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THE EFFECTIVENESS OF ARTIFICIAL INTELLIGENCE TECHNIQUES AS AN APPROACH TO IMPROVING THE QUALITY OF FINANCIAL REPORTING IN THE IRAQI BANKING SECTOR

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ABSTRACT

This study aims to investigate the impact of artificial intelligence (AI) technologies on the quality of accounting data by evaluating improvements in accuracy, processing time, and reliability after implementing AI in accounting processes. Statistical analysis was conducted using a questionnaire distributed to 179 respondents in branches of private banks in Babylon Governorate. T-tests and analysis of variance (ANOVA) were performed to measure statistical differences between data before and after AI implementation. Multiple regression analysis was also used to examine the relationship between data quality and independent variables. The results showed a significant improvement in the quality of accounting data after AI implementation, with increased data accuracy and reliability, as well as a decrease in processing time. Regression analysis also demonstrated that processing time directly affects data reliability, with statistical significance. These results indicate that the application of AI in accounting effectively contributes to improving the quality of accounting data, reducing operational errors, and increasing financial efficiency. One of the most important findings of the research is the reduction in financial data processing time through the adoption of intelligent automation, which contributes to faster financial decision-making and enhanced regulatory compliance. The statistical model also indicates that there are other variables that may affect the quality of the data, such as the size of the data, the experience of the accountants, and the accounting regulations that govern the use of artificial intelligence.

Keywords: artificial intelligence; accounting data quality; digital accounting; financial automation

INTRODUCTION

The contemporary business environment in Iraq requires strategic leaders with the necessary vision to chart the course for digital transformation, who are responsible for establishing a culture of innovation among employees and supporting them with the technical capabilities that ensure institutions achieve a competitive advantage and sustainable performance.(Ali et al,2025) Recent years have witnessed a rapid development in the use of artificial intelligence (AI) technologies across various fields, with accounting playing a prominent role in adopting these technologies to improve the quality of accounting data and enhance the efficiency of financial operations. AI, with its various applications such as machine learning, deep learning, and natural language processing, is a key factor contributing to the development of the accounting and auditing profession by reducing human error, accelerating data

processing, and enhancing the reliability of financial reports (Al-Rifai, 2022).

Furthermore, the increasing reliance on AI in electronic accounting disclosure has contributed to achieving a high level of transparency, thereby enhancing the confidence of users and stakeholders in the financial information provided (Al-Akour, 2024). However, this technological shift presents several challenges, including legal issues related to data protection and the regulations governing AI applications in accounting (Sakhrawi, 2024). Therefore, this research aims to study the impact of AI on the quality of accounting data by analyzing changes in information accuracy, reliability, processing time, and the extent of operational cost savings after the application of these technologies. Artificial intelligence (AI) has become a fundamental tool for improving the quality of financial data, enhancing the reliability of accounting reports, and facilitating decision-making processes within organizations. According to a study by Al-Akour (2018), the application of AI technologies in Jordanian banks significantly reduced operational errors and improved the quality of accounting data, thereby enhancing the accuracy of financial reports. Similarly, Al-Rifai (2023) confirmed that AI helps in the highly accurate analysis of big data and the extraction of precise financial patterns, thus supporting decision-makers in companies and financial institutions.

Internationally, a study by Vărzaru (2022) confirmed that AI promotes the adoption of digital technologies in management accounting, with results showing that 70% of financial institutions that adopted AI experienced an improvement in the quality of their financial reports. Furthermore, a study by Schreyer et al. (2017) demonstrated that the application of deep neural network technologies in accounting helped detect financial errors and fraud with a higher accuracy rate compared to traditional methods, thereby increasing the reliability of financial data. Artificial intelligence (AI) is used in accounting in several areas, most notably data analysis and financial forecasting.

Financial institutions rely on AI to analyze future financial trends and make decisions based on accurate data (Al-Rifai, 2024). AI can also detect anomalies in financial data, thus contributing to reducing the risks associated with fraud and accounting manipulation (Schreyer et al., 2017). Furthermore, AI is used to improve tax and legal compliance by reviewing accounting processes and ensuring their adherence to accounting

standards (Al-Akour, 2024). AI also contributes to automating accounting processes through robotic process automation (RPA) systems, reducing the need for manual data entry, minimizing human error, and improving the efficiency of financial performance (Al-Rifai, 2023). AI technologies also enable the generation of accurate and rapid financial reports, making it easier for companies to make more precise and effective financial decisions (Vărzaru, 2022). The quality of accounting data is affected by several key criteria, including accuracy. Artificial intelligence (AI) technologies contribute to reducing human error and increasing the accuracy of financial calculations (Al-Rifai, 2023). Reliability is also a crucial factor, as AI can improve the consistency of financial data through automated analysis and error removal (Al-Akour, 2018).

Comparability is another critical criterion for improving the quality of accounting data. AI allows for the comparison of data across different time periods or between multiple organizations, thus enhancing transparency in financial reporting (Vasarhelyi et al., 2015). Furthermore, transparency is a crucial element for ensuring the accuracy of accounting information. Artificial intelligence (AI) helps provide clear and accurate financial information, facilitating financial and regulatory audits (Vărzaru, 2022). Despite the numerous benefits AI offers to accounting, there are significant challenges to its full adoption. Among the most prominent of these challenges are the high costs of implementing AI technologies. Investing in these technologies requires substantial financial resources, posing a particular challenge for small and medium-sized enterprises. In addition, legal and regulatory challenges hinder the adoption of AI in accounting. Organizations need to develop regulatory policies that align with the requirements for protecting financial data and privacy (Al-Rifai, 2023). The risk of algorithmic bias is also a potential problem, as unbalanced data can lead to inaccurate results or biased predictions (Schreyer et al., 2017).

Research Problem

Despite the anticipated benefits of using artificial intelligence (AI) in accounting, questions remain regarding the impact of these technologies on the quality of accounting data. While some studies indicate that AI can enhance accuracy and reliability and reduce processing time (Al-Qashawi, 2023), some researchers believe that excessive reliance on automation may lead to challenges related to the limited understanding of algorithms regarding

complex financial contexts, potentially affecting the credibility of financial information. Furthermore, the increasing applications of AI in accounting raise issues related to legal protection and privacy, which may hinder the widespread adoption of these technologies (Sakhrawi, 2024).

Therefore, the problem is framed as a central question with several sub-questions, as follows: What is the actual impact of AI applications on the quality of accounting data? These sub-questions include: (1) Does the use of AI contribute to improving the accuracy of accounting data? (2) Does the use of AI applications contribute to reducing the processing time of accounting data? (3) Does the use of AI applications lead to enhanced reliability of accounting data? (4) Does using artificial intelligence applications lead to savings in the cost of preparing accounting data? (5) Does using artificial intelligence applications lead to adherence to the timeliness of presenting accounting data?

Research Objectives

This research aims to achieve several objectives, including: (1) Analyzing the role of artificial intelligence (AI) technologies in improving the quality of accounting data in terms of accuracy, reliability, and timeliness for financial disclosure. (2) Studying the impact of AI applications on the efficiency of accounting processes by reducing processing time and error rates. (3) Exploring the legal and regulatory challenges associated with using AI technologies in accounting and financial reporting. (4) Providing recommendations on how to promote the use of AI in accounting in a way that ensures improved data quality and minimizes associated risks.

Significance of the Research:

This research is of great importance due to the rapid digital transformation occurring in the accounting sector, where the use of artificial intelligence (AI) technologies has become essential for enhancing the efficiency of financial operations and ensuring the accuracy of accounting data. With the increasing complexity of accounting systems and the growing volume of financial data, the need has arisen for more advanced technologies capable of improving the quality of financial information and reducing human errors associated with traditional data processing (Al-Rifai, 2021). This research contributes to providing an in-depth analysis of the impact of AI technologies, such as machine learning, natural language processing, and robotics, on improving the quality of accounting data, thus helping to

bridge the knowledge gap regarding the effectiveness of these technologies in the accounting field (Al-Akour, 2024). (1) It contributes to clarifying the relationship between the use of AI technologies and the extent to which accuracy and reliability in financial data are improved. (2) It strengthens previous studies by applying modern analytical methodologies based on real data, thus lending greater credibility to the research findings (Al-Qashawi, 2023). It enables managers and decision-makers in financial institutions and companies to assess the feasibility of implementing artificial intelligence in their accounting systems, empowering them to make informed decisions regarding investment in these technologies. (3) It helps in developing intelligent accounting models that reduce processing time, thereby enhancing the speed of accounting disclosure and improving strategic decision-making based on accurate and up-to-date information (Sakhrawi, 2024). (4) It enables managers and decision-makers in financial institutions and companies to assess the feasibility of implementing artificial intelligence in their accounting systems, empowering them to make informed decisions regarding investment in these technologies. (5) It helps in developing intelligent accounting models that reduce processing time, thereby enhancing the speed of accounting disclosure and improving strategic decision-making based on accurate and up-to-date information (Sakhrawi, 2024)

LITERATURE REVIEW

The Concept of Artificial Intelligence

Dartmouth College: The historical roots of artificial intelligence trace back to a conference held in 1956, where John McCavthy proposed using artificial intelligence as a term to describe a computer capable of performing functions that mimic the human mind. Therefore, artificial intelligence encompasses the individuals, hardware, procedures, data, software, knowledge, and expertise required to develop and enhance computer systems and equipment that demonstrate artificial intelligence. Since then, research has focused significantly on artificial intelligence, making it a widely used concept today, permeating all fields of technical and human sciences. Abdel-Halim (2022) defined it as one of the revolutionary developments in intelligent computer systems—systems that possess characteristics associated with intelligence and decision-making, somewhat similar to human behavior in the areas of language, learning, thinking, and problem-solving.

Al-Fadhli and Al-Amiri (2025: 144) defined it as a computer application

whose work revolves around building programs capable of executing and analyzing repetitive activities performed by humans. Hassan (2023: 188) Artificial intelligence (AI) is one of the most prominent modern technologies that has radically transformed the field of accounting. It enables organizations to automate financial processes, analyze massive amounts of data, and make more accurate and effective financial decisions (Al-Akour, 2022). AI encompasses a range of advanced technologies such as machine learning, deep learning, natural language processing, and robotic process automation, all of which aim to improve the quality of accounting data and enhance the accuracy and reliability of financial reports (Al-Rifai, 2024). Furthermore, the adoption of AI in accounting contributes to faster processing of financial data and reduced human error, helping organizations achieve greater operational efficiency and lower operating costs (Vărzaru, 2022).

Artificial Intelligence Applications in Accounting

The use of artificial intelligence in accounting encompasses several key applications aimed at enhancing data quality and improving operational efficiency. Among the most prominent of these applications are: (1) Automating Accounting Processes: AI technologies assist in automating routine accounting tasks such as data entry, financial reporting, and bank reconciliation, thereby reducing the need for human intervention, and minimizing the likelihood of errors (Al-Akour, 2024). (2) Financial Data Analysis and Forecasting: AI systems rely on predictive analytics to identify future financial trends, helping companies make more accurate and strategic financial decisions (Vasarhelyi et al., 2015). (3) Detecting Financial Fraud: AI contributes to the analysis of large financial transactions to detect anomalous patterns that may indicate fraud or errors in accounting records, using deep autoencoder networks (Schreyer et al., 2017). (4) Improved Accounting Compliance: Through the use of machine learning, intelligent accounting systems can review financial transactions and verify their compliance with accounting standards and tax laws, thus contributing to reducing legal and regulatory risks (Al-Rifai, 2023). (5) Advanced Financial Reporting: Artificial intelligence enables the preparation of integrated financial reports based on big data analysis, providing organizations with a more comprehensive view of their financial performance (Al-Akour, 2023).

Characteristics of Artificial Intelligence and Reasons for Interest

Artificial intelligence generally possesses a set of characteristics (Amirham, 2022: 257), including: (1) Using simulation techniques to mimic human behavior in solving complex and non-routine problems. (2) Processing digital data. (3) Providing managers with multiple alternatives, thereby improving the decision-making process. (4) Meanwhile, Othman and Jamil (2012: 224) identified the following characteristics of artificial intelligence: (5) Providing multiple versions of the system. (6) Reduces reliance on human expertise. (7) Handles hypotheses simultaneously, accurately, and quickly. (8) Provides a specialized solution for each problem. (9) Processes non-numeric symbolic data through logical analysis and comparison.

Artificial Intelligence Systems

Given the rapid and radical technological advancements in the economic environment, numerous applications have emerged to keep pace with these developments. Artificial intelligence (AI) is the umbrella term that focuses on machine simulation. Some of these applications include (Al-Fadhli & Al-Amiri, 2025: 144): Expert systems, Neural networks, Fuzzy logic, Genetic algorithm systems, Intelligent agents, Blockchain. Accounting Data Quality Standards Accounting data quality represents a new focus on quality, following the emphasis on the quality of goods and services, whether industrial, skill-based, or specialized. This emphasis extends to the quality of accounting data itself, regardless of whether it is presented through traditional methods (reports and records) or modern digital methods (such as digital products). (Al-Jajawi & Al-Ubaidi, 2014: 67) (Nabhan 2020: 59) defines it as a set of qualitative characteristics and features that accounting data must possess to be more useful to users.

In essence, accounting data quality encompasses a set of qualitative and additional characteristics that must be present in accounting data to ensure its quality and usefulness in decision-making. Accounting data quality is a crucial factor in enhancing confidence in financial reports and facilitating sound financial decisions. According to recent studies, the quality of accounting data is assessed based on several key criteria, including: (1) Accuracy: This refers to the extent to which accounting data accurately represents the actual financial position of the organization (Al-Rifai, 2023). (2) Reliability: This measures the consistency

and stability of the data across different financial periods, enhancing the credibility of financial reports for investors and decision-makers (Al-Akour, 2018). (3) Timeliness: This relates to the speed with which accounting data is provided. Artificial intelligence contributes to reducing processing time, ensuring that financial information reaches stakeholders in a timely manner (Al-Rifai, 2024). (4) Comparability: This refers to the extent to which financial data can be compared between different periods or between multiple companies, enhancing investors' ability to evaluate financial performance (Vărzaru, 2022). (5) Transparency: This is an important standard to ensure full disclosure of all important financial information without any distortion or misrepresentation (Vasarhelyi et al., 2015).

Accounting Data Quality Standards

Accounting data quality represents a new focus on quality, following the emphasis on the quality of goods and services, whether industrial, skill-based, or specialized. This emphasis extends to the quality of accounting data itself, regardless of whether it is presented through traditional methods (reports and records) or modern digital methods (such as digital products). (Al-Jajawi & Al-Ubaidi, 2014: 67) (Nabhan 2020: 59) defines it as a set of qualitative characteristics and features that accounting data must possess to be more useful to users. In essence, accounting data quality encompasses a set of qualitative and additional characteristics that must be present in accounting data to ensure its quality and usefulness in decision-making. Accounting data quality is a crucial factor in enhancing confidence in financial reports and facilitating sound financial decisions. According to recent studies, the quality of accounting data is assessed based on several key criteria, including:

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(Vărzaru, 2022). (5) Transparency: This is an important standard to ensure full disclosure of all important financial information without any distortion or misrepresentation (Vasarhelyi et al., 2015). The following figure illustrates the link between the dimensions of artificial intelligence and the dimensions of accounting data quality.

RESEARCH METHOD

Research Design

The research adopted a mixed-methods approach to assess the extent of AI application usage and its impact on the quality of financial reports. This strategy combines quantitative and qualitative analytical tools in data collection and processing, ensuring a comprehensive and in-depth understanding of the research problem and the integration of its findings.

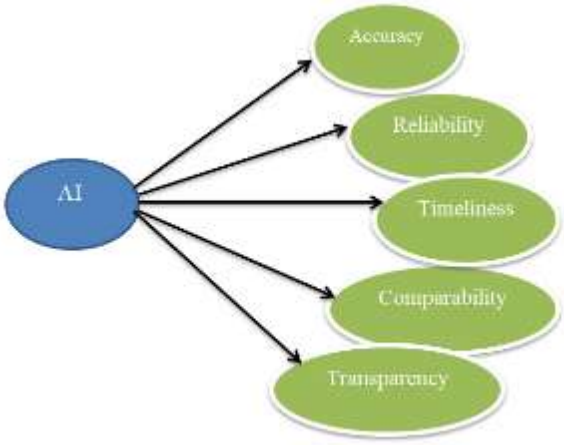

Figure 1. Framework Research

Research Instrument

To achieve the research objectives, a scientific questionnaire was developed as the primary data collection tool, based on theoretical frameworks and previous studies related to artificial intelligence and accounting. The instrument was structured into two integrated parts. The first part aimed to identify the demographic and professional characteristics of the study sample, including academic qualifications, specialization, and job title. The second part was dedicated to measuring the study variables through 28 items distributed across two main domains. The first domain addressed artificial intelligence applications through 21 items covering four technical dimensions. The first dimension focused on expert systems (six items), followed by machine learning (five items), neural networks (five items), and finally, algorithms (five items). The second domain, in contrast, was dedicated to measuring the quality of accounting information through its remaining items. This aims to investigate the impact of these smart technologies on improving the level of financial information within private banks in Babylon Governorate and ensuring its accuracy and suitability for the requirements of the modern banking environment.

Qualitative Data Collection

To deepen our understanding of the AI adoption phenomenon and analyze its non-quantitative dimensions, semi-structured interviews were conducted with a select sample of experts and decision-makers in the targeted banks. This approach allowed participants to share their practical experiences in the AI transformation journey, focusing on key challenges and successes. The interview guide also included open-ended questions to explore analytical insights into the operational benefits, technical constraints, and overall strategic impact of AI applications on improving the quality of financial statements.

Research Population And Sample

The current study targeted a population of 270 employees working in private banks, from which a simple random sample of 159 individuals of both genders was drawn. This type of sampling was chosen to ensure impartiality and provide equal opportunities for representation of all members of the population, thus enhancing the validity and generalizability of the results. Table (1) presents the demographic characteristics of the individuals in this sample.

Table 1. Distribution Of The Study Sample According To Demographic Variables

Variable	Variable levels	No.	%
Qualification	Diploma	28	18%
	Bachelors	102	64%
	Master degree	29	18%
Job title	Manger	14	9%
	Head of department	22	14%
	Accountant	85	53%
	Other	38	24%
Specialization	Accounting	78	49%
	Banking and financial science	36	23%
	Business management	45	28%

Tool stability

To verify the internal reliability of the study instrument, Cronbach's Alpha coefficient was calculated as shown in Table (2). The results showed high levels of reliability; the value for the 'Artificial Intelligence Application' axis was (87.1%), and for the 'Quality of Accounting Information' axis was (71.1%), while the instrument as a whole recorded an overall reliability coefficient of (89.0%). These indicators reflect the questionnaire's high degree of reliability and consistency, which confirms its suitability for use in achieving the study's objectives.

Table 2. Results of Cronbach's alpha coefficient for the reliability of the study instrument

Areas and axes	No. of paragraphs	Alpha value
Expert systems	6	0.751
Machine learning	5	0.686
Neural network	5	0.731
Algorithms	5	0.598

Artificial intelligence applications	21	0.871
Quality of accounting information	7	0.711

RESULTS AND DISCUSSIONS

Analysis of study questions

This section presents and analyzes the data collected to answer the study's questions and test its hypotheses. To answer the main question, "What is the impact of using artificial intelligence (AI) in its various dimensions (expert systems, machine learning, neural networks, and algorithms) on the quality of accounting information in private banks in Babylon Governorate?", the means and standard deviations of the study sample's responses were calculated, as shown in the table above. The results indicate that the level of adoption of AI dimensions and its impact on the quality of accounting information was rated as "high," with an overall mean of 4.04 and a standard deviation of 0.567. This result is attributed to the awareness among financial departments and accountants in Babylon's private banks of the importance of integrating smart technologies to enhance the accuracy and reliability of financial reports. This aligns with Hassani's (2023) finding that institutions that rely on these technologies in an integrated manner ensure higher quality accounting information.

Understanding how artificial intelligence (AI) impacts the banking industry is crucial for accounting professionals today. Accountants must keep pace with the latest technological advancements to maintain their competitive edge (Boritz and Stratopoulos, 2023). Consequently, this research aims to investigate the vital role AI plays in reshaping accounting practices. Reliance on traditional methods has significantly declined due to automation and AI, leading to a fundamental shift in accountants' responsibilities towards intelligent analysis and control. This study focuses on these key questions within the context of the Iraqi business environment.

Table 3. Arithmetic means and standard deviations, for AI and the quality of accounting information

Areas and axes	SMA	SD	Degree
Expert systems	4.03	0.494	High
Machine learning	4.04	0.567	High
Neural networks	3.90	0.551	High
Algorithms	4.11	0.449	High
Artificial intelligence applications	4.04	0.567	High
Quality of accounting information	4.02	0.387	High

Testing The Study Hypotheses

H1: There is a statistically significant effect of adopting artificial intelligence technologies in its various dimensions (expert systems, machine learning, neural networks, and algorithms)

on enhancing the quality of accounting information**.**

The hypothesis indicated that artificial intelligence (AI) technologies in their various forms (algorithms, neural networks, machine learning, and expert systems) have no statistically significant effect ($\alpha \leq 0.05$) on improving the quality of accounting data in private banks. To test the accuracy of this hypothesis, the study relied on the results of simple linear regression analysis to measure this effect. To verify the main hypothesis, the results of the simple linear regression analysis for the effect of AI in its various dimensions (expert systems, machine learning, neural networks, and algorithms) on the quality of accounting information in private banks were obtained, as shown in Table 4. Table 4 shows that the simple regression model representing the effect of AI on the quality of accounting information in private banks is statistically significant. Since the calculated F-value was 24.949, which is greater than the critical F-value of 4.08, AI explains 36.2% of the changes in the quality of accounting information, while the remainder is attributed to other variables and factors. It should also be noted that the statistical significance level was 0.000, which is less than 0.05, and that the t-test value for AI applications was 4.994, which is greater than the critical value of 1.68. Therefore, AI statistically affects the quality of accounting information in private banks. Accordingly, the alternative hypothesis was accepted, and the null hypothesis was rejected

Table 4. Linear Regression Of The Impact Of Artificial Intelligence Dimensions On The Quality Of Financial Statements

Analysis of variance (ANOVA)						
F-test value	**Statistical significance**	**Regression coefficient (R)**	**R^2**	**Regression constant**	**test value (T)**	**Statistical significance**
24.949	0.000	0.601	0.362	1.308	4.994	0.000

H1a:There is a statistically significant effect of the systems expertise dimension on the quality of financial statements at a significance level of 0.05.

To test this sub-hypothesis, simple linear regression results were obtained for the effect of expert systems on the quality of accounting information in industrial companies in Babylon Governorate, as shown in Table 5.

Table 5. Results of simple linear regression analysis of the impact of expert systems on the quality of accounting information

Analysis of variance (ANOVA)						
F-test value	**Statistical significance**	**Regression coefficient (R)**	**R^2**	**Regression constant**	**Test value (T)**	**Statistical significance**
13.294	0.001	0.482	0.232	2.222	3.646	0.001

Table 5 shows that the simple regression model representing the impact of expert systems on the quality of accounting information in private banks is statistically significant. The calculated F-value was 13.294, higher than the critical value of 4.08. Expert systems explain 23.2% of the variables related to the quality of accounting information, while the remaining percentage is attributed to other variables and factors. The statistical significance level was 0.001, lower than 0.05, and the t-test value for expert systems was 3.646, higher than the critical value of 1.68. Therefore, expert systems have a statistically significant impact on the quality of accounting information in private banks in Babylon. Accordingly, the alternative hypothesis was accepted, and the null hypothesis was rejected.

H1b:There is a statistically significant effect of machine learning dimension on the quality of financial statements at a significance level of 0.05

Table 6 shows that the simple regression model representing the impact of machine learning on the quality of accounting information in private banks is statistically significant. The calculated F-value was 11.778, which is greater than the critical value of 4.08. Machine learning explains 21.1% of the variables related to the quality of accounting information, while the remainder is attributed to other variables and factors. Table 6 also shows that the statistical significance level was 0.001, which is less than 0.05, and that the t-test value for expert systems was 3.432, which is greater than the critical value of 1.68 agreed upon by the researchers. Therefore, there is a statistically significant impact of machine learning on the quality of accounting information in private banks. Thus, the alternative hypothesis was accepted, and the null hypothesis was rejected.

Table 6. Results of simple linear regression analysis of the impact machine learning on the quality of accounting information

Analysis of variance (ANOVA)						
F-test value	**Statistical significance**	**Regression coefficient (R)**	**R^2**	**Regression constant**	**Test value (T)**	**Statistical significance**
11.778	0.001	0.460	0.211	2.499	3.432	0.001

H1c:There is a statistically significant effect of neural networks dimension on the quality of financial statements at a significance level of 0.05

To verify the third sub-hypothesis, the results of the simple linear regression of the effect of neural networks on the quality of accounting information in private banks were extracted, as shown in Table 7.

Table 7. Results of simple linear regression analysis of the impact of neural networks on the quality of accounting information

Analysis of variance (ANOVA)						
F-test value	**Statistical significance**	**Regression coefficient (R)**	**R^2**	**Regression constant**	**Test value (T)**	**Statistical significance**
11.778	0.001	0.460	0.211	2.499	3.432	0.001

The table shows that the simple regression model used to represent the effect of neural networks on the quality of accounting information is statistically significant. The calculated F-value was 6.171, higher than the critical value of 4.08. Neural networks explain 12.3% of the variables related to the quality of accounting information, while the remaining percentage is attributed to other variables and factors. Table 8 also shows that the statistical significance level was 0.017, lower than 0.05, and the t-test value for neural networks was 2.484, higher than the critical value of 1.68. Therefore, neural networks have a statistically significant effect on the quality of accounting information in the banks included in the study sample.. Accordingly, the alternative hypothesis was accepted, and the null hypothesis was rejected:

H1d:There is a statistically significant effect of algorithms dimension on the quality of financial statements at a significance level of 0.05

Table 8 shows that the simple regression model representing the impact of algorithms on the quality of accounting information in Palestinian banks is statistically significant. The calculated F-value was 34.771, which is greater than the critical F-value of 4.08. Algorithms explain 44.1% of the variables in accounting information quality, with the remainder attributed to other variables and factors. Table 14 also indicates that the statistical significance level was 0.000, which is less than the 0.05a level, and the t-test value for algorithms was 5.897, which is greater than the critical T-value of 1.68. Therefore, there is a statistically significant impact of algorithms on the quality of accounting information in Palestinian industrial companies. Accordingly, the alternative hypothesis was accepted, and the null hypothesis was rejected.

Table 8. Results Of Simple Linear Regression Analysis Of The Impact Of Algorithms On The Quality Of Accounting Information In Palestinian Industrial Companies

Analysis of variance (ANOVA)						
F-test value	**Statistical significance**	**Regression coefficient (R)**	**R^2**	**Regression constant**	**Test value (T)**	**Statistical significance**
34.771	0.000	0.664	0.441	1.232	5.897	0.000

Neural networks in artificial intelligence (AI) are a sophisticated technology that trains computers to process information by biologically mimicking the workings of the human brain. Deep learning, an advanced type of machine learning, emerges from this technology, relying on a multi-layered network of interconnected neurons and neural networks. In the context of contemporary digital transformations, the emergence of AI in accounting practice represents a true revolution, enhancing the role of accountants and empowering them to contribute strategically within their organizations. This is achieved through automating repetitive tasks, improving workflows, and providing valuable analytical insights. While this shift may raise some concerns, it remains a vital tool for improving the efficiency of financial services and bridging knowledge gaps. The adoption of these technologies aims to leverage human capabilities at their highest level, not replace them. In this context, expert systems stand out as tools that integrate the expertise of specialists to assist accountants in specific areas such as audit planning, internal control evaluation, and risk identification. Furthermore, classification algorithms in machine learning emerge as a cornerstone for detecting financial fraud and ensuring the accuracy of information. However, integrating these technologies faces significant challenges, most notably compatibility issues with legacy accounting systems and the resulting high costs of infrastructure upgrades, as well as the critical need for qualified personnel who combine accounting expertise with big data analytics skills. Data security concerns and the privacy of sensitive financial information also remain a challenge, requiring strict adherence to protection standards to ensure stakeholder confidence. To fully leverage the potential of artificial intelligence, organizations must address these technical, financial, and human resource challenges holistically. This necessitates building systems that enhance audit accuracy and rely on aggregating and analyzing data from multiple sources to transform it into digital knowledge capable of detecting material anomalies and providing comprehensive

coverage of financial transactions that goes beyond traditional sampling.

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