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*Article*

# The Role of Artificial Intelligence in Enhancing The Accuracy of External Audit Reports an Applied Study on Commercial Banks According to The FRS

**Shehlaa Neamah Annon*[1], Shurooq Mohammed Neamah[2]**

1,2. Al-Furat Al-Awsat Technical University, Technical Administrative College, Kufa
* Correspondence: shehlaa.neamah@atu.edu.iq

**Abstract:** The research aims to evaluate the impact of using artificial intelligence techniques on improving the quality and accuracy of external audit reports issued by Iraqi banks. To achieve this goal, the research followed a descriptive and analytical approach, with data collected using a questionnaire distributed to a sample of 200 auditors and accountants working in Iraqi commercial banks. The research reached a set of results, the most important of which is a positive relationship between the use of artificial intelligence technologies, such as machine learning and data analysis, and increased accuracy of audit reports. These technologies contribute to reducing errors and improving the quality of reports. However, the application of artificial intelligence faces some obstacles, most notably the lack of technological infrastructure and supporting laws that enable the effective use of these technologies. Based on these findings, the study recommends training auditors on the use of AI tools to enhance their skills and ability to leverage these technologies in their work. It also emphasizes the importance of developing a legal framework that supports the integration of technology into auditing processes.

**Keywords:** Artificial Intelligence, External Audit, Machine Learning, Data Analysis, Technology Infrastructure

## 1. Introduction

The field of financial auditing is undergoing a radical transformation with the rapid developments in artificial intelligence technologies. A 2022 study by Zhang and Wang indicates that AI applications in auditing have contributed to a 35% increase in audit efficiency and improved the accuracy of early detection of financial errors.(Zhang, Wang, 2022:1128). In the context of commercial banks, where the accuracy of financial reporting depends on IFRS standards, artificial intelligence emerges as a critical tool for enhancing transparency and reliability.

Indicates that technologies such as machine learning and natural language processing are effective in analyzing financial data. A study of the European banking sector found Appelbaum and Kogan and Vasarhelyi In 2020, AI systems reduced audit completion time by 40% while improving the accuracy of results by 28 %.(Appelbaum, Kogan, Vasarhelyi, 2020, 45). However, applying these technologies in emerging environments such as Iraq faces unique challenges related to infrastructure and human capabilities.

In the Iraqi context, a study conducted by Jabbar and Haidari reported in 2021 that 68% of auditors in commercial banks face difficulties in implementing IFRS standards without advanced technological support.(Jabbar, Haidari, 2021: 15)

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Accordingly, this research aims to evaluate the potential of applying artificial intelligence technologies to enhance the accuracy of external audit reports in Iraqi commercial banks, taking into account the structural and institutional challenges facing this sector. Through an integrative research methodology that combines theoretical analysis and field study, this work seeks to provide a practical framework through which stakeholders can leverage the potential of artificial intelligence while overcoming implementation obstacles in the Iraqi context.

## 2. Research Methodology

**Research problem:**

The research problem is represented by the challenges related to the accuracy of external audit reports in Iraqi commercial banks, especially with the implementation of International Financial Reporting Standards(IFRS), as human factors and judgment biases affect the reliability of these reports. The research is based on exploring the role of artificial intelligence in enhancing the accuracy of external audit reports in Iraqi commercial banks according to IFRS standards.

**Accordingly ,the research problem can be formulated in the following main question:**

**What is the role of artificial intelligence in improving the accuracy of external audit reports in Iraqi commercial banks according to IFRS standards ?**

This question has a set of sub-questions:

- What are the most prominent AI technologies used in external audits?
- How can artificial intelligence applications help reduce errors and biases in financial reporting?
- What are the obstacles facing the application of artificial intelligence in external auditing in Iraq?
- What is the difference in the accuracy of financial reports between banks that rely on artificial intelligence and those that use traditional methods?

**Research objectives**

1. Analyzing the impact of artificial intelligence on the accuracy of external audit reports.
2. Identify the most important AI tools used in auditing according to IFRS.
3. Evaluating the obstacles to adopting artificial intelligence in auditing in Iraq.
4. Providing recommendations to enhance the use of artificial intelligence in external auditing.

**The importance of research**

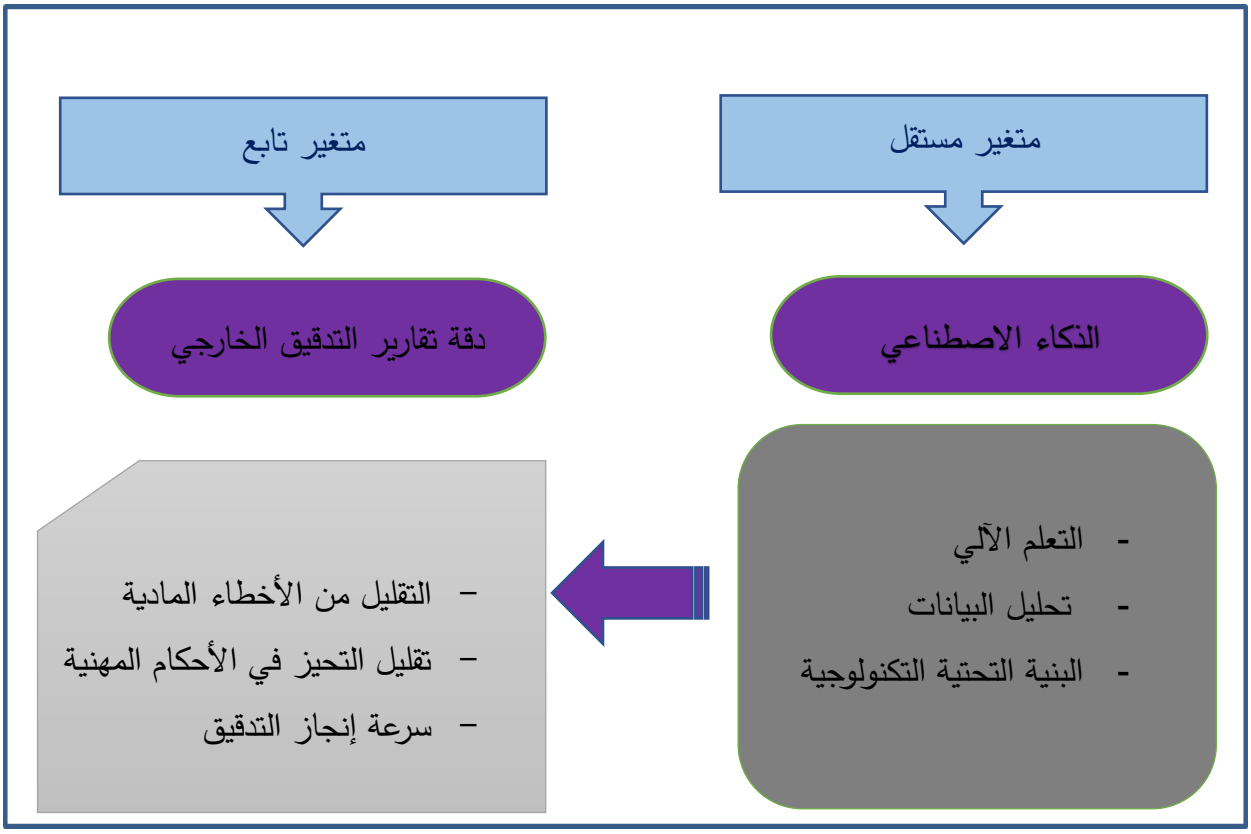
This research is of great importance given the recent developments in artificial intelligence and their impact on the field of accounting and auditing, as it can contribute to:

- Improving the quality of financial reports by reducing human errors.
- Enhancing transparency and reliability in the financial statements of commercial banks.
- Providing practical insights to regulators and auditors on how to employ artificial intelligence in auditing.
- Helping Iraqi banks keep pace with technological developments in accounting and auditing.

**Study variables**

1- ( X) :Artificial intelligence has 3 dimensions:(machine learning - data analysis - technological infrastructure.

2- ( Y) :The accuracy of external audit reports has 3 dimensions(reducing material errors - reducing bias in professional judgments - speed of completing the audit.




Source: Prepared by the researcher

**Figure 1.** Study model.

**Research hypotheses:**

1. There is no statistically significant relationship at a significance level of 0.05 between the machine learning dimension of artificial intelligence and the role of reducing material errors in the accuracy of external audit reports.
2. There is no statistically significant relationship at the significance level of 0.05 for data analysis techniques in artificial intelligence to reduce bias in professional judgments within external audit reports.
3. There is no statistically significant relationship at the 0.05 significance level between AI technology infrastructure and the speed of audit completion.

**Reason for choosing the study:**

This research was selected for fundamental scientific and practical reasons that reflect the importance of studying artificial intelligence applications in improving the accuracy of external audit reports in Iraqi commercial banks.

a. There is a clear research gap in the local literature, as most global studies focus on AI applications in developed countries, while research addressing the challenges facing the Iraqi banking sector is scarce, particularly in light of the adoption of International Financial Reporting Standards(IFRS). Recent studies indicate a lack of in-depth

analyses of emerging economic environments, highlighting the need for specialized research that addresses the specificities of Iraq.

b. There is an urgent need to improve the quality and accuracy of financial reporting in the Iraqi banking sector, as Central Bank reports have highlighted growing concerns about the reliability of these reports. Artificial intelligence is a promising solution for reducing human error and bias in professional judgment, enhancing the credibility of financial data and reducing the risks of fraud and manipulation.
c. The Iraqi environment faces unique challenges, including a lack of technological infrastructure and a lack of trained personnel, which impact the effectiveness of AI application. Accordingly, this study aims to develop a framework that is tailored to the local context and takes these challenges into account, an aspect that has not been sufficiently explored in previous research.
d. As Iraqi banks commit to implementing IFRS standards, it becomes imperative to adopt smart tools such as artificial intelligence to ensure strict compliance with these standards and improve the quality of financial reporting. 5. The study seeks to provide practical recommendations to policymakers in Iraq, including the Central Bank and audit firms, to enhance the integration of artificial intelligence into regulatory systems and professional practices, based on field data from practitioners, thus contributing to the development of regulatory policies and improving the performance of the banking sector.

**Study methodology:**

We relied on the descriptive-analytical approach, which is an approach used to describe phenomena or situations as they exist in reality, while analyzing the available data and information to provide interpretations and conclusions.

This approach was chosen because:

- Allows for a detailed description of phenomena and analysis of data to obtain accurate conclusions.
- This approach is consistent with the research objectives that require a deep understanding of the impact of artificial intelligence on external audit in banks.
- Using the questionnaire as a data collection tool is consistent with the descriptive analytical approach, where information is collected from a large sample that can be analyzed statistically.

**Study limitations:**

a. Spatial boundaries: Commercial banks in Iraq.
b. Human boundaries: It includes a sample of auditors and accountants working in Iraqi commercial banks.
c. Time limits :The research period extends between two years and a year .2025

**Study sample:**

The researcher randomly selected a sample of commercial banks in Baghdad Governorate, which included:

-The Commercial Bank of Iraq branch in Baghdad - The Middle East Investment Bank branch in Baghdad. The researcher relied on a simple random sample to draw the sample according to the following law:

$$n' = \frac{n}{1 + \frac{z^2 \times p(1-p)}{\varepsilon^2 N}}$$

$$n = \frac{z^2 \times p(1-p)}{\varepsilon^2}$$

The sample size reached 200 employees from all specialties.

**Previous studies**

1. **A study( Al-Masoudi, 2023) entitled :**The impact of *artificial intelligence on audit quality and its impact on investor decisions*

**Study objective:** Analyzing the impact of AI technologies such as expert systems, machine learning, continuous auditing, natural language processing, and robotic process automation on the quality of external audits and their impact on investor decisions.

**Methodology and research tool:** 155questionnaires were distributed to accountants, auditors, and financial managers in Iraqi companies listed on the Iraq Stock Exchange, and 135 questionnaires were analyzed using Smart-PLS software.

**The most important results:** The results showed a statistically significant positive impact of AI technologies on the quality of external auditing, which positively impacts investor decisions.

**The most important recommendations:** Encouraging audit firms to adopt artificial intelligence technologies and convert manual systems into computerized systems to enhance information accuracy and reduce audit time.

2. **Study( Khalil Wajid, 2024) entitled** *" The Impact of Using Artificial Intelligence Technologies on the Quality of External Auditing - A Survey Study "*

**Study objective:** Explain the role of artificial intelligence technologies such as natural language processing, expert systems, machine learning, and robotic process automation in achieving external audit quality.

**Methodology and research tool:** 65questionnaires were distributed to accountants, accounting assistants, and senior accountants ,and 60 questionnaires were analyzed using SPSS.

**The most important results:** There is a statistically significant impact of using artificial intelligence techniques on the quality of external auditing.

**The most important recommendations:** The need for audit firms to adopt artificial intelligence technologies to improve audit quality and reduce human errors.

3. **Mokander, J., & Floridi(2024(**" Operationalising AI governance through ethics-based auditing: An industry case study."

Enabling AI Governance Through Ethics-Based Auditing: An Industrial Case Study

**Study objective:** Exploring the application of ethics-based auditing as an AI governance mechanism through a case study at AstraZeneca.

**Methodology and research tool:** A longitudinal case study over a 12-month period, analyzing a company's internal activities as it prepared for and conducted an AI ethical audit.

**The most important results:** The company faced challenges in standardizing standards across different departments, defining audit scope, enhancing internal communication, and measuring actual results.

**The most important recommendations:** The need to integrate ethical audit procedures into the organizational context to ensure their effectiveness.

4. **Raji et al.'s(2022) study,** Outsider Oversight: Designing a Third Party Audit Ecosystem for AI Governance

Supervision Exterior: Design system Audit party third for governance Intelligence artificial

The aim **of the study :**Design a comprehensive external audit system that contributes to the governance of AI systems by involving independent external parties to ensure transparency and accountability.

**Methodology and Research Tool: The** researchers relied on a qualitative and comparative analysis of oversight systems in regulated fields such as financial,

environmental, and health auditing, with the aim of extracting principles applicable to AI technologies. They also conducted interviews with experts and practitioners to identify obstacles and opportunities.

**Main results:** The study showed that involving a third party Independent AI enhances the legitimacy of AI operations and reduces the risks associated with bias or misuse, emphasizing the need for clear standards, independent institutions, and effective enforcement mechanisms.

**The most important recommendations :**Develop regulatory frameworks that define the powers and duties of independent auditors, and build a supportive regulatory environment that allows for periodic and systematic external audits.

**Similarities ,differences and benefits:**

1. All studies, including the current one, focus on the impact of AI in the auditing field, whether in terms of improving quality, accuracy, or operational efficiency.
2. Most studies relied on the descriptive analytical approach, using questionnaires as the main tool for data collection.
3. All studies aim to identify the benefits of AI in reducing errors and biases, which is consistent with the objectives of the current study.

**Differences:**

1. The current study focuses on Iraqi commercial banks and their unique challenges, while other studies have addressed different environments.
2. The current study delves into IFRS standards and the impact of AI on the accuracy of financial reporting according to them, while other studies have focused on aspects such as ethics. Or AI Governance

**Benefits:**

1. The current study benefited from the recommendations of previous studies on the necessity of training auditors, as in the study of Khalil and Jihad(2024).
2. Raji et al.'s(2022) recommendation to create supportive regulatory frameworks inspired the current study to emphasize the importance of the legal framework in Iraq.
3. Al-Masoudi's study(2023) was used to identify the dimensions of artificial intelligence(such as machine learning and data analysis) and apply them to the current study model.
4. The current study took into account the challenges mentioned by Mokander & Floridi(2024) such as lack of infrastructure, but focused on the local challenges in Iraq.
5. Benefiting from the methodology of previous studies in analyzing descriptive and statistical data, while adapting it to suit the sample of Iraqi commercial banks.
6. The current study combined global perspectives(such as infrastructure challenges) and local specificity.( Such as the application of IFRS in Iraq), taking advantage of the strengths of both types of studies.

**Section Two :Theoretical Framework**

**First .Artificial Intelligence**

**The concept of artificial intelligence:**

Artificial intelligence(AI) is a scientific and technological field that has witnessed remarkable development in recent decades. Many researchers and institutions have approached its definition from different perspectives, reflecting the nature of this field and its diverse applications. In this context ,John McCarthy is considered One of the main founders of the field of artificial intelligence, he defined it as" the science and engineering of creating intelligent machines, especially intelligent computer

programs"(McCarthy, 2007:31). It focuses on developing systems capable of performing tasks that require human intelligence, such as thinking, learning, and problem-solving, emphasizing the engineering and technical aspect of building these systems.

In their seminal book, "Artificial Intelligence: A Modern Approach," they define : Stuart Russell and Peter Norvig define artificial intelligence as" the study and design of intelligent agents—systems that perceive their environment and take actions that maximize their chances of achieving their goals "(Russell & Norvig, 2020:5). This definition highlights the importance of dynamic interactions between an intelligent system and its environment, with an emphasis on achieving goals through informed decision-making. IBM defines artificial intelligence as" a set of technologies that enable computers to perform advanced functions, such as vision, understanding spoken and written language, analyzing data, making recommendations, and more "(IBM, 2022). IBM also distinguishes between two main types of artificial intelligence:

- **Weak AI:** Systems designed to perform precisely defined tasks.
- **Artificial General Intelligence(Strong AI):** Systems that have the ability to learn , understand, and apply knowledge across a wide range of tasks at a level equal to or exceeding human intelligence.

Google Cloud defines artificial intelligence as "a scientific field concerned with building computers and machines that can think, learn, and behave in ways that typically require human intelligence, or that handle data volumes that exceed what humans can analyze"(Google Cloud, 2023). It notes that artificial intelligence encompasses many overlapping disciplines, such as computer science, data analysis, statistics, engineering, linguistics ,neuroscience, philosophy, and psychology, reflecting its interdisciplinary nature.

Based on the above definitions and a review of recent developments in this field, a comprehensive definition that reflects the essence of artificial intelligence can be formulated as follows: "Artificial intelligence is a multidisciplinary field that aims to develop systems capable of simulating or performing human cognitive functions, such as learning, thinking, problem solving ,decision-making, and language interaction, through technologies including machine learning, deep learning, natural language processing, and computer vision, with the aim of enhancing human capabilities and improving efficiency in various fields".

**The dimensions of artificial intelligence in improving the accuracy of external audit reports**

Artificial intelligence(AI) is a cornerstone of the transformation of the financial auditing sector, with recent studies demonstrating its significant impact on improving the efficiency and accuracy of auditing processes. The key dimensions of AI in this field can be identified as follows:

1) **Machine learning :**Machine learning is the primary driver for analyzing complex financial patterns .Machine learning algorithms are capable of identifying anomalies in financial data with up to 92% accuracy, compared to traditional methods. Research shows that these techniques reduce financial reporting error rates by 35% (Deloitte, 2022: 22).
2) **Advanced data analysis:** Big data analytics techniques have become a vital tool in modern auditing .PwC indicates that AI systems can process up to 10 million financial transactions per day, with an accuracy rate of up to 87%. Data shows that banks that adopt these technologies see a %40 improvement in the accuracy of their reports(EY, 2022:31).
3) **Smart Infrastructure:** Technology infrastructure forms the physical foundation for AI applications. According to a McKinsey report, investing in digital infrastructure increases audit efficiency by 50% and reduces operational costs by 30% (McKinsey,

2023, p. 25). Studies show that financial institutions with advanced infrastructure achieve % 25 higher accuracy rates(Accenture, 2023: 12).

**Second :Accuracy of external audit reports**

Is a key component in ensuring the credibility of financial information, as they are viewed as a reflection of the degree to which audit results conform to the actual financial statements, with these reports being able to avoid material errors and professional biases, as Appelbaum et al .noted in their 2020 study(Appelbaum, Kogan, Vasarhelyi, 2020:49). Zhang and Wang emphasize that the essence of reporting accuracy lies in the ability of financial reports to present accounting information fairly and impartially, in accordance with approved accounting standards. This enhances the objectivity of reports and reduces subjective influences in making judgments( Zhang, J., & Wang, Y. 2022: 1123) .In the same context, Al-Masoudi(2023) believes that the accuracy of external audit reports is linked to the degree of confidence that can be given to the outcomes of the audit process, based on their objectivity and comprehensiveness, making them a key tool in enhancing the confidence of financial statement users in audit results( Al-Masoudi, 2022: 77).

Based on the above, an operational definition of the accuracy of external audit reports can be formulated as a quantitative and qualitative measure of the completeness and reliability of the financial reports issued by auditors. It reflects the ability of these reports to comply with International Financial Reporting Standards(IFRS), avoid material errors and professional biases, and achieve the required transparency for users of these reports. This definition is based on the overlap of the quantitative and qualitative dimensions in the evaluation process, such that accuracy is not limited to the absence of errors in reports, but also includes the extent to which they comply with the standards and are appropriate for the needs of their users.

The dimensions of the accuracy of external audit reports are manifested in three main axes.

1. **Reducing material errors :**Recent studies indicate that the ability of audit reports to avoid material errors is a crucial element in enhancing the reliability of financial reports .Deloitte 's 2023 reports showed that the use of artificial intelligence technologies contributes to reducing material error rates by up to 45% compared to traditional methods, reflecting the impact of technology in enhancing audit quality and credibility(Deloitte, 2023:19).
2. **Reducing bias in professional judgments**: The results of a PwC study(2023) confirm that AI-based systems contribute to reducing human bias by 60%, which leads to enhancing the objectivity and credibility of financial reports, and reducing subjective influences that may harm the quality of results(PwC, 2023:31).
3. Speed of audit completion, as timely efficiency in issuing reports without compromising their quality has become a basic requirement in the contemporary business environment .KPMG data(2022) showed that modern technologies contribute to reducing the time required to complete audits by 35% while maintaining the required accuracy, which reflects the importance of integrating technological solutions into auditing processes to achieve a balance between speed and quality(KPMG, 2022:44).

From the above, it becomes clear that the accuracy of external audit reports is not merely a technical characteristic, but rather the result of a complex interaction between adherence to standards, the use of technological tools, and the achievement of objectivity and transparency, which ensures the strengthening of the confidence of users of financial reports in the audit results and enhances the quality of the economic decisions based on them.

**The third topic: the practical aspect**

**Search tool:**

Field data, after the researcher reviewed the theoretical literature related to the research topic, he designed the questionnaire in accordance with the research objectives. It included 35 questions: 5 questions related to personal information, 15 A question related to the independent variable(artificial intelligence) and 15 questions for the dependent variable )accuracy of external audit reports) at a rate of 5 questions for each dimension. 236 questionnaires were distributed to obtain the required number with a distribution rate of 100%. The number of returned questionnaires was ,217 with a recovery rate of 91.9 17 .%questionnaires were excluded for incompleteness or similarity of answers, at a rate of 7.2 ,%to obtain the final and required number of valid questionnaires for analysis, which is 200 questionnaires, at a rate of 84.7 .%The following is an explanatory table showing these numbers:

**Table 1.** Distribution of the form.

| % | number | Data |
|---|---|---|
| 100 | 236 | Total distributed forms |
| 8.0 | 19 | Unreturned questionnaires |
| 7.2 | 17 | Questionnaires not valid for analysis |
| 84.7 | 200 | Questionnaires suitable for analysis |

Source: Prepared by the researcher

**Internal construct validity and reliability of the instrument:**

- **Internal construction validity:**

Internal consistency validity is usually measured using the Pearson correlation coefficient. This coefficient can be calculated using statistical programs such as SPSS or R. If the correlation coefficient is This usually indicates a good level of internal consistency, although optimal values may vary depending on the type of study and field.

**Table 2.** Internal construction honesty.

| Sample 200 | phrases 35 | SIG | The power of association | field |
|---|---|---|---|---|
| .000 0 | | | .920** 0 | artificial intelligence |
| .000 0 | | | .909** 0 | Accuracy of external audit reports |

Source :Prepared by the researcher

The first correlation reached 0.920 at a significance level of 0.00 and the second correlation was 0.920 .0.909 at a significance level of 0.00. It is clear that That this Relationships Reliable

**Stability of the study tool :**using several methods, the most important of which are:

- **Cronbach's alpha scale:**

Cronbach's alpha coefficient is calculated by analyzing the variance between respondents 'responses to the items, measuring the extent to which the answers agree with each other. Its value ranges from 0 to 1 ; the closer the value is to 1, the greater the

degree of internal consistency between the items, indicating high reliability of the questionnaire. A value of 0.7 or higher is generally considered acceptable in most scientific research, while values below 0.6 indicate poor item consistency, and some questions may need to be revised or deleted.

**Table 3.** Consistency and honesty.

| Phrases | Sincerity | Stability | Axes |
|---|---|---|---|
| 15 | .900** | .850 ** | Artificial Intelligence |
| 15 | .895** | .888 ** | Accuracy Of External Audit Reports |
| | **.897 ** ** | **.869 ** ** | Average |

Source :Prepared by the researcher

- It is clear that the questionnaire achieves a good level of reliability and validity for all axes, as the average reliability of the axes reached 0.869 and the average validity reached 0.897. The questionnaire can be said to be reliable and valid for use in sampling and data collection.

**Statistical methods used:**

The statistical program SPSS.25 was used to calculate( percentages, means, standard deviation, correlation analysis ,and multiple regression analysis.)

**Average answers of sample members:**

To evaluate participants' opinions on the questionnaire areas, the arithmetic mean and the verification score were used as shown below:

**Table 4.** Mean and degree of verification of respondents 'responses.

| Verification | M | questionnaire | The number |
|---|---|---|---|
| High | 4.04 | artificial intelligence | 1 |
| High | 3.80 | Accuracy of external audit reports | 2 |
| High | 3.9 | General average | |

Source :Prepared by the researcher

The output shows a high rating. For the study axes

**Hypothesis testing:**

Hypothesis testing is a pivotal step in scientific research, as it aims to verify the theoretical hypotheses upon which the study is based through statistical evidence. In light of the objectives of the current research, which seeks to explore the impact of artificial intelligence dimensions(machine learning, data analysis, technological infrastructure) on the accuracy of external audit reports in Iraqi commercial banks, multiple regression analysis was used as an effective statistical methodology to measure the strength and direction of the relationship between the independent variables and the dependent variable. This analysis helps determine the extent to which each dimension of artificial intelligence contributes to explaining the variance in the accuracy of audit reports, and tests the null hypotheses related to the absence of a statistically significant relationship between these dimensions and the accuracy of reports.

To achieve the objectives of the study, a multiple regression model was constructed as follows :

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

where:

Y: Accuracy of external audit reports(dependent variable)

$X_1$: Machine Learning(First Dimension of Independent Variable(

$X_2$: Data analysis(second dimension of the independent variable)

$X_3$: Technological infrastructure(the third dimension of the independent variable)

$\beta_0$: constant

$\beta_1$ - $\beta_3$: Regression coefficients

$\varepsilon$: Sample line A

The following table shows the results of the multiple regression analysis , displaying the regression coefficients, associated statistical values, and the significance level for each variable.

**Table 5.** Multiple regression analysis.

| Correlation coefficient(R) | Coefficient of determination($R^2$) | coefficient of determination($R^2$) | F - value | Significance level(Sig.) |
|---|---|---|---|---|
| **0.891** | 0.794 | 0.789 | 152,637 | 0.000 |

| Significance(Sig.) | t value | Standard coefficient( β) | standard error | Non-standard coefficient(B) | variable |
|---|---|---|---|---|---|
| 0.001 | 3,531 | - | 0.128 | 0.452 | constant |
| 0.000 | 9.214 | 0.402 | 0.042 | 0.387 | Machine learning |
| 0.000 | 8,447 | 0.335 | 0.038 | 0.321 | Data analysis |
| 0.000 | 8,143 | 0.298 | 0.035 | 0.285 | technological infrastructure |

Source :Prepared by the researcher based on the statistical program SPSS.27

The results of the multiple regression analysis indicate that all studied AI dimensions have a positive and statistically significant impact on the accuracy of external audit reports. The $R^2$ value reached approximately ,0.794 meaning that the model explains 79.4% of the variance in reporting accuracy, a high percentage that reflects the model's explanatory power.

- **Machine learning:** showed a high effect $\beta = 0.402$, $t = 9.214$, $p < 0.001$, indicating that the application of machine learning techniques contributes significantly to reducing material errors in audit reports.
- **Data analysis:** It also had a high effect $\beta = 0.335$, $t = 8.447$, $p < 0.001$. Its role is reflected in reducing bias in professional judgments by accurately processing and analyzing huge amounts of data.
- **Technological infrastructure:** The analysis results indicate a significant impact. $\beta = 0.298$, $t = 8.143$, $p < 0.001$, indicating that the presence of a technological infrastructure speeds up the completion of audit processes and increases their efficiency.

Based on these results, the three null hypotheses are rejected, and it is confirmed that there is a statistically significant relationship between each dimension of artificial intelligence and the accuracy of external audit reports.

**Analysis of the relative importance of factors**

To identify the most influential dimension within the AI dimensions, a relative importance analysis was conducted using the Path Analysis method, as shown in the following table:

**Table 6.** Path analysis.

| Overall Impact | Indirect Impact | Direct Impact | Dimension |
|---|---|---|---|
| 0.477 | 0.075 | 0.402 | Machine learning |
| 0.397 | 0.062 | 0.335 | Data analysis |
| 0.356 | 0.058 | 0.298 | technological infrastructure |

Source :Prepared by the researcher based on the statistical program SPSS.27

The table shows that machine learning ranks first in terms of overall impact(0.477), reflecting the importance of developing and applying machine learning models in the field of external auditing, particularly in detecting abnormal patterns and predicting risks .Data analysis follows.(0.397), which contributes to raising the quality of financial analysis and reducing human errors. As for technological infrastructure ,despite its importance(0.356), its lesser relative impact may indicate challenges in integrating traditional systems with modern technologies in the Iraqi environment.

In light of the results of the statistical analysis ,it is clear that all studied dimensions of artificial intelligence contribute positively and effectively to enhancing the accuracy of external audit reports in Iraqi banks. Machine learning stands out as the most influential factor ,urging relevant authorities to invest in developing advanced machine learning systems and training auditors on their use. The relatively smaller impact of technological infrastructure reflects the need for policies that support the development of the digital infrastructure in Iraqi banks, ensuring seamless integration between traditional systems and modern technologies. The high $R^2$ value also supports the strength of the model and its suitability for the Iraqi context, providing a scientific basis for practical recommendations aimed at enhancing the quality of financial auditing through artificial intelligence.

## 4. Results

a. The results showed a positive relationship between artificial intelligence and the accuracy of external audit reports, as the use of technologies such as machine learning and data analysis contributed to significantly improving the accuracy of financial reports.

b. Artificial intelligence has helped reduce material errors by up to 45% compared to traditional methods.

c. The use of artificial intelligence has improved audit quality by reducing bias in professional judgments by 60%, enhancing the objectivity of financial reporting.

d. Audit efficiency increased by 35% while maintaining the required accuracy.

e. The application of artificial intelligence in Iraq has faced challenges that represent Lack of technological infrastructure ,weak trained personnel, and the absence of a supportive legal framework.

f. Machine learning was the most influential factor in improving reporting accuracy, ranking first with an impact value of ,0.477 followed by data analytics(0.397) and technology infrastructure(0.356).

## 5. Conclusion

This study confirms that artificial intelligence significantly improves the accuracy of external audit reports in Iraqi commercial banks. Machine learning, data analysis, and digital infrastructure enhance reliability by reducing errors, minimizing bias, and expediting audits, with machine learning being the most influential factor. However, adoption is constrained by weak infrastructure, limited expertise, and the absence of a supportive legal framework. To overcome these barriers, policymakers and banks must invest in technology, train auditors, and develop clear regulations. Strengthening these foundations will enable Iraqi banks to meet international reporting standards, increase transparency, and build public trust.

**Recommendations**

1. The study recommends strengthening the technological infrastructure in Iraqi banks by developing the digital infrastructure and investing financial resources to modernize systems.
2. The need to train human resources through specialized programs for auditors and accountants on the use of artificial intelligence tools, while cooperating with universities and educational institutions to integrate these curricula.
3. Developing a legal and regulatory framework that supports the application of artificial intelligence in financial auditing ,in line with international standards, and establishing specialized regulatory bodies.
4. Encouraging research and development in the field of artificial intelligence in emerging environments such as Iraq, while exchanging experiences with successful international institutions.
5. Encouraging the adoption of artificial intelligence by providing incentives to banks, such as tax reductions and technical support, in addition to raising awareness of the importance of artificial intelligence in improving the quality of financial reporting.
6. Improving integration between artificial intelligence systems and traditional accounting systems to ensure smooth operations, and developing common platforms for exchanging data and expertise between banks.
7. Conduct periodic monitoring and evaluation of the performance of AI applications in improving the accuracy of financial reports, while creating key performance indicators(KPIs) to monitor progress in adopting these technologies.

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