and predictive models to reveal any discrepancies or differences

-Requirements and importance of modern methods for analytical procedures

This dimension focuses on measuring the extent to which institutions are aware and understand the importance of using modern methods in analytical procedures. This includes the extent to which institutions are aware of the importance of applying modern methods to improve audit quality, and providing continuous training for auditors on new technologies. It also includes institutions' keenness to update analytical tools and programs to keep pace with modern developments, and to follow international best .practices in the field of analytical procedures

Table)2.3) A table showing the tool for measuring the level of importance of .modern methods of analytical procedures in light of information technology

variable	Dimensions	Number of paragraphs
The importance of modern methods of analytical procedures in the audit process	Provides adequate IT infrastructure	07
	Stages of applying analytical audit procedures, requirements and methods	05

in light of information technology	Requirements and importance of modern methods of analytical procedures	06
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Prepared by the researcher Source

Using modern methods of analytical procedures in implementing the audit Axis II process

This axis aims to identify the importance of using modern methods . For analytical review in the implementation of the audit process , through four main dimensions

The importance of applying financial analysis methods This dimension studies how to – apply financial analysis methods, and their importance in identifying areas of risk that may hinder the audit process. This includes using financial ratios and other financial standards to evaluate financial performance and uncover any potential discrepancies or problems.

The importance of applying statistical and mathematical methods This dimension .focuses on the use of statistical and mathematical methods in the audit process

– **Using statistical sampling in control tests** It studies how to use statistical sampling to evaluate the effectiveness of internal control systems, which helps to identify weak points and ensure compliance with policies and procedures.

Using statistical sampling in basic tests It studies how to use statistical sampling in – implementing basic tests of financial data, which facilitates the work of auditors and saves time, effort and cost.

Table)3.3) A table showing a tool to measure the importance of using modern methods of analytical procedures in implementing the audit process

variable	Dimensions	Number of paragraphs
Using modern methods of analytical procedures in implementing the audit process	Application of financial analysis methods	05
	The importance of applying statistical and mathematical methods	06
	Use of statistical sampling in the field of control tests	05
	Use of statistical sampling in the field of basic tests	05

Source Prepared by the researcher

– **Improving the quality of oversight work in the Accounting Council** **The third axis**

the auditors’ opinions about the effectiveness of modern analytical procedures and their role in raising the level of quality of audit work. It consists of four dimensions requirements for the quality of audit work , the importance of reducing the risks of the audit process, narrowing the gap in expectations and the overall degree of the dimension related to it, and the effectiveness . of modern analytical procedures in improving the quality of audit work

Table)4.3) A table showing the tool for measuring the impact of using modern methods of analytical procedures in improving and raising the quality of oversight work in the Accounting Council

variable	Dimensions	Number of paragraphs
Improving and raising the quality of oversight work in the Accounting Council	Quality control requirements	06
	The importance of reducing audit risk	07
	The importance of narrowing the expectations gap	05
	The effectiveness of modern analytical procedures in improving the quality of supervisory work	07

Source Prepared by the researcher

Second Method of measuring trends and opinions The questionnaire relied on the five-point Likert scale to measure the trends and answers of the sample included in the study, where five suggestions were adopted for each question strongly disagree, disagree, neutral, agree, (strongly agree). Numerical weights were determined for each of the answers as shown in the following table

Table)5.3) A table showing the five–point Likert scale

The answer	Strongly opposed	Exhibitions	neutral	OK	Strongly agree
numerical weight value	1	2	3	4	5

Source Prepared by the researcher

The directions of the answers in the five-point Likert scale are identified by the weighted arithmetic means as shown in the following table

Table)6.3) A table showing the weighted arithmetic averages

Answer trends	Weighted averages	Impact Degree
Strongly opposed	From 01 to 1.80	Very weak effect
Exhibitions	From 1.81 to 2.6	weak effect
neutral	From 2.61 to 3.4	Standard effect
OK	From 3.41 to 4.2	Strong impact
Strongly agree	From 4.21 to 5	Very strong effect

Source Prepared by the researcher

Third The adopted statistical processing methods

- 1- **Excel 2016** It was used to transcribe the data from the paper questionnaire and also to prepare the illustrative drawings and tables that show the demographic characteristics of the sample under study
- 2- **SPSS V28 Statistical Analysis Program** The statistical analysis of the Social Science Package program was used to process the data that was collected and analyzed mathematically in order to reach the results and interpret the study hypotheses. Many statistical tests were used, as follows
 - **Measures of central tendency** These were
 - Arithmetic averages to measure the sample's opinions on the five-point Likert scale for each paragraph separately, as well as to measure the general trend for each of the study's axes
 - Standard deviation It shows the extent of the dispersion of the sample's opinions around the arithmetic mean of the paragraph or axis
 - Relative frequencies Shows the frequency of occurrence of demographic characteristics in the sample under study
- 3- **Cronbach's factor analysis** aims to measure the validity and reliability of the questionnaire and the stability of the paragraphs of each axis
- 4- **Pearson correlation coefficients** This is used to measure the extent and degree of influence of the independent variable on the dependent variables
- 5- **Mann-Whitney/Kruskal-Wallis tests** To measure the normal distribution of study data
- 6- **Klomogorov-Simonov test** to measure statistical differences in gender variable
- 7- **Regression analysis** This is to measure and represent the model of the effect of the independent variable on the dependent variables
- 8- **Spss-Modler program** This is to form the neural network model

The second requirement measuring the stability of the questionnaire

The questionnaire is considered the main tool for collecting data, so its stability and reliability are considered to be of high importance. To ensure that it meets these conditions, two methods were used for verification

Apparent validity of the questionnaire The initial form of the questionnaire was presented to a group of arbitrators who are experts in statistics, and it was modified based on the arbitrators' suggestions and corrections until a final form was reached that could be analyzed and included clear paragraphs and precise scientific terms that were understandable to the sample to be studied

Stability and consistency of paragraphs In this section, the "Fachrombach" test was used to measure the stability of the questionnaire statistically according to the axes in which the five-point Likert scale was adopted as a measurement tool. The results were distributed according to the axes as follows

- 1- The axis for determining the types of information technology approved by institutions and the Accounting Council that the auditor deals with while performing his work

Table)7.3) Shows the stability and validity of the axis of types of information technology adopted by institutions

Special axis	Number of paragraphs	Alfa-Crombach Coefficient	reliability coefficient
Types of information technology adopted by Algerian institutions and the Court of Auditors	08	0.602	0.775

Source Prepared by the researcher based onSPSS version 28

The stability value of the questionnaire in relation to the Cronbach's alpha coefficient for the axis related to the types of information technology adopted by Algerian institutions reached60.2% , which is an acceptable percentage that expresses the stability of the axis's paragraphs. While the validity coefficient for the axis reached77.5% .which indicates the validity of the scale , Since the axis has acceptable reliability and validity rates, we say that it is suitable for study .(analysis(

- 2- Stability of the independent variable

.Table)8.3) shows the stability and validity of the independent variable

first axis	Number of paragraphs	Alfa-Crombach Coefficient	reliability coefficient
The importance of modern methods of analytical procedures in the audit process in light of information technology	18	0.874	0.934

Source Prepared by the researcher based onSPSS version 28

The Cronbach's coefficient for the axis of the importance of modern methods of analytical procedures in the auditing process in light of information technology reached 87.4% which is , a good and acceptable percentage that expresses the stability of the sample's answers

The level of the axis validity coefficient reached93.4% which is a statistically acceptable value , .that can be interpreted and analyzed

- 3- Stability of the dependent variable

.Table)9.3) shows the stability and validity of the dependent variable

second axis	Number of paragraphs	Alfa-Crombach Coefficient	reliability coefficient
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Using modern methods of analytical procedures in implementing the audit process	21	0.915	0.954
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Source Prepared by the researcher based onSPSS version 28

of using modern methods of analytical procedures in implementing the audit process reached91.5%, .which is a very acceptable level of reliability

The reliability coefficient for the total axis reached95.4%, which is a statistically .acceptable value that can be interpreted and analyzed

4– Third axis stability Evaluating the impact of using Modern analytical procedures in improving the quality of audit work in the Accounting Council

Table)10.3) It demonstrates the stability and validity of the axis for evaluating the impact of using modern analytical procedures in improving .the quality of audit work in the Accounting Council

third axis	Number of paragraphs	Alfa-Crombach Coefficient	reliability coefficient
Evaluating the impact of using modern analytical procedures in improving and raising the quality of audit work in the Accounting Council	24	0.794	0.891

Source Prepared by the researcher based onSPSS version 28

The statistical analysis showed a stability value of97.4% which is an acceptable value and , expresses a high degree of stability for the axis paragraphs . As for the level of the validity coefficient for the axis, it reached89.1% which is a statistically acceptable value that can be , .interpreted and analyzed

5– Overall reliability and validity of the measuring instrument

.Table)11.3) Shows the overall reliability and validity of the questionnaire

Number of paragraphs	Cronbach's stability coefficient	reliability coefficient
72	0.949	0.974

Source Prepared by the researcher based onSPSS version 28

The Cronbach's coefficient for the reliability of all forty-one questionnaire items reached94.9% which is an acceptable value that expresses the reliability of the sample , members' answers, while the questionnaire's validity coefficient)the square root of the

reliability value) reached 97.4% which is a value that expresses the validity and internal consistency of the measurement tool

The third requirement characteristics of the study sample

The study sample consisted of a community of judges and auditors at the level of the Audit Council , where the number of judges according to the latest census at the national level was 2,40 Judge

- . Number of auditors 65 Financial auditor

In order to reach the highest possible number of the study community, we relied on distributing the questionnaire in its paper form directly, as well as in the electronic form of the questionnaire total number of distributed by sending it to the e-mail of judges and financial auditors. The questionnaires was as shown in the following table

.Table)12.3) Shows the distributed questionnaires

	Electronic	Paper
Distributed questionnaires	undefined	20
Returned questionnaires	54	14
Analyzable questionnaires	58	17
Analyzable total questionnaires		75

Source Prepared by the researcher

Firstly Distribution of the study sample by gender

.Figure)1.3) Shows the distribution of the sample according to gender

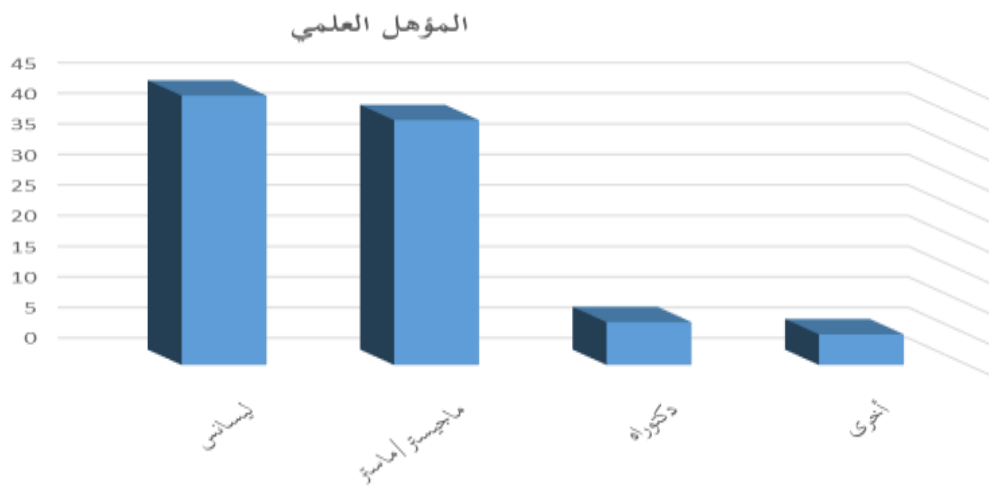


Source Prepared by the researcher based on SPSS version 28

The number of males in the sample under study was 55, which constitutes the majority, compared to the number of females, which was 20, and this is due to the fact that the majority of judges and auditors are males

Second Distribution of the study sample according to academic qualification

Figure)2.3) Shows the distribution of the sample according to academic qualification

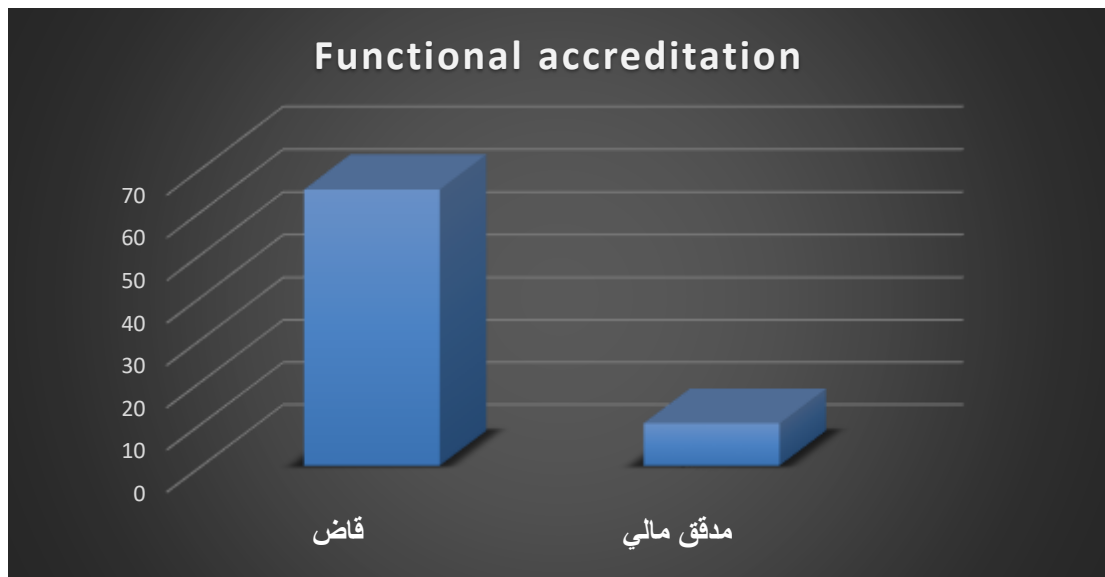


Source Prepared by the researcher based onSPSS version 28

The classification of the study sample according to the academic qualification obtained shows that the number of those who obtained a bachelor's degree reached 43 , representing 46% of the total sample. This category is considered the majority due to the legal conditions imposed to obtain accreditation, followed by the master's degree with a total of 20 individuals, which means 42% of the sample, then the doctorate degree with 7 Individuals, i.e. about 7% and finally other , certificates, 5 and a percentage of about 5% .

Third The study sample is distributed according to functional dependency

Figure)3.3) Shows the distribution of the sample according to functional dependency



Source Prepared by the researcher based onSPSS version 28

The distribution according to job accreditation for the sample under study is characterised by a majority of those who hold judgeships , with their number reaching 63 individuals, representing 84% because auditors are legally entrusted with the task of assisting judges in performing , oversight tasks , while their number reached 12, representing 16% .

.Fourth The study sample is distributed according to the number of years of experience

Figure)4.3) Distribution of the sample according to years of experience



Source Prepared by the student based onSPSS version 28

The distribution by years of experience indicates that the majority of the years of experience are between 5 and 10 years, with a total number of 29 individuals, representing 41.6 % This is mainly due to the fact that most of those who interacted with the questionnaire are . young people who obtained accreditation in recent years. While the number of judges with less than 5 years of experience was 10 individuals, representing 10.41% This is mainly due to the .small number of accreditation distributed in recent years due to legal problems

While the sample size with more than 10 years of experience was 30, representing 47.9 % .we note the participation of those with experience exceeding ten years in the field ,

Fourth requirement Analysis of the results of central tendency indicators

This analysis aims primarily to study the tendencies of the sample members' answers to each paragraph of the questionnaire and thus study the degree of influence of each of the studied .factors on the overall direction of the study axis

First Types of information technology adopted in Algerian institutions

Table)13.3) Shows the results of the sample's answers to determine the types .of information technology adopted by institutions and the Accounting Council

	The phrase	% Views
1	shared database	83.3
2	Electronic payment systems	8.3
3	Manage bank accounts and payments online	6.3
4	Cloud storage technology	9.4
5	Use of custom-designed accounting and administrative software	10.4

Chapter Three : An applied survey study of the impact of using modern methods of analytical procedures on improving the quality of audit work in the Accounting Council

6	Use ready-made accounting and administrative programs	90.6
7	Use data theft and virus protection software	94.8
8	.Provides technical support and updates	90.6

Source Prepared by the researcher based onSPSS version 28

It is clear from studying the percentage of views for each type of information technology

- 83.3% of auditors and judges stated that they rely on a common database in managing .programs and information in the Accounting Council
- We note from the table that the percentage of views of electronic payment systems reached 8.3% among the sample members, which is considered a weak percentage and can be explained by the weakness of the electronic payment infrastructure in Algeria and its failure to be generalized to Algerian institutions except for some institutions working .in electronic commerce and limited to some national economic institutions
- We note from the table that the level of use of bank account management and payments via the Internet reached 6.3% in the sample’s responses, which is a percentage considered weak and is mainly due to the limited number of banks in Algeria that provide these .services via the Internet, as only some foreign banks operating in Algeria are limited
- The percentage of people using cloud storage technology among the sample reached 9.4 % which is considered a small percentage that explains the lack of widespread use of this , technology among institutions, especially due to the fear of losing data that is stored on intermediary companies, and also the quality of the Internet connection available in the .Algerian environment prevents the ability to deal with large files
- % stated that they deal with custom-designed accounting and administrative programs. Although this percentage is weak, it indicates that some institutions resort to designing their own accounting and administrative programs, as these programs facilitate the management process in the institution because they are designed according to the characteristics of the institution’s activity and its organizational structure and facilitate the .distribution of tasks among workers in accordance with the institution’s policy
- % stated that they deal with the use of ready-made accounting and administrative programs in institutions. This percentage is considered high because most institutions resort to obtaining ready-made accounting and administrative programs, given that they meet the desires of the institution, especially small and medium-sized institutions, as well .as due to their low cost compared to designing programs on demand
- The number of views of the paragraph related to the use of data theft and virus protection programs reached 94.8% which is an acceptable percentage that reflects the interest of ,

institutions in using this type of program in order to protect their data from theft or .damage

- We note that the percentage of views of the phrase about the availability of technical support and updates reached 90.6% which is a high percentage that can be explained , by the fact that most software updates are available periodically and for free by the .providers of these services

Second Analysis of arithmetic means and standard deviations of the sample .individuals' response to the independent variable

Table)14.3) Shows the results of the sample's answers to the independent .variable

The number	The Ban	Arithmetic mean	Standard deviation	Sample direction	Relative %importance
Dimension 1 Availability of an appropriate IT infrastructure					
1	physical IT equipment at the office level.)Computers, printers, servers, etc.) that enable me to perform the auditing task in the .best possible way	78.1	0.797	Disagree	75.2
2	Providing the necessary electronic software to perform electronic auditing in the best possible way	86.1	1.101	Disagree	77.2
3	Provide sufficient network connectivity to carry out . electronic surveillance	95.1	0.988	Disagree	79
4	Information technology contributes to obtaining and comparing the financial performance of the institution with the financial data achieved in .previous cycles	4.01	1.031	OK	80.2
5	Information technology helps in comparing the financial ratios of the organization with other organizations similar in activity or .size	3.80	1.022	OK	76

Chapter Three : An applied survey study of the impact of using modern methods of analytical procedures on improving the quality of audit work in the Accounting Council

6	The use of information technology in analytical procedures helps identify unusual patterns in the financial statements of the .organization	3.75	0.995	OK	75
7	Information technology contributes to building statistical .models for analytical procedures	5 4 .3	5 0.76	OK	69
The second dimension Stages of applying analytical audit procedures, their requirements and methods					
08	The lack of financial and non-financial data prevents the application of analytical audit .procedures	3.85	1.142	OK	77
09	The effectiveness of analytical procedures varies depending on .their methods	3.80	1.032	OK	76
10	Analytical approaches contribute to saving the auditor's time and .cost while performing his duties	80. 2	2 10 .1	OK	3 7
11	The auditor works through analytical audit procedures to compare the actual values with the expected values of financial .statement items	45 .3	2 6 1.0	OK	9 7
12	Analytical procedures are applied at all stages of the audit, from audit the planning to preparing .report	63 .3	2 1 1.0	OK	7 7
The third dimension Requirements and importance of modern analytical procedures methods					
13	The auditor's lack of familiarity with quantitative methods prevents the application of modern .methods of analytical procedures	3.88	1.039	OK	77.6

Chapter Three : An applied survey study of the impact of using modern methods of analytical procedures on improving the quality of audit work in the Accounting Council

14	The inadequacy of available information negatively affects the use of modern methods of .analytical audit procedures	3.82	1.095	OK	76.4
15	Simple regression rates are used to predict a particular account balance based on its relationship to .another balance	4.09	0.985	OK	81.8
16	Time series method helps in forecasting the balances of some .accounts in a certain period	3.85	1.056	OK	77
17	The application of modern methods of analytical audit procedures leads to a reduction in .the volume of detailed tests	0 9 .3	1.032	OK	76
18	The indication of modern analytical procedures that there are no significant fluctuations between the expected and book value leads .the auditor to reduce detailed tests	4 3.8	1.032	OK	76
The responses of the individuals in this study are a trend towards the importance of analytical procedures methods in auditing in light of .information technology		3.43	OK		

Source Prepared by the researcher based onSPSS version 28

The above table shows the sample's opinions about the availability of the material components and skills required from the auditor. To do his work to the best of his ability

- The arithmetic mean of the statement 01 for the degree of availability of information technology equipment at the level of 3.78 and the standard deviation of the institutions and the Accounting Council was 0.797 with a relative importance of 75.6%. In contrast, the sample trend was in agreement, which is considered a natural reflection of the technological development taking place and the spread of computer media devices and their programs in the work environment, where there is a shortage of fixed and .portable media devices to carry out various office work
- The arithmetic mean indicated a percentage of 3.86 with a standard deviation of and a relative importance of 77.2% and in the direction of the sample disagreed 0.797

with agreeing to paragraph 02 related to the lack of availability of software and communication networks sufficient to carry out electronic auditing work. This result reflects the availability of many options related to accounting and auditing programs in the Accounting Court

- The sample members also acknowledged in paragraph 03 that they did not have sufficient communication networks to conduct electronic auditing, with an arithmetic mean of 3.95, a standard deviation of 0.988, and a relative importance of 79%, which indicates that the sample's opinions tend to agree on having insufficient communication networks to conduct electronic auditing

- **The indicators of the first dimension of this axis reached an arithmetic mean of 3.86, a standard deviation of 0.083, and a relative importance estimated at 77.2%. This is considered a strong indication that the lack of physical components, electronic programs, and private communication networks that the auditor needs while performing his tasks negatively affects the use of modern methods of analytical procedures**

- Analysis of the data provided in the second dimension on the stages of applying Several important points are analytical audit procedures, their requirements and methods highlighted regarding the impact and application of analytical procedures in auditing. The results showed that the lack of financial and non-financial data constitutes a major obstacle to the application of analytical procedures, with an average of 3.85 and a standard deviation of 1.142. In addition, the effectiveness of analytical procedures varies based on the methods used, with an average of 3.80 and a standard deviation of 1.032. The results also indicated that analytical procedures contribute to saving time and cost for the auditor's work, with an average of 2.80 and a standard deviation of 1.102. Auditors use these methods to compare actual values with expected values in the financial statements, with an average of 3.45 and a standard deviation of 1.062. Finally, analytical procedures are applied at all stages of the audit from planning to the preparation of the final report, with an average of 3.63 and a standard deviation of 1.012. These results indicate a general consensus on the importance and usefulness of analytical procedures in auditing, with some challenges related to data availability

- **The arithmetic mean 3.85, and the standard deviation is estimated at 0.137. This indicates that the sample's answers tend towards the "agree" option. This is considered an indication that there is general agreement on the benefit of using modern methods in analytical audit procedures, despite the presence of some reservations related to the suitability of the available information**
- **Analysis of arithmetic means and standard deviations of the sample individuals' response to the third dimension**

The overall indicators of the third dimension indicate broad agreement among participants on the importance of modern methods of analytical procedures in auditing. The auditor's lack of familiarity with quantitative methods and the suitability of the available information constitute two major obstacles to the application of these methods, with averages of 3.88 and 3.82, (09.respectively. Participants strongly agree on the effectiveness of using simple regression ratios)4 and time series methods)3.85) in forecasting balances. Moreover, the application of modern methods leads to a reduction in the volume of detailed tests by an average of 3.90, and when there are no significant fluctuations between the expected and book values, the auditor reduces detailed tests by an average of 3.84. These results reflect the importance and benefit of using modern .methods in auditing despite some challenges

- **awareness of the importance of using modern analytical the auditor's**
With an arithmetic mean of 3.88 and procedures in the auditing process reached
a standard deviation of 0.104, with a relative importance of 77.6%, this indicates
that the auditor is aware of the benefit of using modern methods of analytical
. procedures in the auditing process

of the first axis indicate good agreement on the importance The overall indicators of using analytical procedures methods in the audit process in light of information technology, with an average of 3.43. This agreement reflects their agreement that integrating information technology into analytical procedures enhances the .effectiveness and efficiency of the audit process

Technology improves the accuracy of data analysis, facilitates access to information, and speeds up the audit process, resulting in more accurate and .reliable financial reports

Third Analysis of arithmetic means and standard deviations of the sample individuals' response to the dependent variable

Table)15.3) Shows the results of the sample's answers to the dependent .variable

The number	Statement	Arithmetic mean	Standard deviation	Impact Degree	Relative %importance
The first dimension the importance of applying financial analysis methods					
01	Using financial analysis techniques helps in understanding the nature of the organization's	3.81	1.098	OK	76.2

Chapter Three : An applied survey study of the impact of using modern methods of analytical procedures on improving the quality of audit work in the Accounting Council

	business and identifying . potential risk areas				
02	Financial analysis techniques are used to identify items and accounts that require further examination and . verification	3.77	0.957	OK	75.4
03	Financial analysis techniques help in discovering fundamental errors and abnormal items that may be present in the financial statements .	3.91	1.096	OK	78.2
04	Using financial analysis techniques saves time and cost of performing the .audit process	3.76	1.122	OK	75.2
05	Studying the trends of financial ratios over the years helps to notice any deviations that occur in . the accounts	43 .3	2 00 .1	OK	7 . 2 7
The second dimension. The importance of applying statistical and mathematical .methods					
06	Statistical and mathematical methods are among the most important methods that contribute to increasing the effectiveness of the examination and . verification process	3.81	1.089	OK	76.2
07	In the event that statistical and mathematical methods	3.90	1.081	OK	78

Chapter Three : An applied survey study of the impact of using modern methods of analytical procedures on improving the quality of audit work in the Accounting Council

	are used and any deviations appear, their causes must be investigated and work must be done to analyze . and evaluate them				
08	The method of analyzing the descent from logical thinking can be used , and thus a better examination can be carried out, because this method has objectivity and specific mathematical .rules	3.84	1.019	OK	76.8
09	regression analysis method contributes to testing the reasonableness of the actual book balance to an element of . the financial statements	3.69	1.069	OK	73.8
10	series analysis method contributes to identifying changes and diagnosing the causes that led to the change in the phenomenon and . explaining them	3.50	3 1.12	OK	7 . 1 7
11	series contributes to understanding, interpreting and estimating the change in the value of accounts in order to more accurately predict the course of . future events	6 9 . 2	2 08 . 0	OK	69.2
The third dimension the use of statistical sampling in the field of control tests					

Chapter Three : An applied survey study of the impact of using modern methods of analytical procedures on improving the quality of audit work in the Accounting Council

12	statistical sampling in the field of control tests determines the extent of the tests that must be . carried out	3.88	0.997	OK	77.6
13	Using statistical sampling enables the sample size to be determined and its components to be selected in an objective . and scientific manner	3.85	1.005	OK	77
14	The attribute inspection method helps to ensure that the organization is committed to implementing the established control . policies and procedures	3.75	1.152	OK	75
15	statistical sampling in control tests helps to ensure the extent to which the institution applies and complies with internal control regulations, systems and . methods	80 .3	69 1 .1	OK	8. 8 7
16	Exploratory sampling helps to find significant errors when the exception is significant as evidence of possible fraud .	3.80	1.139	OK	76
The fourth dimension Using statistical sampling in the field of basic tests					
17	Statistical sampling enables the analysis of results to determine the extent to which the	3.96	0.951	OK	79.2

Chapter Three : An applied survey study of the impact of using modern methods of analytical procedures on improving the quality of audit work in the Accounting Council

	sample results differ from the results that would be obtained if the entire population were examined				
18	The variable sampling method is used in the detailed testing phase in order to obtain direct evidence about the validity of balances and transactions	3.81	1.145	OK	76.2
19	statistical sampling method in the field of basic tests provides sufficient and unbiased evidence	3.69	1.069	OK	73.8
20	Variables inspection is concerned with estimating the monetary value of a specific balance of the accounts contained in the financial statements or estimating the amount of error that may exist in that balance	3.91	1.067	OK	78.2
21	Statistical sampling techniques help achieve the objectives of control tests in the absence of a recorded book value for all items subject to audit	12.3	781.0	OK	2.47
Individuals' responses to the trend of the importance of using modern methods of analytical procedures in implementing the audit process		62.3		OK	

Source Prepared by the researcher based onSPSS version 28

The previous table shows the trends of the opinions of the sample under study regarding the level of use of modern methods of analytical procedures when carrying out auditing mission procedures in the first dimension related to applying financial analysis methods to in the first dimension indicate a high level of agreement among participants on the importance of applying financial analysis methods in auditing. Using these methods helps in understanding the nature of the organization's business and identifying potential risk areas with an average of 3.81 and a standard deviation of 1.098, with an agreement rate of 76.2%. These methods are also used to identify items and accounts that need further examination and verification with an average of 3.77 and a standard deviation of 0.957, with an agreement rate of 75.4%. Financial analysis methods contribute to discovering material errors and abnormal items in the financial statements with an average of 3.91 and a standard deviation of 1.096, with an agreement rate of 78.2%. In addition, using these methods saves the time and cost of the audit process with an average of 3.76 and a standard deviation of 1.122, with an agreement rate of 75.2%. Finally, studying the trends of financial ratios over the years helps in noticing any deviations that occur in the accounts with an average of 3.43 and a standard deviation of 1.002, with an agreement rate of 72.7%

- **The indicators for the first dimension related to the impact of applying financial analysis methods reached In the auditing process , the arithmetic mean 3.81, standard deviation 0.063, and relative importance 76.2%, which indicates the sample members' agreement that the application of financial analysis methods has a decisive role in improving the quality and efficiency of the auditing process**

Regarding the second dimension, the importance of using statistical and mathematical methods, the data indicate a high level of agreement among participants on the importance of using modern methods of analytical procedures in auditing, as statistical and mathematical methods are considered among the most important tools that increase the effectiveness of the examination and verification process, with an average of 3.81 and a standard deviation of 1.089, with an agreement rate of 76.2%. When using these methods and any deviations appear, their causes must be investigated, analyzed and evaluated, which was agreed upon by participants with an average of 3.84 and a standard deviation of 1.019, with an agreement rate of 78%. The regression analysis method can contribute to logical thinking and better examination due to its objectivity and specific mathematical rules, with an average of 3.84 and a standard deviation of 1.019, with an agreement rate of 76.8%. Also, this method contributes to testing the reasonableness of the actual book balance in the financial statements, with an average of 3.69 and a standard deviation of 1.069, with an agreement rate of 73.8%.

The time series analysis method helps in identifying changes, diagnosing the reasons that led to their occurrence and explaining them, with an average of 3.50 and a standard deviation of 1.123, with an agreement rate of 71.7%. This method is useful in understanding, interpreting and estimating changes in the value of accounts to achieve more accurate expectations of future

events, with an average of 2.96 and a standard deviation of 0.082, with an agreement rate of 69.2%. These results reflect a consensus that the use of modern methods of analytical procedures enhances the quality and accuracy of the audit process.

- **The indicators for the second dimension related to the impact of applying statistical and mathematical methods reached an arithmetic mean of 3.81 and a standard deviation of 0.089, with a relative importance estimated at 76.2%. This indicates that the sample's opinions agree that there is an impact of using statistical and mathematical methods on the stages of implementing the auditing process.**

As for the indicators of the third dimension related to the use of statistical examinations in the field of control tests, the results of its paragraphs were as follows

The third dimension data indicates a high level of agreement among participants on the importance of using statistical sampling in control tests. The use of statistical sampling contributes to determining the extent of the necessary tests with an average of 3.88 and a standard deviation of 0.997, with an agreement rate of 77.6%. It also enables the determination of the sample size and the selection of its components in an objective and scientific manner with an average of 3.85 and a standard deviation of 1.005, with an agreement rate of 77%. The attribute sampling method helps to ensure the institution's commitment to implementing control policies and procedures with an average of 3.75 and a standard deviation of 1.152, with an agreement rate of 75%. Also, the use of statistical sampling contributes to ensuring the extent to which the institution applies the regulations, systems and methods of internal control with an average of 3.80 and a standard deviation of 1.169, with an agreement rate of 78.8%.

Finally, exploratory sampling contributes to the search for significant errors as evidence of possible embezzlement with a mean of 3.80 and a standard deviation of 1.139, with an agreement rate of 76%.

The indicators for the third dimension related to the impact of using statistical inspections in the field of control tests reached an arithmetic mean of 3.81, and a standard deviation of 0.054, with an estimated relative importance of 76.2%. This indicates that The great benefit of using statistical sampling is to enhance the effectiveness of tests of control

the ,Using statistical tests in the field of basic tests For the fourth dimension results of the analysis of their arithmetic averages were as follows

The data indicate a high level of agreement among participants on the importance of using statistical sampling in basic audit tests. Statistical sampling can be used to analyze the results to see how much the sample results differ from the results that would have been possible if the entire population had been examined, with a mean of 3.96 and a standard deviation of 0.951, with an agreement rate of 79.2%. The variable sampling method is used in the detailed testing stage to obtain direct evidence about the validity of balances and transactions, with a mean of 3.81 and a

standard deviation of 1.145, with an agreement rate of 76.2%. The statistical sampling method in basic tests provides sufficient and unbiased evidence, with a mean of 3.69 and a standard deviation of 1.069, with an agreement rate of 73.8%. The variable sampling method is concerned with estimating the monetary value of a particular balance or estimating the amount of error that might exist in that balance, with a mean of 3.91 and a standard deviation of 1.067, with an agreement rate of 78.2%. Finally, statistical sampling techniques help achieve the objectives of control tests in the absence of a recorded book value for all audited items with a mean of 3.12 and a standard deviation of 1.087, with an agreement rate of 74.2%

- **The indicators for the fourth dimension related to the impact of information an arithmetic the report)expressing opinion) reached technology on preparing mean of 3.89 and a standard deviation of 0.071, with a relative importance estimated at 77.8%. This indicates the sample under study’s agreement on the existence of an impact of using Statistical sampling, in turn, reflects a benefit in . improving the accuracy and efficiency of basic audit tests**

The overall indicators of the second axis indicate the arithmetic mean is estimated at 3.83, and the standard deviation is equal to 0.071, which indicates that the sample's answers tend towards the "agree" option, which is considered an indication that the level of auditors' reliance on the use of modern methods of analytical procedures in implementing the audit process is highly consistent among them, which reflects their agreement that these methods enhance the effectiveness and efficiency of the audit process. These results reflect the participants' awareness of the benefits provided by modern methods, such as increasing the accuracy of examination and better analysis of data, which contributes to improving the quality of financial reports and decisions based on them

Fourth Analysis of arithmetic averages and standard deviations of the sample individuals’ response to the third axis

Table)16.3) Shows the results of the sample’s answers regarding the level of contribution of using modern analytical procedures and methods in improving the .quality of supervisory work

The number	Statement	Arithmetic mean	Standard deviation	Impact Degree	Relative %importance
The first dimension requirements for improving the quality of supervisory work					
01	Commitment to professional ethics and behaviors supports the quality level of the	3.97	0.989	OK	79.4

Chapter Three : An applied survey study of the impact of using modern methods of analytical procedures on improving the quality of audit work in the Accounting Council

	organization's external audit work				
02	The scientific and practical qualification of the auditor and training programs lead to increased communication and exchange of information	3.72	1.121	OK	74.4
03	The quality of the audit is affected by appropriate and sufficient disclosure in the auditor's report with reasonable assurance that material errors and irregularities will be detected by the client	3.96	1.025	OK	79.2
04	Detecting material misstatements and errors of relative importance supports the quality of the audit process	3.91	1.067	OK	78.2
05	The auditor's commitment to the accounting standards and auditing standards of the supreme financial and accounting oversight bodies supports the quality of the oversight work	98.3	731.0	OK	80.2
06	The quality of audit work is affected by the professional competence and independence of the auditor	12.3	671.1	OK	2.57
The second dimension the importance of reducing the risks of the audit process					
07	analytical procedures techniques help to reduce risks to a minimum in the audit process	3.85	1.161	OK	77

Chapter Three : An applied survey study of the impact of using modern methods of analytical procedures on improving the quality of audit work in the Accounting Council

08	analytical procedures methods contributes to knowing the organization's ability to continue and identifying the .areas of risk	3.82	1.161	OK	76.4
09	audit risk contributes to .minimizing failures	3.84	1.118	OK	76.8
10	Reducing audit risks saves . auditors effort and time	45 .3	67 1 .1	OK	5 . 2 7
11	audit risk helps support organizations' ability to address . potential financial risks	52 .3	1.067	OK	7 . 3 7
12	Reducing the risks of the audit process contributes to improving the quality of published accounting and . financial information and data	49 .3	1.067	OK	4 . 2 7
13	Reducing audit risk contributes to improving audit performance and increasing the credibility of financial .statements	95 .3	1.067	OK	8 .78
The third dimension the importance of narrowing the expectations gap					
14	The work helps to narrow the gap in expectations by implementing the audit process with absolute credibility and . integrity	91. 2	7 17 .1	OK	2. 5 7
15	Narrowing the expectations gap improves the capacity and efficiency of the Accounting .Board's judges and auditors	3.50	7 08 .1	OK	5 7
16	Working to narrow the expectations gap contributes to raising the degree of	43 .3	122 .1	OK	6 7

Chapter Three : An applied survey study of the impact of using modern methods of analytical procedures on improving the quality of audit work in the Accounting Council

	confidence of stakeholders in .the reports of the Audit Bureau				
17	Working to narrow the expectations gap improves communication and understanding with .stakeholders	15 .3	023 .1	OK	74
18	Narrowing the expectations gap contributes to improving the quality of published accounting and financial .information and data	35 .3	33 1.0	OK	76
Fourth Dimension The effectiveness of modern analytical procedures in improving the quality of supervisory work					
	Modern analytical procedures techniques help the auditor to work with integrity, neutrality, objectivity, and freedom from .external influences	3.91	1.067	OK	3 .78
20	The auditor's reliance on modern methods of analytical procedures achieves greater accuracy in audit procedures to .achieve their objectives	3.91	7 7 1.0	OK	7 .78
21	The auditor's use of analytical procedures methods increases the efficiency and effectiveness of the performance of the audit .work	82 .3	32 1.0	OK	76
22	Applying analytical procedures throughout the audit engagement helps enhance overall understanding of the audited entity's business, identify potential risk areas, and .assess material errors	3.75	7 4 1.0	OK	77

Chapter Three : An applied survey study of the impact of using modern methods of analytical procedures on improving the quality of audit work in the Accounting Council

23	Analytical procedures techniques help detect errors and material misstatements	66 .3	103 .1	OK	73
24	The results of the auditor's use of analytical procedures methods ensure the quality and type of performance of the . audit mission	5 3.9	7 8 1.0	OK	77
25	Analytical procedures help the auditor to provide recommendations to the management of the institution being audited to improve its . performance	3.91	1.067	OK	78
Individuals' answers about the direction of the effectiveness of the contribution of using modern analytical procedures to raising and improving the quality of supervisory . work		1 9 .3		OK	

Source Prepared by the researcher based onSPSS version 28

The table above shows the trends of the opinions of the sample under study regarding the axis of evaluating the impact of using modern analytical procedures in improving the quality of In the first dimension related to the requirements for .oversight work in the Accounting Council improving the quality of supervisory work to responses on the requirements for improving the quality of audit work based on the data provided on the importance of the factors for improving the quality of audit work indicate that adherence to professional ethics and behaviors plays a crucial role in supporting the high quality of external audit work of institutions, as this element received a score of 3.97. In addition, the score of 3.72 for the academic and practical qualification of the auditor and training programs shows that it contributes significantly to enhancing communication and information exchange within institutions. On the other hand, the score of 3.96 highlights the importance of adequate and correct disclosure in auditor reports, which enhances their ability to detect material errors in clients. In addition, the score of 3.98 for the auditor's commitment to accounting and auditing standards emphasizes the importance of compliance with international standards as a basis for supporting the quality of audit work. Finally, the score of 3.21 shows that the auditor's competence and independence play a major role in the quality of audit work, indicating the

urgent need to enhance professional competence and independence in performing audit operations

- **The indicators for the first dimension related to the requirements for improving the quality of supervisory work reached an arithmetic mean of 3.88 and a standard deviation of 0.141, with a relative importance estimated at 77.6%. This indicates the sample under study agreeing on the existence of an effect showing that the aforementioned elements play decisive roles in improving the quality of supervisory work within institutions**

The importance of reducing risks in the audit process For the second dimension The results of the analysis of its arithmetic averages were as follows .

The study considered that modern analytical procedures methods play a vital role in reducing the risks of the audit process with an approval score of 3.85, which confirms the effectiveness of these methods in improving the quality of audit work and reducing potential risks. In addition, the use of analytical procedures methods appears with an approval score of 3.82, which contributes to enhancing the institution's ability to withstand and understand potential risk areas, which enhances its ability to monitor and respond quickly.

In addition, the audit risk is reduced by 3.84, which contributes to reducing failures and increasing effective audit results. However, the report indicates that these methods also save effort and time for auditors with an approval score of 3.45, reflecting the administrative and financial benefits of implementing them. Also, reducing the audit risk by 3.52 contributes to supporting the ability of institutions to address financial risks and increase their stability and growth. Finally, the report confirms that these methods raise the quality of published accounting and financial information and data by an approval score of 3.49, which enhances the level of transparency and credibility in financial reports.

- **The indicators for the second dimension related to the impact of reducing risks on the efficiency and enhancement of regulatory work , reached an arithmetic mean of 3.84 and a standard deviation of 0.00, with a relative importance estimated at 76.8%. This indicates the agreement of the sample under study to highlight the importance of using modern analytical procedures in reducing risks and enhancing the quality of regulatory work in institutions.**

Regarding the third dimension , “ On the importance of narrowing the expectations gap ,” as follows

Based on the study results, the report shows that working to narrow the expectation gap by implementing the audit process with absolute credibility and integrity received an approval score of 2.91. This indicates that there is an opportunity to improve the level of trust and integrity in the oversight and auditing processes . The report shows that improving the narrowing of the expectation gap leads to improving the capacity and efficiency of the judges and auditors of the

Accounting Council with an approval score of 3.50, which reflects the importance of this process in enhancing the role of oversight and accountability . On the other hand, narrowing the expectation gap contributes to raising the degree of confidence of stakeholders in the Accounting Council reports with an approval score of 3.43, which enhances the transparency of the reports and increases public confidence in the financial information and published data. The responses indicate that the process of narrowing the expectations gap contributes to improving communication and understanding with stakeholders, with an approval score of 3.15, which highlights the importance of enhancing communication and good understanding with all stakeholders in the control and auditing processes, while emphasizing that narrowing the expectations gap contributes to raising the quality of published accounting and financial information and data, with an approval score of 3.35, which reflects the importance of this step in improving the accuracy of financial reports and disclosures, and thus enhancing their credibility .before all stakeholders

- **The indicators for the third dimension related to the impact of reducing the expectations gap on the efficiency and enhancement of the supervisory work, reached the arithmetic mean 3.34 and the standard deviation 0.00, with a relative importance estimated at 7.52% , which indicates the agreement of the sample under study to highlight the importance of improving the effectiveness of supervision and accounting by narrowing the expectations gap and enhancing the transparency and integrity of accounting and financial operations**
- **fourth dimension in the fourth dimension “ On the effectiveness of modern analytical procedures in improving the quality of audit work in the Accounting Council” , the responses of the study individuals show the following**

The use of modern analytical procedures helps the auditor to work with integrity, neutrality, objectivity, and freedom from external influences, with an approval rate of 3.91, which enhances the comprehensiveness and quality of the audit process. The auditor's reliance on modern analytical procedures reflects greater accuracy in the audit procedures to achieve their objectives, with an approval rate of 3.91, which highlights the importance of using technology and advanced methods in the control processes. Whereas The auditor's use of analytical procedures methods leads to raising the efficiency and effectiveness of the performance of the audit work with approval of 3.82, which indicates that these methods contribute to improving the performance and effectiveness of the audit operations , by applying analytical procedures in all stages of the audit mission , it contributes to enhancing the overall understanding of the work of the audited institution and identifying potential risk areas with approval of 3.75, which enhances the accuracy and effectiveness of the audit. Through the use of analytical procedures methods , which in turn contribute to discovering errors and material distortions with approval of 3.66, which reflects its effective role in increasing the accuracy and comprehensiveness of the audit operations. As the results of the auditor's use of analytical procedures

methods ensure the quality and type of performance of the audit mission with approval of 3.95, which enhances the confidence of external parties in the audit results. Likewise, analytical procedures help the auditor to provide recommendations to the management of the audited institution to improve its performance with approval of 3.91, which reflects its role in supporting continuous improvement processes and enhancing communication within the institution.

- **The indicators for the fourth dimension related to the impact of risk reduction on the efficiency and enhancement of control work , reached an arithmetic mean of 3.95 and a standard deviation of 0.00, with a relative importance estimated at 7.86439. This indicates the agreement of the sample under study that these results reflect 78.6439% the importance of relying on modern methods of analytical procedures in enhancing the quality and effectiveness of control and accounting operations within institutions**

The overall indicators of the third axis on the effectiveness of the contribution of using modern analytical procedures to raising and improving the quality of audit work indicate an approval score of 3.91, which indicates high approval that using these methods contributes effectively to improving and raising the level of quality of audit operations in the Accounting Court

Section Two Testing the study hypotheses and discussing the results

After analyzing the central tendency indicators, in this section we will test the study hypotheses and build more than one model for all dimensions of the study and compare the available models and discuss the results

The first requirement Testing the study hypotheses

First Testing functional dependency differences

In order to test whether there are differences in the professional practices of the auditing work due to functional accreditation, we first test the normality of the distribution of the Accounting Council the professional practices of the auditing work . If its distribution of functional accreditation on “ distribution is normal, we use the T test .otherwise we choose the Mann–Whitney test , ”

- í- **Testing the normality of the distribution** We test the distribution by constructing a statistical hypothesis divided into two parts H_0 and H_1 .at a significance level of 0.05. If the calculated significance level is less than the hypothetical significance level, we reject the null hypothesis and accept the alternative hypothesis. Otherwise, we accept the null hypothesis and reject the alternative hypothesis
 - The first hypothesis H_0 .The sample follows a normal distribution
 - The second hypothesis H_1 follow the normal does not The sample .distribution

Table)17.3) Test of the normality of distribution according to functional dependence

		Shapiro–Willick			Kolmokurov–Smirnov		
		Result	Degree of freedom	Significance	Result	Degree of freedom	Significance
Professional practices for the supervisory work in the Accounting Council	Auditor	0.913	89	<0.001	0.179	89	<0.001
	judge	0.937	07	0.615	0.170	07	0.200

Source Prepared by the researcher based onSPSS version 28

Through the Shapiro–Willik normality test table, we notice that the test value for the auditor sample is equal to 0.913 with a degree of freedom of 89 at a significance level of 0.001, which is smaller than the significance level of the null hypothesis of 0.05. We also notice that the test value for the judge sample is equal to 0.937 with a degree of freedom of 07 at a significance level of 0.615, which is greater than the significance level of the null hypothesis of 0.05. Therefore, we reject the null hypothesis and accept the alternative hypothesis that . the sample does not follow the normal distribution

ب- **Mann–Whitney Test** Since the sample does not follow a normal distribution, we In order to test the research hypothesis .will resort to using the Mann–Whitney Test that states that there are differences in professional auditing practices due to functional .dependence, we will build a statistical hypothesis for this research hypothesis as follows

- The first hypothesisH0 There are no statistically significant differences in the professional practices of supervisory work due to functional dependence at a significance level of 0.05 ;
- The second hypothesisH1 There are statistically significant differences in the professional practices of supervisory work due to functional dependence at a significance level of 0.05 ;

The following table shows the test results

Table)18.3) Mann–Whitney test according to functional dependence

Dependent variable	Modified variable	number	Average Rank	Mann–Whitney test	Significance level
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Chapter Three : An applied survey study of the impact of using modern methods of analytical procedures on improving the quality of audit work in the Accounting Council

Professional practices for oversight work in the Accounting Council	Financial auditor	12	46.72	153	0.025
	judge	63	71.14		

Source Prepared by the researcher based onSPSS version 26

From the table we note that the average ranks for the professional practices of the auditing work for the financial auditor category equal 46.72, while the average ranks for the professional practices of the auditing work for the judge category equal 71.14 condition is equal to 153 at a significance level of We note that the Mann–Whitney test which is smaller than the significance level of 0.05. Therefore, we reject the null hypothesis H_0 and accept the alternative hypothesis H_1 there are which states that , statistically significant differences in professional auditing practices in favor of a judge

Second Testing the differences in years of experience

due to the number In order to test whether there are differences in professional auditing practices of years of experience, we first test the normality of the distribution of years of experience on of auditing practices . If the distribution is normal, we use the one–way analysis professional variance)ANOVA) test .otherwise we choose the Kruskal–Wils test , First, we check the availability of the following conditions quantitative data, independence and .moderation .Since the first and second conditions are met, we test for moderation

- ت- **Testing the normality of the distribution** We test the distribution by constructing a statistical hypothesis divided into two parts H_0 and H_1 .at a significance level of 0.05 If the calculated significance level is less than the hypothetical significance level, we reject the null hypothesis and accept the alternative hypothesis. Otherwise, we accept .the null hypothesis and reject the alternative hypothesis
- The first hypothesis H_0 .The sample follows a normal distribution
 - The second hypothesis H_1 follow the normal does not The sample .distribution

Table)19.3) Test of normality of distribution according to the number of years of experience

Statement	Shapiro–Willick			Kolmokurov–Smirnov		
	Result	Degree of freedom	Significance	Result	Degree of freedom	Significance

Chapter Three : An applied survey study of the impact of using modern methods of analytical procedures on improving the quality of audit work in the Accounting Council

Professional practices for the oversight work of the Accounting Council	Less than 5 years	0.926	10	0.405	0.200	10	0.200
	Between 5 and years 10	0.885	40	<0.001	0.209	40	<0.001
	More than 10 years	0.900	46	<0.001	0.171	46	0.002

Source Prepared by the researcher based onSPSS version 28

Through the Shapiro-Willik test table, we notice that the test value for a sample of less than 5 years is equal to 0.926 with a degree of freedom of 10 at a significance level of which is greater than the significance level of the null hypothesis of 0.05. We also ,0.405 notice that the test value for a sample of between 5 and 10 years is It is equal to 0.885 with a degree of freedom of 40 at a significance level of 0.001, which is smaller than the significance ,level of the null hypothesis of 0.05. As for the test value for a sample of more than 10 years It is equal to 0.900 with a degree of freedom of 46 at a significance level of 0.001, which is smaller than the significance level of the null hypothesis of 0.05. Therefore, we reject the null hypothesis and accept the alternative hypothesis that the sample does not follow a normal .distribution

ث- **Kruskal-Wallis test** Since the sample does not follow a normal distribution, we will test the research hypothesis that In order to resort to using the Kruskal-Wallis test. states that there are differences in professional practices of supervision due to the number of years of experience, we will build a statistical hypothesis for this research .hypothesis as follows

- **The first hypothesisH0** There are no statistically significant differences in the professional practices of supervisory work in the Accounting Board due to the number .of years of experience at a significance level of 0.05
- **The second hypothesisH1** There are statistically significant differences in the professional practices of the supervisory work in the Accounting Council due to the The following table shows .number of years of experience at a significance level of 0.05 the test results

Table)20.3) Shows the test of statistical significance differences according to the number of years of experience

Dependent variable	Modified variable	number	Average Rank	Kruskal-Wallis test	Significance level
Professional practices for the oversight	Less than 5 years	10	42.45	0.530	0.767
	Between 5 and years 10	40	49.08		

work of the Accounting Council	More than 10 years	46	49.32		
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Source Prepared by the researcher based onSPSS version 28

From the table, we note that the average ranks for professional practices of auditing work in the Accounting Council for the category of less than 5 years is equal to 42.45, while the average ranks for professional practices of auditing work for the category between 5 and 10 years is equal to 49.08, and the average ranks for professional practices of auditing work for the category of more than 10 years is equal to 49.32

is equal to 0.530 at a significance level of Kruskal–Wallis test condition We note that the which is greater than the significance level of 0.05. Therefore, we reject the null hypothesis H_0 and accept the alternative hypothesis H_1 there are which states that , statistically significant differences in the professional practices of the auditing work of the Accounting Council due to the number of years of experience

Third Testing the differences in professional practices

In order to test whether there is a statistically significant relationship between the professional practices of the audit work in the Accounting Council and the use of modern analytical procedures and methods , we conduct the Pearson correlation coefficient test and build two hypotheses

The first hypothesis – H_0 between the differences statistically significant **There are no** professional practices of supervisory work and the use of modern methods of analytical procedures in light of information technology. At a significance level of 0.05

- **The second hypothesis H_1** There are statistically significant differences between the professional practices of the auditing work of the Accounting Council and the use of modern methods of analytical procedures in light of information technology at a significance level of 0.05

Table)21.3) Pearson's Test of Professional Practice Coefficient shows

Variables	Pearson correlation coefficient	Significance level	confidence interval for %95 correlation coefficient
Using modern methods of analytical procedures in light of information technology	0.892	<0.01	Minimum=0.843
Improve quality Audit work of the Accounting Council			Max = 0.927

Source Prepared by the researcher based onSPSS version 28

From the table we note that the Pearson correlation coefficient between the use of modern methods of analytical procedures in light of Information technology and professional practices of the audit work of the Accounting Council equal $R=0.892$ at the significance level $sig=0.05$, and from this we reject the null hypothesis H_0 and accept the hypothesis H_1 which states that there is a statistically significant relationship between **the use of modern methods of analytical procedures in light of information technology and professional practices of the audit work of the Accounting Court**

The following table shows us the relationship between the dimensions of the independent variable (the use of modern methods of analytical procedures in light of information technology) and the dependent variable (Professional practices for oversight work in the Accounting Council)

Table 22.3) Pearson's correlation coefficient shows the relationship between the dimensions of the independent variable and the dependent variable

Dimensions	Pearson's correlation coefficient between dimensions of use Modern methods of analytical procedures and professional practices of the audit work of the Accounting Council	Significance level sig
Availability of IT infrastructure	0.658	<0.01
The extent of application of analytical audit procedures, requirements and methods	0.73	<0.01
Auditor's awareness (judge, auditor) Requirements and importance of modern analytical procedures methods	0.883	<0.01

Source Prepared by the researcher based on SPSS version 28

the “,first dimension We note from the table that the Pearson correlation coefficient for the and “the professional practices of the ” availability of the information technology infrastructure auditing work of the Accounting Council ,” is equal to 0.658 at a significance level of $0.01 >$, and thus there is a relationship between the dimension of the availability of the information technology infrastructure and the professional practices of the auditing work in the Accounting Court

We note from the table that the Pearson correlation coefficient for the second dimension " application of analytical auditing procedures, requirements and methods " and "professional practices of auditing work in the Accounting Council" is equal to 0.730 at a significance level of <0.01 and thus there is a statistically significant relationship between the second dimension of the independent variable " the extent of " and the professional practices " methods

We note from the table that the Pearson correlation coefficient for the third dimension of the the auditor's)judge, auditor's) awareness of the requirements the extent of " independent variable and "the professional practices of the " methods and importance of modern analytical procedures auditing work in the Accounting Council" is equal to 0.883 at a significance level of $0.01 >$ and thus there is a statistically significant relationship between the third dimension of the independent variable " the extent of the auditor's)judge, auditor's) awareness of the requirements and the professional practices of the and " methods importance of using modern analytical procedures .auditing mind in the Accounting Council

The second requirement building the study model

The previous results indicate the existence of a set of relationships of different degrees between the study variables, which gives us the possibility of building a model for the study based on the .study variables and the statistical relationships that link them

First The accuracy of the study model

Table)23.3) Pearson correlation coefficient between the independent variable and the dependent variable

The model	Correlation coefficient	coefficient of determination	Corrected coefficient of determination
	0.883	0.777	5,12

Source Prepared by the researcher based onSPSS version 28

From the above, we note that the relationship between the dependent variable, the professional practices of the auditing work of the Accounting Council, and the independent variable, the use of the importance of using modern methods of analytical procedures in light of information ,in its various dimensions)the availability of the information technology infrastructure technology and , the stages of applying analytical procedures for auditing and their requirements and methods of the requirements and importance of modern analytical procedures the auditor's awareness This relationship is equal to 0.883 with a determination coefficient of 0.777, which .(methods means that the independent variables contribute77.7% to the professional practices of auditing work in the AccountingCourt While the remaining 23.3% is attributed to other variables that .have not been studied

Second The overall morale of the study model

.Table)24.3) shows the overall significance of the study model

The model	sum of squares	Degree of freedom	Mean squares	F value	Significance levelsig
Descent	8695.039	1	8695.039	331,616	<0.01
Remaining	2464.700	94	26,220		
Total	11159.4	95			

Source Prepared by the researcher based onSPSS version 28

It is noted from the table that the sum of the regression squares reached 8695.039 with one degree of freedom, and the average of the regression squares was 8659.039, and the residual squares were equal to 2464.7 at a degree of freedom of 94 degrees

As for theF value it reached 331.616 at a significance level of less than 0.01, which indicates , that there is overall significance to the model

Fourth Partial significance of model features

.Table)25.3) It illustrates the partial significance of the study model

The model	coefficientb	T value	Significance level
Constant	9.390	3,490	<0.01
the The auditor's awareness of requirements and importance of using modern methods of analytical procedures	2.061	18,210	<0.01

Source Prepared by the researcher based onSPSS version 28

- We notice that the coefficient of the constant is equal to 9.390 when the value of t is equal to 3.490, and the level of significance is less than 0.01. From this we conclude that the constant coefficient has a significant significance
- We note that the variable coefficient " **the extent of the auditor's awareness of the importance of using modern methods of analytical requirements and** is equal to 2.061 at a " **procedures** value of with a significance level of less than 18.210 the requirements and thus the coefficient " the extent of the auditor's awareness of ,0.01 is considered to have " and importance of modern methods of analytical procedures .significant significance and contributes to building the model

1. Normality test for residuals

We check the availability of the normality condition in the residuals using the Shapiro-Willick .test

.Table)26.3) Shows the moderation of the residuals

	Test value	Degree of freedom	Significance levelsig
Remaining	0.983	96	0.267

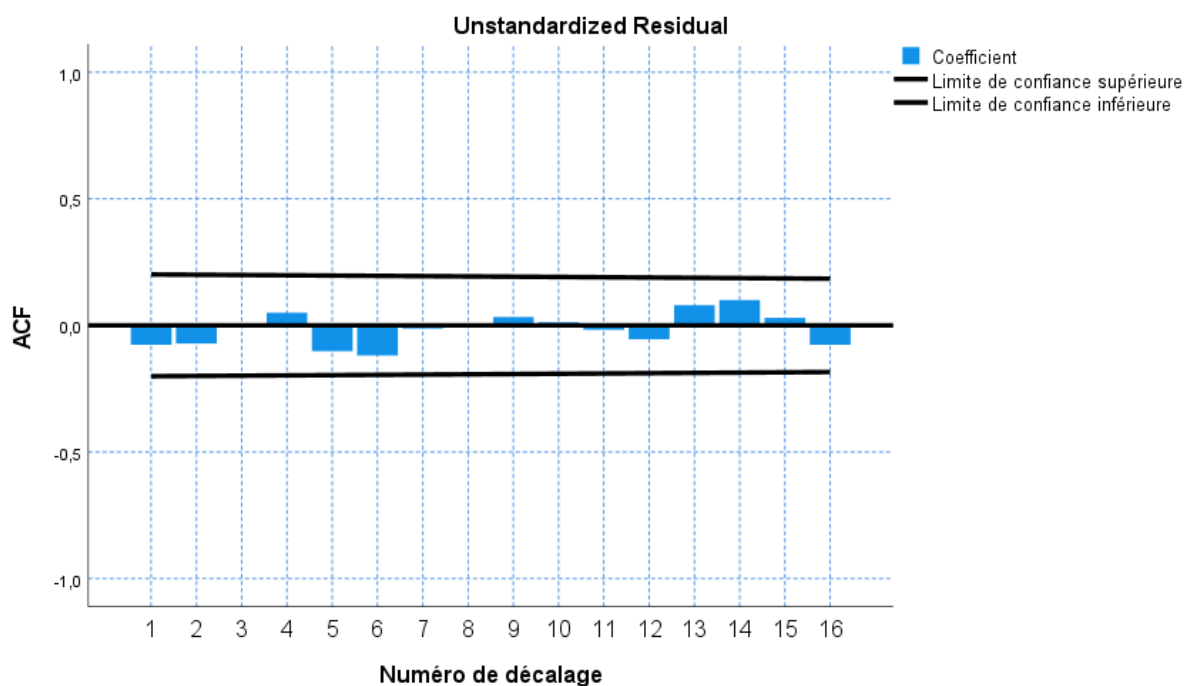
Source Prepared by the researcher based onSPSS version 28

It is noted from the table that the test value is equal to 0.983, at a degree of freedom of 96 degrees, and at a significance level greater than the significance level of 0.05, as it reached 0.267, so we can say that the residuals .It meets the conditions of moderation

2. Test of independence of residuals

The importance of the independence of the residuals The importance of studying the independence of the residuals is to ensure that there is no correlation between the residuals and that they are independent, as the presence of a correlation between the residuals means that the value of the standard error is less than its true value, which affects the rest of the statistical .transactions arranged in it, and this is what makes the model less accurate

Figure)6.3) illustrates the independence of the remainders



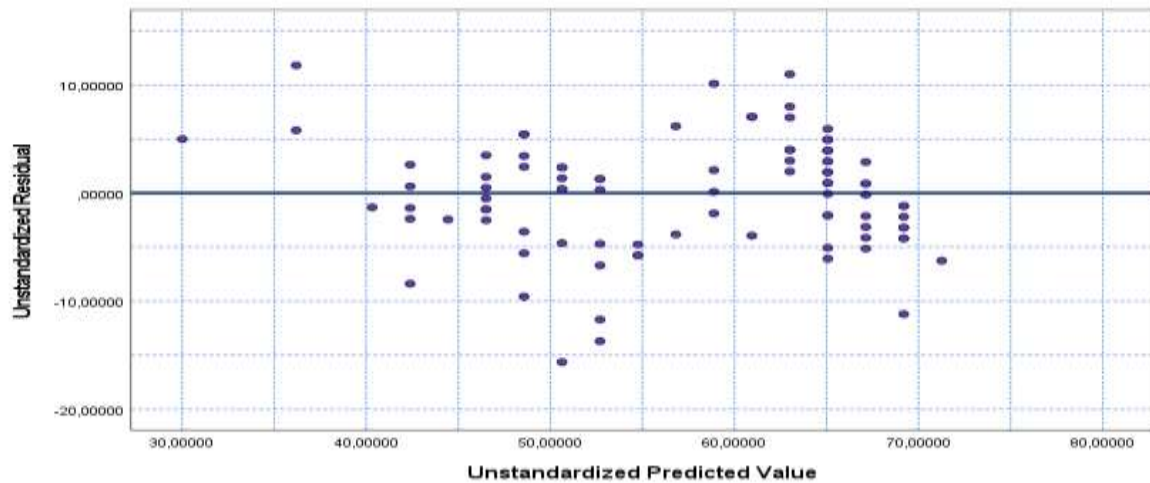
Source Prepared by the researcher based onSPSS version 28

From the opposite figure representing the autocorrelation function of the residuals, we notice that all the autocorrelation coefficients of the residuals are within their confidence interval. This .indicates the availability of the condition of autoindependence of the residuals of the model

3. Homogeneity of residuals test

The following figure shows that the values are randomly distributed on the axes, which indicates .the presence of homogeneity between the residuals, which increases the accuracy of the model

Figure)7.3) Demonstrates homogeneity of residuals



Source Prepared by the researcher based onSPSS version 28

4. Building a regression model

.Table)27.3) shows the regression model

Availability of the remainder conditions			partial significance test	Overall significance test	Quality of success			The model
homogeneity test	Autonomy of the Remains	Moderation			MA X MA E	MA E	R-DEU X	
Investigator	Investigator	Investigator	-	-	15.64	3.974	0.779	The model
Y= 2.062x+9.390								Model equation

Source Prepared by the researcher based onSPSS version 28

The model variables were

Y Professional practices for the oversight work of the Accounting Council

X procedures modern methods of analytical Use of

The regression model is considered a summary of the relationships between the variable, the procedures of the audit work of dependent independent variable and the the Accounting Board , as it models the relationship between the variables in the form

of a linear equation that enables the prediction of the size and strength of the relationship between the variables

❖ **Model 2 Neural Networks**

First Building a neural network model

of analytical methods The neural network for the study variables was created using modern procedures and professional practices for supervisory work based on the SPSS MODELER V18.2 program..

The following table shows the characteristics of the neural network of the study model

Table)28.3) illustrates the layers of neural networks

Model	Radial base function
Number of hidden layers	01
Number of neurons in each layer	06
hidden motivation function	Softmax

Based on Source Prepared by the researcher SPSS MODELER V18.2

Second The importance of independent variables in building the neural network

The following figure represents the degree of importance of each dimension of the independent and the degree of its influence in building ” variable “ Modern Methods of Analytical Procedures .the neural network model

We notice from the previous figure that there is more than one dimension that contributes to building the neural network, unlike the linear regression model, where one dimension appeared. These dimensions were

1. the requirements and importance of modern The extent of the auditor’s awareness of with an impact degree of analytical procedures methods 47%
2. infrastructure adequate IT 32% impact
3. with application of analytical audit procedures, requirements and methods The extent of an impact of 21%

Third The accuracy of the neural network model

The following table shows the results of Pearson correlation coefficients between the study variables

.Table)29.3) Shows the correlation coefficients of the neural network model

Correlation coefficient R	Coefficient of determination R–double
0.931	0.867

Based on Source Prepared by the researcher SPSS MODELER V18.2 output

We note from the results that the independent variables contribute to 86.7% of the professional practices of supervisory work , as the correlation coefficient level reached 0.931, while the remaining percentage, represented by 13.3% is attributed to other variables that were not , .studied

Fourth Testing the normality of the residuals

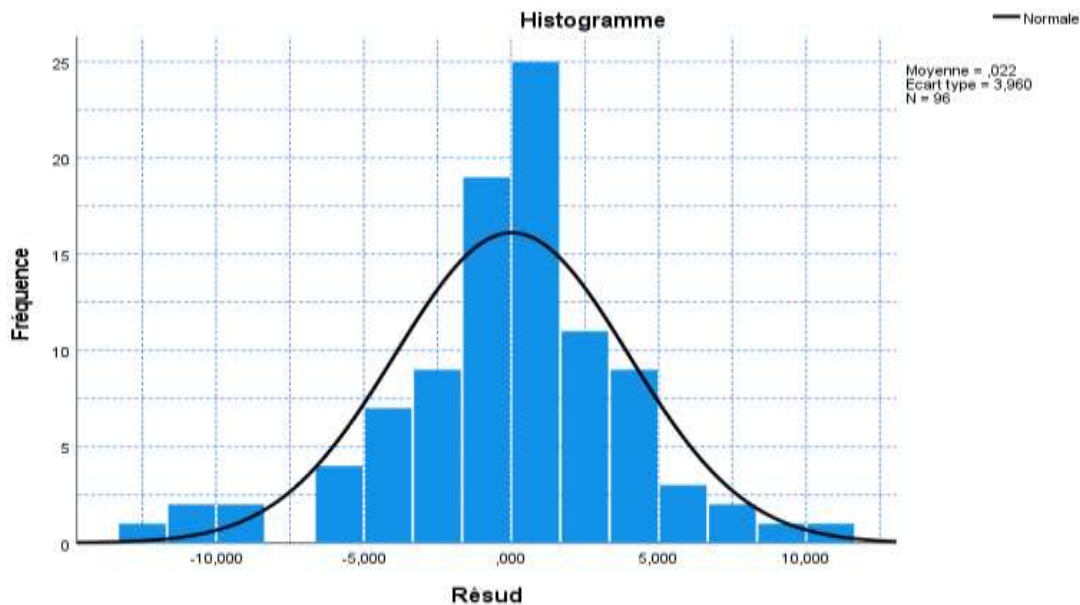
The following table shows the Shapiro–Willick test to examine the normality of the residuals of the neural network

Table)30.3) The normality of the residuals of the neural network

	Test value	Degree of freedom	Significance levelsig
Remaining	0.965	96	0.011

based on the outputs of Source Prepared by the researcher SPSS MODELER V18.2 It is noted from the table that the test value is equal to 0.965, at a degree of freedom of 96 degrees, and at a significance level less than the significance level of 0.05, as it reached 0.011, so we can say that the residuals No conditions are available Moderation. The following figure illustrates this

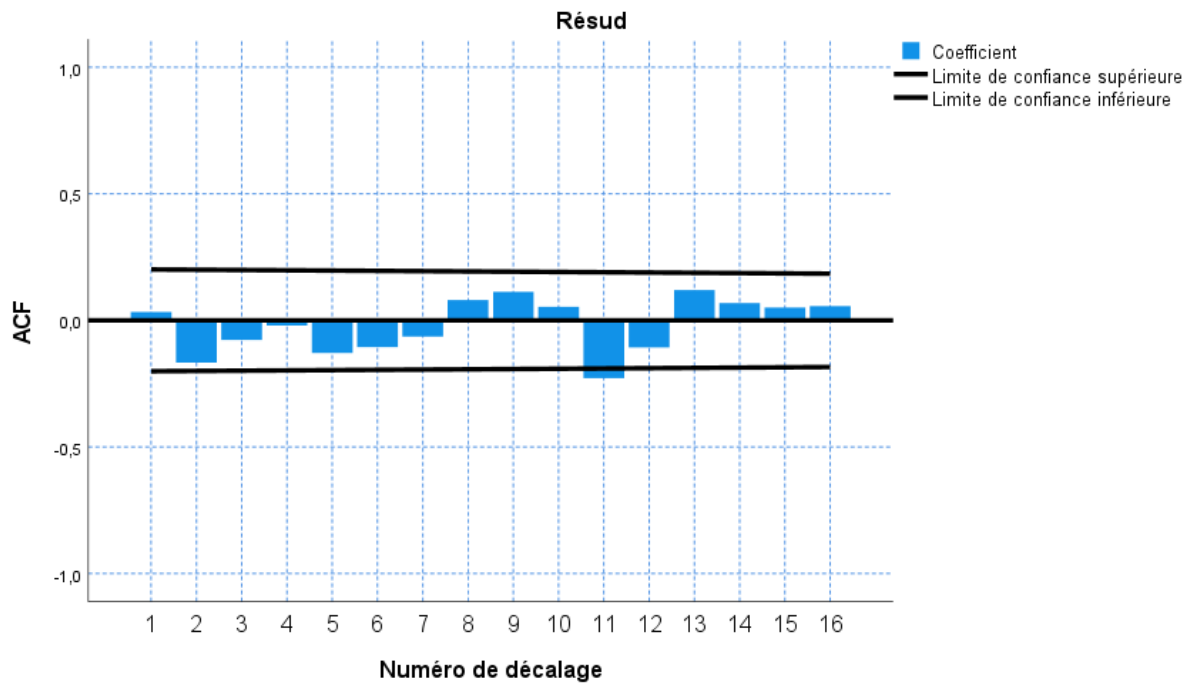
Figure)10.3) shows the distribution of residuals



Fifth The autonomy of the residuals of the neural network

We notice from the following figure that most of the correlation coefficients fall within the confidence interval, and therefore we can say that the residuals of the neural network model meet the condition of self-independence

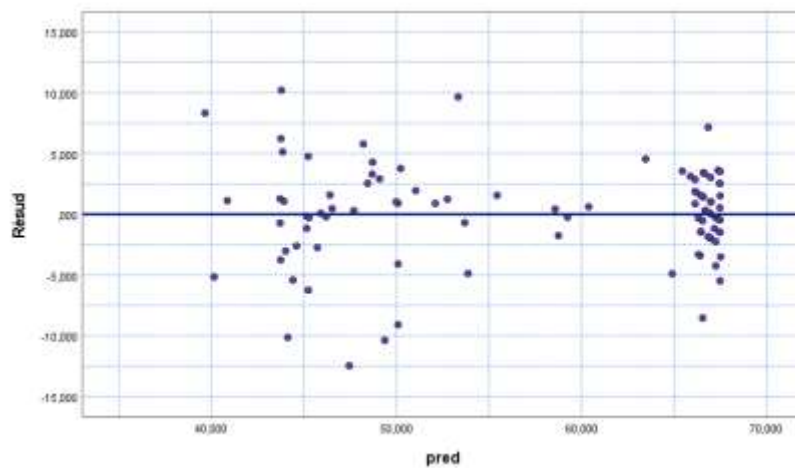
Figure)11.3) Demonstrates the autonomy of residues



Sixth Homogeneity of residuals

The random distribution of values on the axes is evidence of homogeneity among the residuals of the neural network model, as illustrated in the following figure

Figure)12.3) Demonstrates homogeneity of residuals



Seventh Building a neural network

Table)31.3) Neural network model

Availability of the remainder conditions	partial significance test	Overall significance test	Quality of success	The model
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homogeneity test	Autonomy of the Remains	Moderation			MAX MAE	MAE	R-DEUX	
Investigator	Investigator	Not achieved	-	-	12.463	2.859	0.867	The model
Figure No.)8.3)								Model equation

Based on Source Prepared by the researcher SPSS MODELER V18.2 output

We note from the figure above that both the condition of independence of the residuals and the homogeneity test are achieved, while the condition of moderation is not achieved. The percentage of contribution of the independent variables to constructing the dependent variable reached 86%.

.Therefore, we can say that the neural network model is suitable for predicting the study variables

Eighth Comparison between study models

In order to obtain more control over the study variables and to obtain the highest possible accuracy in predicting and analyzing the study variables, we prefer between both models)linear .(regression and neural networks

.The following table shows the data for each model

.the comparison between the study models Table)32.3) Shows

Availability of the remainder conditions		partial significance test	Overall significance test	Quality of success		The model
homogeneity test	Autonomy of the Remains	Moderation			MAX MAE	MAE
Investigator	Investigator	Investigator	-	-	15.64	3.974
Investigator	Investigator	Not achieved	-	-	12.463	2.859
Y= 2.062x+9.390						Model Equation 1
Figure No.)8.3)						Model Equation 2

Based on Source Prepared by the researcher SPSS MODELER V18.2 output

The most important points of comparison between models in statistical coefficients are summarized in)R–deux, Mae, Max Mae).

The following table shows the results of the comparison between the models

.Table)33.3) Shows the criteria for comparing models

	R–DEUX	MAE	MAX MAE
Comparison factor	The greatest value	smallest value	smallest value
The result of the comparison	Neural networks	Neural networks	Neural networks

Based on Source Prepared by the researcherSPSS MODELER V18.2 output

It is clear from the table that the most accurate model for predicting the variables of the study of on the professional practices of the modern methods of analytical procedures the impact of using auditing work of the Accounting Council in light of the information technology environment is **.the neural networks model**

thirdrequirement Discussionof the study hypotheses

The first hypothesis This hypothesis included researching the question “ **What is the level .1 of adoption of the types of information technology adopted in Algerian institutions ”? and in the Accounting Council**

The hypothesis included "the level of adoption of the types of information technology adopted ".in Algerian institutions and in the Court of Auditors is considered low

In order to study this hypothesis, we identified a group of 8 types of information technology and measured the extent to which judges and financial auditors deal with these types of technology while performing the auditing tasks of the AccountingCourt

The results showed a large variation in the percentage of use of these types of technology, and we can divide the percentages into two main categories

- The first category includes high–level approved information technology These types are represented in databases, use of ready–made accounting and administrative programs, use .of anti–virus and hacking programs, provision of technical support and updates

We can say that the use of these types of information technology at a high level is mainly due to several factors, which are

- This technology is considered to be of considerable value as it is not considered a new .technology
- .Ease of installation, maintenance and various related operating expenses
- The second category includes information technology adopted at a weak level These types are cloud storage technology, the use of accounting and administrative programs .designed on demand

We can say that the poor use of these types of technology is mainly due to several factors, namely

- The lack of local IT service providers, as most of them are owned by multinational .companies operating globally
- The high cost of obtaining this technology, especially the professionally directed .technology for institutions
- The weakness of the information technology infrastructure in Algerian institutions , .which results in limited dealing and conducting banking operations via the Internet
- Lack of awareness among individuals and consumers about electronic financial transactions, which forces institutions to focus more on traditional methods as they are .the most in demand

The second hypothesis It included the answer to the following question “ **What is the level .2 of the auditor’s reliance on the use of modern methods of analytical procedures in light ”? of information technology in the auditing process**

The proposed hypothesis stated “There is an acceptable level of auditor reliance on modern . methods of analytical procedures in light of information technology in the auditing process

In order to study this hypothesis, we studied a set of basic dimensions represented in)the availability of the information technology infrastructure in the Accounting Council, the availability of the application of analytical audit procedures and their requirements and methods the extent of the auditor’s awareness of the requirements and importance of modern analytical , procedures methods , the application of financial analysis methods , the importance of applying statistical and mathematical methods , the use of statistical sampling in the field of control tests , .(And the use of statistical sampling in basic tests

The results reached after analyzing these dimensions were

- **Availability of IT infrastructure in the Accounting Council** The importance of having a strong IT infrastructure was emphasized, which contributes to facilitating and .implementing analytical procedures effectively
- **Availability of the application of analytical procedures for auditing and their requirements and methods** The results indicated the importance of applying modern analytical procedures as an essential part of the auditing process, as they contribute to .improving the accuracy and effectiveness of the audit
- **The extent of auditor awareness of the requirements and importance of modern analytical procedures** The results showed that auditors’ awareness of the importance and benefits of modern analytical procedures contributes significantly to improving the .quality of audit work
- **Application of financial analysis methods** It has been shown that the use of financial analysis methods contributes to enhancing the accuracy and objectivity of the supervisory .work , which leads to improving the financial decisions of the institution

- **The importance of applying statistical and mathematical methods** The results confirmed that statistical and mathematical methods are effective tools in identifying and analyzing risks, which contributes to improving the quality of auditing
- **Using statistical sampling in the field of control testing** The results showed that statistical sampling contributes to determining the extent of compliance with control policies and procedures, which enhances the accuracy and effectiveness of control testing
- **Using statistical sampling in substantive tests** It has been shown that using statistical sampling in substantive tests provides unbiased and accurate evidence, which contributes to improving the quality of financial information and accounting reports

These results emphasize the importance of having the appropriate information technology infrastructure and applying modern analytical and statistical methods in auditing operations to improve the quality of audit work and enhance the accuracy and effectiveness of the audit work of the Accounting Council

As a conclusion to discuss this hypothesis, we can say that there is an acceptable level of auditor reliance on the use of modern methods of analytical procedures in implementing the audit process in light of the information technology environment . Based on this, we accept the hypothesis proposed previously

The third hypothesis This hypothesis states that there is a high level of contribution of using modern methods of analytical procedures in improving and raising the quality of the audit work of the Accounting Council in light of the information technology environment

To study this hypothesis, the variable was divided into four sections) requirements for the quality of audit work , the importance of reducing the risks of the audit process, the importance of narrowing the expectations gap, the effectiveness of modern analytical procedures in improving the quality of audit work). The results reached were as follows

Requirements for the quality of supervisory work .1.3

professional ethics and behavior Supports the quality level of the institution's external audit work with a score of 3.97, indicating the importance of ethics in enhancing public trust

The scientific and practical qualification of the auditor and training programs lead to an increase in communication and exchange of information by a score of 3.72, which reflects the importance of continuous education and training

The quality of the audit is affected by the appropriate and sufficient disclosure in the auditor's report, while ensuring the detection of errors and material violations, with a score of 3.96

The auditor's commitment to accounting and auditing standards contributes to supporting the quality of auditing work with a score of 3.98, which confirms the importance of compliance with international standards

The impact of auditor efficiency and independence on the quality of audit work was 3.21, indicating the need to enhance efficiency and independence in auditing operations

The importance of reducing audit process risks .2.3

Modern analytical procedures methods help reduce risks in the audit process by a score of 3.85, which reflects the effectiveness of these methods in improving quality

Using analytical procedures methods contributes to knowing the institution's ability to continue and identifying the areas of risk with a score of 3.82, which enhances the ability to monitor and respond

Reducing the risks of the audit process contributes to reducing failure cases to a minimum by a score of 3.84, which enhances effective audit results

Reducing audit risks saves auditors effort and time. With a score of 3.45, reflecting the financial and administrative benefits of these methods

Supporting the ability of institutions to confront potential financial risks with a score of 3.52, which enhances their stability and growth

Raising the quality of published accounting and financial information and data by a score of 3.49, which enhances transparency and credibility

Improving the performance of the audit process and increasing the credibility of financial statements by a score of 3.95, which reflects the effectiveness of these methods in improving regulatory performance

The importance of narrowing the expectations gap .3.3

Working to narrow the gap in expectations by implementing the audit process with absolute credibility and integrity received an approval score of 2.91, indicating an opportunity to improve trust and integrity in audit work

Improving the capacity and efficiency of the judges and auditors of the Accounting Council with an approval rating of 3.50, which reflects the importance of this matter in enhancing the role of oversight and accountability

Raising the level of confidence of stakeholders in the reports of the Audit Board with an approval rating of 3.43, which enhances the transparency of reports and public confidence

Improved communication and understanding with stakeholders with an approval rating of 3.15, indicating the importance of enhancing communication in control and audit processes

Raising the quality of published accounting and financial information and data with an approval rating of 3.35, which reflects the importance of this step in improving the accuracy of financial reports and disclosures

The effectiveness of modern analytical procedures in improving the quality of audit work .4.3

Using modern analytical procedures helps the auditor to work with integrity, neutrality, objectivity, and freedom from external influences, in accordance with 3.91, which enhances the comprehensiveness and quality of the audit process

The auditor's reliance on modern methods of analytical procedures achieves greater accuracy – in audit procedures to achieve their objectives, with approval of 3.91, which highlights the importance of using technology and advanced methods in auditing operations

Raising the efficiency and effectiveness of the performance of the supervisory work with an approval of 3.82, which indicates that these methods contribute to improving the performance and effectiveness of the supervisory operations

Enhance the overall understanding of the audited entity's business and identify potential risk areas with 3.75 approval, which enhances the accuracy and effectiveness of oversight

Detecting material errors and misstatements with 3.66 approval, which reflects its effective role in increasing the accuracy and comprehensiveness of audit operations

Ensuring the quality and type of performance of the audit mission with approval of 3.95, which enhances the confidence of external parties in the audit results

Providing recommendations to the management of the audited institution to improve its performance with approval of 3.91, which reflects its role in supporting continuous improvement processes and enhancing communication within the institution

use of From the above, we can say that the hypothesis that states that the level of modern methods of analytical procedures in improving and raising the quality of the is audit work of the Audit Board in the information technology environment characterized by a high level is positively acceptable

These results emphasize the importance of having the appropriate IT infrastructure and applying modern analytical and statistical methods in auditing operations to improve the quality of auditing work and enhance the accuracy and effectiveness of auditing

The fourth hypothesis This hypothesis stated that **there are no statistically significant differences in the professional practices of oversight work in the Accounting Council according to functional accreditation**

Based on the distribution tests of the data obtained by the sample members and the Mann-Whitney test, which showed the existence of statistical differences at the level of significance, we can say that there are differences in the professional practices of the audit work of the Accounting Council according to the functional accreditation, which tends in favor of judges

Hence, we can reject the hypothesis that there are no statistically significant differences in the professional practices of the auditing work of the Accounting Council according to functional accreditation

The fifth hypothesis This hypothesis states that **there are statistically significant differences in the professional practices of the oversight work in the Accounting Council according to experience**

- Based on the distribution tests of the data obtained by the sample members and the Kruskal-Willis test, which showed the existence of statistical differences at the level of significance, we can say that there are differences in the professional practices of .supervisory work. In the accounting board according to experience

Hence, the hypothesis that states that there are statistically significant differences in the professional practices of oversight work in the Accounting Council according to . experience is accepted positively

The sixth hypothesis This hypothesis states that there is a statistically significant .6 relationship between In improving and raising the quality of audit work, professional practices for audit work in the Accounting Council and the use of Modern methods of .analytical procedures

Through the statistical tests of Pearson correlation coefficients, it is clear that there is a statistical - relationship at the level of significance, which indicates the existence of an effect of using modern methods of analytical procedures. in Improving the quality of professional practices for oversight work in the Accounting Council. The strength of this relationship reached 89.2% . explains the factors involved in this relationship, which are represented by the dimensions of the independent variable according to the degree of influence, as shown in the following table

Table)34.3) The percentage and degree of influence of each dimension of the independent variable

Dimension	Impact ratio	Impact Degree
Auditor awareness Requirements and importance of modern analytical procedures methods	47%	High
infrastructure IT	32%	Medium
application of analytical audit procedures, The extent of requirements and methods	21%	Medium

Source Prepared by the researcher

In summary, the judgment on the hypothesis and from what was mentioned above, we can accept positively the text of the hypothesis stating that there is a statistically significant relationship between improving and raising the quality of professional practices of the oversight work in the Accounting Council and the use of Modern . methods of analytical procedures

Summary

In this chapter, we discussed the stages related to the study in the applied questionnaire aspect starting with the design of the study tool and the axes it included, and the descriptive division , of the study sample individuals, then analyzing the arithmetic averages of the study sample's answers for all axes and studying the extent of the sample's tendencies and differences in the .total answers

The second part of this study was characterized by the application of many advanced statistical tests to the total data obtained with the aim of studying the relationship and strength that links the study variables and the contribution of each dimension in building the relationship .between the independent variable and the dependent variable

We also studied and added a statistical model represented by neural networks with the aim of obtaining and comparing the study models and obtaining the best model that expresses the on improving and modern methods of analytical procedures study of the impact of using raising the quality of Supervisory work in the Accounting Council in the information . technology environment

Finally, we tested the hypotheses and discussed the results to reach the final results of the .study

La conclusion

This study aims to know the extent of the contribution of using modern methods of analytical procedures in light of information technology in improving and raising the quality of the audit work of the Accounting Council, so the research topic dealt with studying and analyzing the most important aspects of the theoretical framework, where we sought to highlight general concepts about modern methods of analytical procedures and information technology, and we also addressed the role of using modern methods of analytical review in improving the quality of audit work, in light of the use of information technology. By reviewing the main hypotheses and analyzing the data, to achieve this goal, where each hypothesis was evaluated in a systematic and analytical manner, represented in the following

- 1) **The first hypothesis** The first hypothesis explains the level of adoption of information technology types in Algerian institutions and in the Court of Auditors, and it has been confirmed that this level is considered low , indicating the need to strengthen the technological infrastructure.
- 2) **second hypothesis** The second hypothesis relates to the level of auditors' reliance on the use of modern methods of analytical procedures in auditing, and indicates that there is an acceptable level of reliance on these methods in light of information technology , which . supports the importance of updating auditors' skills
- 3) **The third hypothesis** The third hypothesis highlights that the use of modern methods of analytical procedures contributes significantly to improving and raising the quality of the audit work of the Audit Board, especially in light of the information technology environment , .which highlights the importance of adopting information technology in this context
- 4) **fourth hypothesis** The fourth hypothesis indicates that there are no statistically significant differences in the professional practices of supervisory work based on functional accreditation in the AccountingCourt
- 5) **fifth hypothesis** The fifth hypothesis relates to the existence of statistically significant differences in professional practices of auditing work based on experience in the Accounting Court
- 6) **The sixth hypothesis** The sixth hypothesis states that there is a statistically significant relationship between the use of modern methods of analytical procedures and improving the quality of the auditing work of the Accounting Council, which highlights the importance of applying these methods in modern auditing work , as well as the adoption of technology by councils to enhance effectiveness and efficiency in their operations.

Through the research tools and methods used in the study, we can summarize the most important results that were reached. Highlighting the positive impact of using modern methods of analytical procedures on the auditing process and the quality of supervisory work through all the chapters of the study in the following points

La conclusion

- The study showed that the use of modern analytical review methods enhances the auditors' ability to detect gaps and errors in the financial statements more accurately and ; with better analysis, which contributes to enhancing the objectivity of financial reports
- The study revealed that the application of modern technologies such as financial and statistical analysis contributes to improving the efficiency of the auditing process, and supports the prediction of future financial trends in a more accurate and sustainable ; manner
- The results showed that fully utilizing information technology in auditing operations requires improving the technological infrastructure and enhancing auditors' capabilities ; to handle big data and advanced analysis
- Financial methods help provide a comprehensive view of the nature of the business and ; identify potential risk areas
- Financial techniques help detect material errors and manipulations in financial statements quickly and efficiently ;
- These methods can reduce the time and cost associated with audits by improving overall ; efficiency
- Modern methods such as statistical and mathematical methods contribute to increasing the effectiveness of examination processes and verifying the accuracy and integrity of ; financial data
- Regression and time series analysis techniques help explain financial changes and predict ; future events, supporting informed decision making
- Challenges include auditors' lack of familiarity with quantitative methods and the appropriateness of available information, which requires enhanced training and ; continuing education
- The effective use of these methods contributes significantly to improving the quality and efficiency of audit work, enhancing confidence in financial reporting and increasing ; transparency and accountability

The importance of applying financial analysis methods and modern methods of analytical procedures in auditing is concluded . Financial methods contribute to understanding the nature of business and identifying potential risk areas, and help in discovering material errors and saving time and cost. Modern methods, such as statistical and mathematical methods, increase the effectiveness of examination and verification and enable logical thinking and examination of the book balance more accurately. Regression and time series analysis methods also help in explaining changes and predicting future events. Despite some challenges such as auditors' lack of familiarity with quantitative methods and the suitability of available information, the effective use of these methods contributes significantly . to improving the quality and efficiency of audit work

La conclusion

Through the stages that the study went through, we can present some important recommendations related to both the aspect of using modern methods of analytical procedures and their role in improving and raising the quality of the auditing work of the Accounting Council in the information technology environment. These recommendations are represented in the following points

- **Strengthening technological infrastructure** Algerian institutions and accounting councils should strengthen their technological infrastructure to support the use of modern analytical procedures in auditing operations. This can be done by investing in updating systems and software and providing continuous training for auditors (judges, financial auditors)
- should be trained to update their skills and learn modern Auditors **Update auditor skills** methods of analytical procedures, which contributes to enhancing their effectiveness and accuracy in detecting errors and manipulations in financial statements
- **Promoting professional practices** The Accounting Board should work to enhance professional practices for audit work, whether by developing new standards or enhancing training and guidance
- **Promoting the trend towards sustainability** Organizations should invest in sustainability strategies that include IT as a key tool to achieve their environmental, social and economic goals
- **Focus on statistical and mathematical analysis** The use of statistical and mathematical methods in auditing should be enhanced, as these tools help enhance the accuracy of the analysis and improve the quality of the results provided by audit operations
- **Enhancing communication and cooperation** The accounting board should enhance communication and cooperation with clients to ensure an accurate understanding of clients' expectations and needs, which contributes to improving the quality of audits
- The trend towards issuing national standards concerned with reviewing systems based on information technology and determining the relevant application aspects, especially those related to the stages of collecting evidence and its adequacy in light of the codification of texts regulating e-commerce at the local level
- Encouraging supreme audit institutions to adopt information technology by obtaining ISO accreditations related to the field of information technology

Based on the study I conducted and the recommendations that were suggested, it is possible to some points that represent future prospects and are based about Thinking primarily on the following several axes

La conclusion

- **Technology development and artificial intelligence** Advanced technology such as artificial intelligence and data analytics can be used to enhance audit capabilities and .improve detection of potential anomalies in financial statements
- **Innovation in modern scientific methods in auditing** It is possible to develop new and innovative auditing methods based on advanced quantitative and statistical analysis, which contributes to improving the accuracy of results and providing more detailed and .objective reports
- **Responding to environmental and social challenges** The accounting body can work to integrate sustainability criteria into audit processes, which include assessing the .environmental and social impact of audited institutions
- **Digital Transformation and Cloud Auditing** Cloud auditing and digital transformation can be explored to improve the efficiency of audit operations and deliver .services more effectively and at a lower cost
- **Enhancing training and professional development** The concerned authorities should enhance continuous training and develop the skills of auditors in the supreme financial and accounting control bodies in using modern technologies and advanced .methods of analysis and auditing
- **Improving transparency and accountability** The use of technology and modern methods in auditing can contribute to enhancing the transparency of financial operations .and increasing the social accountability of institutions

These prospects represent potential opportunities for developing and improving oversight work at the level of supreme financial and accounting oversight bodies , which helps to enhance confidence in financial and accounting systems and improve the quality of oversight .work in general

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