

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

**Rafid K. Nsaif Al-Obaidi**

Technical Institute of Al-Mussib, Al-Furat Al-Awsat Technical University, Iraq  
inm.af@atu.edu.iq

### ***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 change presents several challenges with litigation related to record security and regulations governing AI packages in accounting (Sakhravi, 2024). Thus, this study attempts to observe the impact of AI on the quality of accounting statistics through analyzing changes in data accuracy, reliability, processing time and amount of operating cost financial savings after the use of this technology Artificial intelligence (AI) It is also a necessary strategy for easier selection. 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 first level of accounting facts is influenced by several key standards, including accuracy. Artificial intelligence (AI) technology contributes to reducing human errors and increasing the accuracy of financial calculations (Al-Rifai, 2023). Reliability is also an important thing because AI can improve the consistency of financial statistics through automated analysis and error removal (Al-Akour, 2018). Comparability is every other important criterion for improving the quality of financial statements. AI enables one-to-one contrast of facts between types of time periods or a pair of institutions, correspondingly improving the transparency of economic reporting (Vasarhelyi et al., 2015). In addition, transparency is an important tool for ensuring the accuracy of accounting records. Artificial intelligence (AI) helps provide clean and accurate economic information, facilitating financial and

regulatory audits (Vărzaru, 2022). While AI offers a number of benefits to accounting, there are significant challenges to its full adoption. There are high prices for imposing AI technology in the most demanding situations. Investing in that technology requires significant financial resources, posing a particular challenge for SMEs. Additionally, legal and regulatory challenges hinder the adoption of AI in accounting. Organizations need to elaborate regulatory rules that are consistent with the requirements of protecting monetary facts and privacy (Al-Rifai, 2023). The risk of algorithmic bias is likewise a problem of capacity, as unbalanced facts can result in misleading effects or false 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) Examination of prison and regulatory requirements related to the use of AI technology in accounting and monetary reporting. (4) Provide suggestions on how the use of AI in accounting can be sold to ensure progressive recordkeeping and mitigate the associated dangers.

### **Significance of the Research:**

This study is of good relevance due to rapid digital transformation that is underway in the accounting industry, where the use of synthetic intelligence (AI) technology to strengthen the cash flow performance and ensure the accuracy of accounting data has become important. The need for advanced technology has also increased on the human errors associated with traditional information 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 use of AI in accounting allows for faster processing of financial data and reduces human errors, helping companies achieve greater operational efficiency and reduce operational costs (Vărzaru, 2022).

### **Artificial Intelligence Applications in Accounting**

The use of artificial intelligence in accounting includes several major applications designed to improve fact quality and improve operational efficiency: (1) Automate accounting processes: AI technology helps automate repetitive accounting tasks such as information processing, financial reporting, and bank reconciliation Errors are reduced (Al-A42kour). (2) Financial data analysis and forecasting: AI structures rely on predictive analytics to identify future financial trends, which allows

organizations to make more accurate and strategic financial decisions (Vasarhelyi et al., 2015). (3) Financial fraud detection: AI contributes to the analysis of massive monetary transactions to come across unusual styles that may result in fraud or errors in accounting records, using deep auto-encoder 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. Quality accounting of information is an important issue for increasing the confidence in financial reporting and facilitating sound economic decisions. According to existing studies, the adequacy of accounting data is mainly classified based on several main criteria, including: (1) Accuracy: It refers to the amount to which accounting statistics appropriately represent the actual economic situation of the business (Al-Rifai, 2023). (2) Reliability: It measures the stability and consistency of facts through individual monetary periods, thus improving the reliability of monetary reports for buyers and selectors (Al-Akour, 2018). (Three) Timeliness: This refers to the speed with which accounting information is provided. Artificial intelligence helps reduce processing time, ensuring financial data reaches stakeholders in a timely manner (Al-Rifai,

2024). (4) Comparability: This, in turn, refers to the extent to which economic facts can be compared between specific periods or between more than one industry, thereby improving investors' ability to assess economic performance (Vărzaru, 2022). (5) Transparency: This is an important method to ensure full disclosure of all important financial information without any distortion or misrepresentation (Vasarhelyi et al., 2015).

### **Accounting Data Quality Standards**

Accounting information represents, at best, a new first-class recognition after the emphasis is placed on the penalization of goods and services, whether commercial, competence-based entirely, specialist or not. This emphasis extends to the punishment of accounting facts themselves, regardless of whether they are provided away through traditional policies (reviews and filings) or modern digital methods (incorporating digital products). (Al-Jajawi & Al-Ubaidi, 2014: sixty seven) (Nabhan 2020: 59) defines hard and fast the quality attributes and characteristics that accounting data needs to be extra useful for users. Essentially, accounting facts include first-class qualitative and additional characteristics hard and fast that must be present in accounting statistics to ensure the

adequacy of the value in the selection process Accounting quality is an important element to increase the confidence in economic analysis and facilitate decisions. According to existing research, the classification of quality financial statements is entirely based on several key criteria, which include:

(1) Accuracy: This in turn refers to the extent to which the accounting records accurately represent the actual financial workings of the employer (Al-Rifai, 2023).

(2) Reliability: It measures the consistency and stability of data across separate economic periods, thereby improving the reliability of financial reviews for buyers and selectors (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).

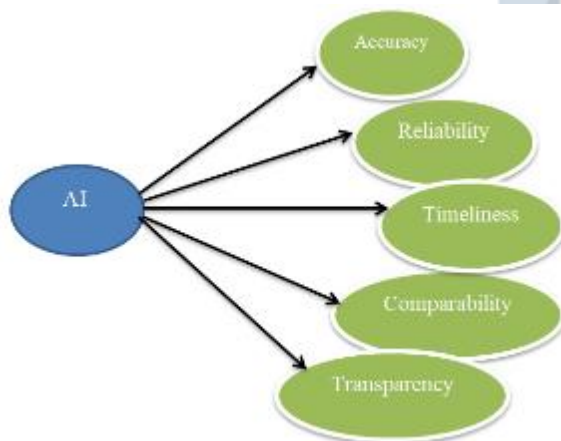
(4) Comparability: This refers to the extent to which financial data can be compared between different periods or between multiple companies, enhancing investors' ability to evaluate financial performance (Vărzaru, 2022). (5) Transparency: This is an important standard to ensure full disclosure of all important financial information without any distortion or misrepresentation (Vasarhelyi et al., 2015).

The following figure illustrates the link between the dimensions of artificial intelligence and the dimensions of accounting data quality.

## RESEARCH METHOD

### Research Design

Research adopted common techniques to assess the extent of AI software use and its impact on the specificity of economic reporting. This approach combines quantitative and qualitative analytical tools in record collection and processing, ensuring comprehensive information and intensive information analysis and analysis the



**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. Results show that the extent of use of AI dimensions and its impact on first-class accounting information was rated "high", with a joint mean of four.04 and a wide variance of 0.567 It raises awareness of importance. This is consistent with Hassani's (2023) conclusion that companies that rely on this technology in an inclusive manner ensure good and separate accounting records.

Understanding how artificial intelligence (AI) is impacting the banking industry is critical for accountants today. Accountants must maintain pace with the latest technological advancements to maintain their competitive advantage (Boritz and Stratopoulos, 2023). Thus, it explores ambitions to explore the important role of AI in transforming accounting practice. Automation and AI have significantly reduced reliance on traditional techniques, essentially leading to an essential shift in accountants' commitments towards intelligent analysis and management This study focuses on these key questions in 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 <sup>2</sup>	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 <sup>2</sup>	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 <sup>2</sup>	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 <sup>2</sup>	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 <sup>2</sup>	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 modern digital integration, AI in accounting practice is a key enabler. This is done by automating recurring tasks, enhancing workflows, and presenting fundamental analysis views. While this additional shift may enhance certain aspects, the purpose

of adopting technology, which remains an important tool for increasing the performance of economic propositions and filling gaps, is to maximize human efficiency, no longer to modernize them. In this context, expert systems stand out as gears that combine the knowledge of experts to assist accountants in specific areas such as audit planning, internal control assessment, and threat identification. However, integrating these technologies requires significant demand conditions, difficulties with maximum compliance with legacy accounting systems, and exorbitant fees arising from infrastructure upgrades, as well as a significant need for certified personnel integrating accounting information with statistical capabilities. Ensuring the use of large-scale accounting standards the potential of artificial intelligence to its full potential, organizations must address these technical, financial and human resource requirements holistically. This necessitates the creation of structures that increase audit accuracy and rely on collecting and examining records from more than one resource to convert them into virtual knowledge .

### **Conclusion and Recommendation**

The study concluded that the use of synthetic intelligence technology along with processing systems, neural networks,

algorithms, and tools, played a significant role in improving the accounting information within private banks in Babylon Governorate in a satisfactory manner, especially to improve the quality of goods and services. and expertise (with a mean rating of four.02), so they can hire intelligent software to handle complex banking operations. The expert infrastructure resembles information from leading monetary analysts to provide immediate solutions to credit regulation problems and through built-in automated connections between critical systems. The study also revealed the pivotal role of neural networks in safeguarding financial reports against banking fraud attempts. This is achieved through their superior ability to identify suspicious patterns in large financial transactions that traditional methods may fail to detect, thus enhancing the credibility of financial statements for stakeholders and depositors.

Furthermore, algorithms and machine learning have contributed to accelerating computational processes and providing more accurate and reliable results in a constantly fluctuating banking environment. This has led to a reduction in human error and reliance on comprehensive audit samples instead of random sampling, embodying the "signaling theory" of sending reassuring

messages to the market about the bank's financial strength.

Based on these findings, the study recommends that the management of private banks in Babylon Governorate sustainably expand their investment in artificial intelligence technologies and integrate them into all aspects of accounting and oversight operations. Particular attention should be paid to regularly updating machine learning algorithms to keep pace with evolving fraud methods. The study also emphasizes the necessity of investing in human capital through specialized training programs that combine traditional banking skills with big data analytics to ensure the optimal utilization of these technologies. It is also essential to allocate the necessary financial resources to enhance cybersecurity and protect the privacy of sensitive customer data processed by AI systems, thereby ensuring continued trust and compliance with regulatory standards. Finally, the study calls on regulatory and academic bodies in the local environment to adopt the outputs of this study as a starting point for future research that addresses the impact of artificial intelligence on improving strategic financial performance and added economic value for banks, and to generalize this experience to other vital

sectors in the governorate to promote digital economic growth.

## REFERENCES

- Al-Akour, S. (2022). Artificial Intelligence and its Role in Accounting: The Google Bard Model. *Al-Muthanna Journal of Administrative and Economic Sciences*, 5(2), 89-110.
- Al-Akour, S. (2023). Artificial Intelligence and the Future of Accounting. *MBK CPA*, 2023.
- Al-Akour, S. (2024). Artificial Intelligence in Accounting 2024: Key Trends, Technologies, and How to Get Started. *TaxDome Blog*.
- Al-Akour, S. (2023). The Impact of Artificial Intelligence on Accounting Practices: A Review. *ResearchGate*.
- Al-Akour, S. (2018). The Impact of Artificial Intelligence on the Efficiency of Accounting Systems in Jordanian Banks. *Master's Thesis*, Middle East University.
- Al-Akour, S. (2024). The Impact of Artificial Intelligence Using Deep Learning and Machine Learning on the Quality of Accounting Information in Jordanian Commercial Banks. *Economic and Entrepreneurship Studies Series*, 5(5), 1-25.
- Al-Fadhli, Z. A. H. & Al-Amiri, S. A. (2025). The Role of Artificial Intelligence in Achieving Audit Quality in Light of Digital Transformation, *Al-Riyada Journal for Finance and Business*. 6(2).
- Al-Jajawi, T. M. A. & Al-Ubaidi, R. K. (2014). Evaluating the Quality Level of Accounting Information from the Perspective of its Preparers and Users. *Iraqi Journal of Administrative Sciences*, 10(39).

- Al-Qashawi, M. A. M. A. & Rahman. (2023). The Reality of Accounting in Light of Artificial Intelligence in Iraq.
- Al-Rifai, M. M. A. (2024). Artificial Intelligence in Accounting: How AI and Machine Learning Affect Finance Teams. Airbase.
- Al-Rifai, M. M. A. (2023). How Artificial Intelligence Can Help Save Accounting. Journal of Accountancy.
- Al-Rifai, M. M. A. (2023). A Guide to Artificial Intelligence in Accounting. Ultralytics.
- Al-Rifai, M. M. A. (2022). An Analytical Study to Evaluate the Role of Artificial Intelligence Technologies in Improving the Electronic Accounting Disclosure Process. Journal of Financial, Accounting, and Administrative Studies, 8(2), 1-25.
- Al-Rifai, M. M. A. (2023). The Impact of Artificial Intelligence on Financial Reports and its Implications for Decision-Makers. University of Karbala.
- Al-Rifai, M. M. A. (2024). The Impact of Artificial Intelligence on Accounting Information Systems: How AI is Changing the Future of Accounting. Artificial Intelligence Gateway.
- Al-Rifai, M. M. A. (2021). The Impact of Using Artificial Intelligence Applications on the Future of the Accounting and Auditing Profession. Journal of Science and Technology, 12(3), 45-67.
- Gebur, A. A. (2023). The Role of Soft Leadership in the Quality of Work life An Applied Study on a Sample of Employees Working in Al Aitihad Food Industries. International Journal of Academic Research in Business and Social Sciences, 13(9), 144–154.
- Nabhan, S. H. (2020). The Impact of Using Information Technology on Achieving the Quality of Accounting Information. Al-Kut University College Journal.
- Sakhrawi, K. (2024). Legal Protection of Artificial Intelligence Applications in Accounting and Financial Reporting Systems.
- Schreyer, M., et al. (2017). Detection of Anomalies in Large Scale Accounting Data using Deep Autoencoder Networks. arXiv preprint arXiv.
- Sun, Y., et al. (2024). Study of the Impact of the Big Data Era on Accounting and Auditing. arXiv preprint arXiv.
- Värzaru, A. A. (2022). Assessing Artificial Intelligence Technology Acceptance in Managerial Accounting. Electronics, 11(14).
- Vasarhelyi, M. A., et al. (2015). Big Data in Accounting: An Overview. Accounting Horizons, 29(2), 381–396.
- Vasarhelyi, M. A., et al. (2012). The Acceptance and Adoption of Continuous Auditing by Internal Auditors: A Micro Analysis. International Journal of Accounting Information Systems, 13(3), 267–281.