

THE ROLE OF ARTIFICIAL INTELLIGENCE REGULATIONS IN ENHANCING THE QUALITY OF FINANCIAL REPORTS USING ACCOUNTANT SKILLS AS A MEDIATING FACTOR

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Abstract

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This study aimed to explore how the artificial intelligence (AI) contributes improving the quality of financial reports in Jordanian industrial firms, where accountants' skills act as a mediator factor. The study used the descriptive analytical approach, quantitative and statistical analysis to achieve its objectives and assess its hypotheses. A structured questionnaire was developed, covering three main areas of AI — machine learning, expert systems, and the Internet of Things (IoT) — along with the quality of financial reports and accountants' skills. The questionnaire was distributed to 390 employees working in industrial companies in Jordan. The tool's reliability and validity were confirmed. The results showed that the quality of financial reporting was improved by AI in a statistically significant way. Among AI's areas, the IoT showed the strongest effect, followed by machine learning, while expert systems had a relatively weaker effect. Accountants' skills were found to serve as a partial mediator in this relationship, as AI directly improves the quality of financial reports and indirectly enhances them through developing the technical and analytical competencies of accountants. The study concluded that integrating AI technologies into financial reporting processes is essential to improve financial accuracy, reduce fraud, and ensure compliance with regulatory standards.

Keywords: Artificial Intelligence, Financial Reporting, Machine Learning, Internet of Things, Accountants' Skills, Jordanian Industrial Companies

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1. INTRODUCTION

Due to the growing complexity of accounting processes and the accelerated advancement of information technology, the adoption of artificial intelligence (AI) techniques has become imperative in the field of accounting. This integration represents a fundamental shift that empowers accountants to operate with greater efficiency and creativity, thereby generating added value for organizations (Alhanatleh et al., 2024). Moreover, the adoption of AI enhances institutional competitiveness and reinforces its role as a strategic asset within the accounting domain (Odonkor et al., 2024). AI plays a central role in the digital transformation of accounting institutions by promoting the digitization and integration of information systems, communication technologies, and intelligent automation tools (Al-Okaily et al., 2024; Alzghoul & Al-kasasbeh, 2024). The main goal of AI implementation is not to displace human labor, but to augment human capabilities by automating routine and complex tasks that traditionally required manual input. Currently, AI systems are increasingly applied in areas such as transaction processing, function execution, and other core accounting procedures (Waty et al., 2023). These technologies aim to improve organizational performance and productivity by optimizing processes, while preserving the essential role of human oversight (Megdadi et al., 2023).

Credible financial reporting remains the foundation for sound decision-making by various stakeholders, including investors, creditors, regulators, and analysts. The evolution of AI in accounting contributes to reshaping business models and operational processes through advanced technological solutions. This not only improves compliance with best practices but also facilitates stronger relationships with stakeholders and better alignment with strategic goals (Alghizzawi et al., 2025). The value of this study stems from its focus on a timely and relevant issue: utilizing AI technologies to improve the quality and timeliness of financial reporting. Improved reporting practices aim to better address the information needs of investors, providing them to make more informed and timely investment decisions in line with their preferences (Alsmadi et al., 2022; Alzghoul et al., 2022). Investment decisions, particularly those made by current and potential investors, play a critical role in driving capital market efficiency and supporting the financial stability of firms. Accurate financial information is crucial for these decisions, as poor-quality or misleading data can lead to suboptimal investment choices, reduced shareholder wealth, and missed opportunities for corporate financing (Omeish et al., 2024; Najm & Alfaqih, 2021). Consequently, this research aims to assess the impact of AI adoption on enhancing the credibility of financial reports, thereby supporting optimal decision-making and shareholder wealth maximization.

The main objective of this paper is to investigate the effect of AI in improving financial reporting quality using accountant skills as a mediator. Delivering accurate, relevant, and timely financial information about reporting entities, this information serves a diverse user base, including current and prospective investors, lenders,

government agencies, analysts, and other stakeholders. For financial reporting to fulfill its intended purpose, it must adhere to two fundamental qualitative characteristics: relevance and faithful representation. These attributes ensure that the details displayed in financial statements are both meaningful and reliable (Alqsass et al., 2025). Furthermore, the sustainability and long-term success of economic units largely depend on the quality of investment decisions, which, in turn, require transparent, accurate, and timely information exchange between firms and external stakeholders. Information asymmetry hinders effective investment decisions and delays the achievement of strategic objectives. Thus, the embedding of AI within financial reporting is essential to bridge these gaps, improve reporting quality, and foster more informed and efficient decision-making (Ghofar, 2023).

The main objective of different users of financial reports is to compose the best decision to maximize shareholders' wealth.

The layout of this paper is presented as follows. Section 1 introduces the phenomena that occur. Section 2 presents the related literature. Section 3 describes the methodological approach that has been employed to conduct empirical research on the role of AI regulations in improving the characteristics of financial reports using accountant skills as a mediator. Section 4 includes the explanation of the results followed by their discussion regarding the results and future research, and Section 5 proposes the conclusion of the paper.

2. LITERATURE REVIEW AND HYPOTHESES

2.1. Artificial intelligence

Artificial intelligence has been designated as a strategic priority. Its implementation aids for improved decision-making process, contributes towards reengineering business models, and enhances ecosystem performance. A survey by Gartner (n.d.) shows that 59% of organizations are still collaborating on data for effective strategies on the basis of AI. However, practical experience in applying AI solutions or reaping the benefits is lacking for some organizations. AI remains among the defining topics of our time and one widely used across multiple domains — including in the finance industry.

Around this definition, several researchers have defined AI in this context. Zhao et al. (2024) explain that AI was recognized as the capacity of machines to mimic cognitive functions like perception, learning, interaction, and reasoning. According to Messeri and Crockett (2024), AI can be described as a technology whose ultimate goal is to produce systems that can mimic human thinking in an intelligent manner. Giudici et al. (2024) define AI as a part of computer science that concentrates on developing intelligent machines and computer programs to interact like human beings. Additionally, (Fullan et al., 2024; Al-Kasasbeh et al., 2023) also defined AI as methods for controlling task execution via algorithms and robots that replicate cognitive functions. Either way, AI mimics, extenuates human thought using advanced uses and technologies, and obtains a great deal of processes and execution levels in a portion of areas.

2.2. Dimensions of artificial intelligence

2.2.1. Machine learning

Machine learning is one of the fundamental aspects of AI and is used in almost all domains. This domain aims to refine learning by utilizing data to make a system more efficient at completing tasks. Machine learning relies on training data and specific algorithms and continues to improve devices and software, based on user behavior.

It relies on the system's capability to accurately and consistently solve the problems when the right data is provided. Its experience only builds progressively as the system processes more tasks, resulting in sustainable performance improvements (Asnicar et al., 2024). According to Awwad et al. (2024), this study was aimed to examine the influence of using different techniques of AI, including expert systems, machine learning, neural networks, and algorithms. In enhancing the quality of financial reports through criteria, such as, appropriateness, faithful representation, and testability in Palestinian industrial enterprises. A sample of 326 employees was chosen from 13 companies enrolled on the Palestine Stock Exchange for 2023. A questionnaire was used and allocated to gather the required data, and a descriptive-analytical approach was applied. The study concluded that the use of AI techniques has a positive effect on enhancing the quality of financial reports' characteristics. Expert systems, neural networks, and algorithms were developing solutions to different problems in industrial companies to get more accurate, more accelerate, and better results. Machine learning also connects the company's systems in an effective manner.

2.2.2. Expert systems

Among the most important applications of AI is expert systems, designed to deliver such expertise and intelligence in a specific problem domain that it simulates the human expert's decision-making ability. The evolution of these systems have four major components, which start from the knowledge base, which has the specialized information that has been gathered from experts to generate an accurate knowledge base that helps in solving problems. Moreover, you have a data processing engine responsible for processing existing data and deriving appropriate solutions based on the data provided. In addition, the explanation tool elucidates the mechanics of the system and justifies its judgments, thereby improving user comprehension and confidence in the technology. Last but not least, the user interface allows the system and the user to interact, finding the necessary conclusions as simply as possible. To combine these different components, expert systems offer accurate and intelligent solutions in various domains that require expertise and specialization (Manoharan et al., 2024).

According to Al-Jarrah et al. (2024), the objective of this study is to find out the role of an AI in improving the accounting system in Jordanian Islamic banks. Using a quantitative research approach, a sample of 128 employees from Islamic banks in Jordan was studied. A study depends on a survey questionnaire instrument to gather the required data. The study concluded that there is an impact of AI (big data, intelligent agents, expert

systems, and automation processes) on enhancing the accounting system in Jordanian Islamic banks. As a result, the study recommended that to enhance accounting system roles and decrease related costs, accountants and accounting firms should always raise their level of understanding of AI.

2.2.3. Internet of Things

It refers to something more than just the network assets connected to the internet; the Internet of Things (IoT) represents a network to connect both physical devices and digital systems to achieve integration and interaction in an economic entity. You are further trained on the date, which cannot be increased, as it will directly affect the planning and management of projects, wherein their status, monitoring, supervision, and communication would become difficult due to a lack of flexibility and easy accessibility to data. IoT closes the interaction from both the physical and the digital worlds: it captures the data using sensors, along with communication technologies, and integrates that data from multiple sources, and has a more economic and social impact.

The five basic steps of the IoT namely data perception, transmission, storage, processing, and utilization. It relies on wireless networks and intelligent components to communicate between the systems at these stages. IoT is a strategic tool in the digital economy as it helps companies in making informed decisions and enhances operational efficiency (Aouedi et al., 2024).

2.3. Accountant's skills

An accountant's skills play an essential role in improving financial and administrative performance by empowering the accuracy and efficiency of financial operations. A skilled accountant excels in applying accounting principles and analyzing financial data with precision, contributing to well-planned financial decision-making. Additionally, effective communication skills facilitate collaboration among different departments, promoting transparency and accountability in resource management. By preparing accurate financial reports, accountants provide essential information to decision-makers, supporting budget allocation and performance monitoring. This, in turn, enhances an institution's ability to deliver better services to citizens and contributes to reach sustainable development goals (Elo et al., 2024).

Accounting skills are fundamental for individuals aspiring to enter or practice the profession. Since accounting is a highly practical field that requires a high level of accuracy, mistakes are not tolerated. Therefore, accountants must develop a strong set of professional skills to ensure accurate and efficient task execution. Given the importance of these skills (Alzahrane, 2024), the following are key skills that an accountant should have to succeed in this field:

1. Knowledge of accounting practices

One of the most essential skills for accountants is a deep understanding of accounting principles and regulatory standards related to corporate financial management. These skills ensure compliance with financial reporting requirements while maintaining accuracy and adherence to sound accounting practices.

2. Cognitive skills

Cognitive skills refer to an accountant's ability to employ critical thinking, analytical reasoning, and memory in performing various accounting activities. These skills also require intelligent use of tools and technologies to enhance efficiency and performance in the workplace.

3. Data analysis skills

This proves that the capacity to evaluate financial data is one of the most crucial abilities an accountant needs, which helps them lay a scientific foundation for making sound decisions. Good data analysis skills help an organization strengthen its financial performance, making it one of the main aspects in choosing an agile accountant who can operate financial preparation applications accurately and professionally.

4. Accounting organization skills

These skills are essential to ensure the efficient execution of accounting tasks. An accountant must master organization, project management, and working within specific timeframes, ensuring adherence to accounting standards and the delivery of accurate and effective results.

5. Interpersonal and communication skills

Accountants with strong interpersonal and communication skills can work with teams and easily communicate with other stakeholders. These skills allow for the correct interchange of information, aiding in decision-making and offering qualified recommendations. Communication also needs:

- a deep understanding of cultural differences among individuals;
- the ability to develop collaborative solutions that simplify agreement management (Dey et al., 2024).

6. Personal skills

Personal skills encompass the self-management abilities that help accountants adapt to change and stay motivated when facing professional challenges. These skills allow accountants to continuously improve their competencies, enhancing their career growth and long-term professional sustainability.

2.4. Quality of financial reports

With the advancement of institutions, the importance of financial report information has significantly increased, encouraging information systems to expand their use of advanced technologies to support decision-making. Information has become a strategic pillar and a fundamental source for making decisions, highlighting the need for information systems that meet various requirements and provide optimal decisions without requiring external consultations or additional efforts. This shift necessitates the adoption of modern technologies, most notably AI, to enhance the quality of financial reports and to improve decision-making efficiency, thereby contributing to attaining institutional goals more effectively (Ngo & Nguyen, 2024; Alzghoul et al., 2024).

Financial reports are key results of information systems, with accounting information systems playing a crucial role in ensuring the sustainability and growth of institutions. These systems boost the efficiency of financial information provided by accountants and other users by performing essential functions such as data collection, processing, and

generating accurate information used for effective decision-making. Accounting information systems are distinguished by their ability to support financial decisions through data collection, classification, and processing using computer-based electronic systems. Their primary objective is to strengthen the credibility of financial reports and guide decision-making procedures effectively based on analytical and organizational principles (Kateb, 2024; Alqsass et al., 2025).

Financial reports aim to deliver a comprehensive overview of an economic unit's financial results, based on the accrual principle, which provides a basis for making decisions. Such reports provide an accurate picture of the entity's past and future performance, including information on liabilities, cash payments for a financial time period. This data helps the users in appreciating the entity's revenues and economic resources, thus promoting a more efficient and informed decision-making process (Petruzzelli & Badia, 2024).

Financial reports provide important information that serves to assess the timing and amounts of prospective net cash inflows and outflows to the entity. This helps them evaluate the likelihood of future cash flows and provide a broad outlook of the company's assets and needs. Such details help the board of directors to make appropriate decisions and efficient resource allocation (Jejenywa et al., 2024). Also, financial reports contain accurate information regarding the financial position and operational results of an organization, helping institutions make strategic decisions. Due to the increasing financial data, the analysis of this data through manual methods has become increasingly difficult, which has led institutions to resort to the use of AI technologies to extract quality information from unstructured documents, thus improving the decision-making process (Mahdavian et al., 2025; Alassuli, 2025a).

2.4.1. The concept of financial report quality

Financial statement quality refers to a set of primary characteristics that accounting information in financial reports has to have. Accounting information is used to evaluate the quality of this information as one of the most important qualitative characteristics (Eslami Zarei et al., 2025).

The quality of financial report also indicates the accuracy and dependability of the details provided in the items of the report and its capacity to represent real economic actions with precision and transparency. Thus, financial reports can be a useful tool for assisting users in making economic decision-making both in and out of the economic entity (Arabmazaryazdi et al., 2025).

According to Naderi et al. (2025), financial report quality is the delivery of accurate financial information about an institution's daily efforts, including including both estimated and real money inflow. This improves the institution's capacity to deliver to user needs while making it effective to present the entire and fair view of its financial position. Quality, in this sense, is primarily concerned with the reliability of the representation of financial information and cash flows in a method that is consistent with economic reality.

2.4.2. Dimensions of financial report quality

Relevance

Relevance is a key characteristic that attribute the value of the benefit of improved financial reporting. The information is relevant if it can be accurately used to make a difference in decisions that economic consumers will make, being directly linked to the decision-making process. Just like the saying, you evaluate the past, present, and future based on relevant information. Relevance of information means that it serves some purpose in facilitating economic decision-making (Abdulla et al., 2025; Alassuli, 2025b).

Relevant information means information with predictive power that can be used as an important input to decision-making processes to help decision-makers predict future outcomes. Lastly, financial information has relevance with confirmatory value when it is useful to provide feedback on previous assessments by confirming or correcting them. Every decision being made has some relevant information: some information is significant to the decisions, and the decisions are made based on the significance of the information it is a significant relation. When its absence or change could meaningfully influence decision-makers' decisions, it is deemed essential (Noh et al., 2025).

Faithful representation

Under faithful representation, accounting figures and data reflect what has happened or what exists. This means that the information is reliable and does not contain errors that could eventually affect the interpretation of the accounting data, and that the presented figures are accurate and fairly depict the financial situation (Pham et al., 2025).

There should be a faithful representation of accounting information, which also means it needs to be complete, accurate, and without material error. Completeness means providing all the information needed without leaving anything out, so people are not misled and can use the report to make appropriate decisions. Thus, neutrality is specific, so that the information has to help a user's need without giving so much detail that it loses its ability to be informative. Further, the information should not be materially misstated so it does not to affect drawing a fair representation of economic events or the misrepresentation of accounting data. Together, these components provide a framework for the provision of useful and trustworthy financial information that facilitates economic decision-making (Al-Qadasi et al., 2025).

The studies addressing AI and its various dimensions highlight a growing academic and practical interest in this field. Research such as Zhao et al. (2024) and Messeri and Crockett (2024) describes AI as the ability of machines to simulate human cognitive functions, including learning, interaction, and reasoning. Other studies, including Giudici et al. (2024) and Fullan et al. (2024), focus on the technical aspect of AI as a branch of computer science, aiming to develop intelligent systems capable of autonomous decision-making. Several works also explore the practical applications of AI, like machine learning (Asnicar et al., 2024; Awwad et al., 2024). Expert systems (Manoharan et al., 2024; Al-Jarrah et al., 2024) and the IoT (Aouedi et al., 2024) serve as foundational pillars for digital

transformation across various sectors. However, most of these studies concentrate on theoretical concepts and future trends without adequately addressing the practical outcomes of implementing these technologies or comparing the effectiveness of AI models in real-world environments. This reveals a gap in the scientific literature regarding the demonstration of actual field results and the measurable impact of AI applications.

On this basis the study develops the following hypotheses:

H1: There is no effect of AI (machine learning, expert systems, IoT) in enhancing the quality of financial reports in industrial firms in Jordan.

The following subhypotheses branch out from it:

H1a: There is no effect of machine learning in enhancing the quality of financial reports in industrial firms in Jordan.

H1b: There is no impact of expert systems in enhancing the quality of financial reports in industrial firms in Jordan.

H1c: There is no effect of IoT in enhancing the quality of financial reports in industrial firms in Jordan.

H2: There is no effect of AI on enhancing the quality of financial reports in the presence of accountants' skills as a mediator.

3. RESEARCH METHODOLOGY

3.1. Population and sample

The study applied a descriptive analytical approach to assess the function of AI in improving the quality of financial reports, with *accountant skills* as a mediating variable. The primary data were analyzed to define the analytical scope of the study. This study uses a quantitative instrument, represented by a structured questionnaire, to collect and measure the data. The questionnaire was delivered to a random sample of 450 employees working in the Jordanian industrial sector, representing a wide range of age groups, educational qualifications, and years of experience. A total of 60 questionnaires were not returned and considered invalid for analysis, leaving 390 valid responses for statistical processing; the questionnaire featured two main sections: Part I comprised demographic information (age, education level, years of experience); Part II included items related to the study constructs: AI adoption, accountant skills, and quality of financial reports.

The questionnaire was created taking into account relevant previous literature to ensure content validity. A 5-point Likert scale with anchors from "strongly agree" to "strongly disagree" was used to simplify the selection process for participants in the study community. The sample size was determined using Krejcie and Morgan's method to ensure statistically representative data (Bukhari, 2021).

Various statistical techniques were applied to ensure accurate data analysis, including Statistical Package for the Social Sciences (SPSS) software, descriptive statistics, linear regression, and structural equation modeling to investigate the correlation between the study variables.

The quantitative method allowed measurement and statistical testing, which were more aligned with the study's objective. The table below presents the data algorithm distribution of the sample (demographic data):

Table 1. Sample distribution

<i>Domain</i>	<i>Rank</i>	<i>Frequency</i>	<i>Percent</i>
Age	< 25 years old	80	20.5
	25-34 years old	169	43.3
	35-44 years old	56	14.4
	45-54 years old	50	12.8
	55 years old and more	35	9.0
Educational qualification	Bachelor's degree	179	45.9
	Higher diploma	48	12.3
	Master's degree	113	29.0
	PhD	41	10.5
	Other educational qualification	9	2.3
Years of experience	Less than 5	96	24.6
	5-10 years	135	34.6
	10-15 years	104	26.7
	15-20 years	24	6.2
	20-25 years	31	7.9
Total		390	100.0

3.2. Reliability test

The ability of the research instrument to produce reliable outcomes when used repeatedly with less than 5% error is called reliability. In this study, the reliability of the instrument was examined and assessed through Cronbach's alpha reliability coefficient, as illustrated in Table 2 below:

Table 2. Cronbach's alpha coefficient values

<i>Domain</i>		<i>Cronbach alpha</i>
1	<i>Machine learning</i>	0.85
2	<i>Expert systems</i>	0.80
3	<i>IoT</i>	0.88
<i>AI</i>		0.91
<i>Enhancing the quality of financial reports</i>		0.89
<i>Accountants' skills</i>		0.93

All study variables have Cronbach's α values between 0.80 and 0.93, indicating a satisfactory degree of reliability (above 0.70) in line with Sekaran and Bougie (2016).

3.3. Alternative approaches

Although a quantitative approach was employed in this study through a structured questionnaire due to its efficiency in collecting standardized data from a large sample, alternative methods such as qualitative interviews or focus groups could have been employed. These qualitative approaches might have provided deeper insights into the knowledge and background of accountants with respect to AI integration. However, such methods were not selected due to limitations in time, resources, and the need for generalizability of results across a broad population.

4. RESULTS

4.1. The independent variable: Artificial intelligence

Table 3 below presents the means and standard deviations (SD) of different AI domains, ranked in descending order based on their average scores.

Machine learning is rated highest with a mean of 4.09 (SD = 0.66), indicating that it is viewed as the most influential among the listed domains. Expert systems follow closely with a mean of 4.03 (SD = 0.56), while the IoT is rated slightly lower with a mean of 3.89 (SD = 0.68). Overall, the aggregated score for AI is 4.00 (SD = 0.54), suggesting that all domains are regarded as highly impactful, though machine learning appears to have a marginally greater significance in this evaluation.

Table 3. Means and standard deviations of artificial intelligence, ranked in descending order

<i>Rank</i>	<i>No.</i>	<i>Domain</i>	<i>Mean</i>	<i>SD</i>	<i>Level</i>
1	1	<i>Machine learning</i>	4.09	0.66	High
2	2	<i>Expert systems</i>	4.03	0.56	High
3	3	<i>IoT</i>	3.89	0.68	High
		<i>AI</i>	4.00	0.54	High

4.2. The dependent variable: Enhancing the quality of financial reports

Table 4 below presents aspects of how AI enhances the quality of financial reports, ranked by the degree of agreement among respondents. The highest-rated item, with a mean score of 4.05, indicates a strong consensus that AI significantly improves risk assessment and financial forecasting. This aligns with recent findings that implementing AI in business processes improves financial reporting quality, as reflected in lower discretionary accruals and closer adherence to financial standards.

Following closely, respondents agree that AI facilitates the detection of financial anomalies and inconsistencies (mean = 4.01), and ensures real-time financial reporting, reducing delays (mean = 3.97). These perceptions are supported by studies highlighting AI's role in automating data entry and processing, thereby reducing human errors and enhancing the accuracy of financial reports.

The mean score was 3.89, which reveals that respondents have an overall agreement that AI has positive implications for financial reporting quality. This reflects a consensus on the transformative influence of AI on financial reporting, improving accuracy, compliance, and efficiency.

Table 4. Means and standard deviations of enhancing the quality of financial report items, sorted in descending sequence

Rank	No.	Item	Mean	SD	Degree of agreement
1	7	AI contributes to better risk assessment and financial forecasting.	4.05	0.85	High
2	10	AI facilitates the detection of financial anomalies and inconsistencies.	4.01	0.88	High
3	4	AI ensures real-time financial reporting, reducing reporting delays.	3.97	0.88	High
4	5	AI tools improve financial report consistency and comparability.	3.91	0.93	High
5	3	The use of AI enhances compliance with financial standards and regulations.	3.90	0.91	High
6	1	AI improves the accuracy and reliability of financial reports.	3.83	0.92	High
6	2	AI helps in reducing financial fraud and misstatements.	3.83	0.95	High
8	6	AI-based data analysis enhances decision-making in financial reporting.	3.82	0.92	High
9	9	AI increases transparency in financial disclosures.	3.81	1.07	High
10	8	AI-powered automation minimizes human intervention in financial reporting.	3.78	0.92	High
Enhancing the quality of financial reports			3.89	0.62	High

4.3. The moderate variable: Accountants' skills

Table 5 below shows both items rated the highest with a mean of 4.00 (SD = 0.88), speaking to the need for continuous training to avoid falling behind the advancements of AI in the field of financial reporting. This is consistent with what we are hearing in the field about the need to continually educate accountants on how to use AI tools.

Closely following is the belief that human judgment cannot be replaced in evaluating AI-generated financial reports, with a mean of 3.98 (SD = 0.90). This highlights the importance of accountants who can interpret the AI to ensure automated processes meet regulations and ethics.

Other summarized findings include a need for accountants to understand machine learning and automation (mean = 3.88, SD = 0.94) and to improve their technical proficiency (mean = 3.86, SD = 0.98). This indicates how the profession's skill set is

changing and the importance of technical knowledge alongside traditional accounting skills.

Overall, participants rated their level of agreement with the proposition that accountants need a blend of technical expertise, reasoned thinking and ethical decision making to respond to AI integration (mean = 3.87, SD = 0.59) as high. By taking this holistic perspective, we can ensure that while AI is automating repeatable tasks, accountants have the necessary expertise to manage the reengineering of those processes with AI insights, and create value based on AI outputs as applicable to higher-value and nuanced tasks, while still serving the industry's need of keeping financial statements clear and meaningful.

Table 5 below displays the *H1* multiple regression results. The results showed that 79.4% enhancing the quality of financial reports in industrial firms in Jordan is explained by AI ($R^2 = 0.794$).

Table 5. Means and standard deviations of accountants' skills items, ranked in descending order

Rank	No.	Item	Mean	SD	Degree of agreement
1	8	Accountants need continuous training to keep up with AI advancements in financial reporting.	4.00	0.88	High
2	10	Human judgment remains irreplaceable in evaluating AI-driven financial reports.	3.98	0.90	High
3	5	AI requires accountants to improve their understanding of machine learning and automation.	3.88	0.94	High
4	1	Accountants' analytical skills are essential for interpreting AI-generated financial reports.	3.87	0.82	High
5	2	AI implementation requires accountants to enhance their technical proficiency.	3.86	0.98	High
6	6	Accountants play a crucial role in interpreting AI-generated financial predictions.	3.85	0.90	High
6	9	Accountants' expertise in financial regulations is necessary for AI-driven reporting compliance.	3.83	0.95	High
8	3	Accountants' decision-making abilities influence the effectiveness of AI in financial reporting.	3.82	0.84	High
9	7	Accountants' ethical judgment remains vital despite AI's influence in financial reporting.	3.81	0.95	High
10	4	Accountants must possess critical thinking skills to validate AI-generated insights.	3.79	0.95	High
Accountants' skills			3.87	0.59	High

Table 6 below shows the regression analysis results indicate a strong relationship between machine learning, expert systems, and the IoT in enhancing the quality of financial reports in Jordanian industrial companies. The model demonstrates a high explanatory power, with R^2 equal to 0.794, suggesting that 79.4% of the difference in financial reporting quality linked to the independent variables. The overall model is statistically significant (F-statistic (F) = 495.369, $p = 0.000$), confirming that one of the predictors

plays significantly influences financial report quality. Among the independent variables, IoT has the strongest impact ($\beta = 0.622$, $p = 0.000$, Beta = 0.687), indicating that its integration significantly enhances financial reporting accuracy and efficiency through real-time data collection and automation. Machine learning demonstrates a positive and significant effect ($\beta = 0.220$, $p = 0.000$, Beta = 0.233), highlighting its role in data-driven decision-making and error detection. However, expert systems exhibit an insignificant impact

($\beta = 0.072$, $p = 0.060$, Beta = 0.064), suggesting that their contribution to financial report quality may be limited or not fully leveraged within these companies. These findings emphasize the need for increased adoption of IoT and machine learning technologies in financial reporting processes while reconsidering the role and effectiveness of expert systems in this context. Future research could explore potential barriers to the successful

implementation of expert systems and examine additional factors that may mediate their impact on financial reporting quality. Thus, *H1a* was rejected.

To verify this hypothesis, simple regression test results showed that about 44.2% of the enhancing quality of financial reports in industrial firms in Jordan is explained by artificial machine learning (coefficient of determination $R^2 = 0.442$).

Table 6. Multiple regression analysis results for the effect of AI (machine learning, expert systems, IoT) in enhancing the quality of financial reports in industrial companies in Jordan

Model		Unstandardized coefficients		Standardized coefficients	t	Sig.
		β	Std. error	Beta		
1	Constant	0.282	0.111		2.532	0.012
	Machine learning	0.220	0.028	0.233	7.920	0.000
	Expert systems	0.072	0.038	0.064	1.883	0.060
	IoT	0.622	0.031	0.687	19.933	0.000

Note: $R = 0.891$; $R^2 = 0.794$; $F = 495.369$; $p = 0.000$.

Table 7 below shows the regression analysis that examines the effect of machine learning on enhancing the quality of financial reports in industrial firms in Jordan. The model demonstrates moderate explanatory power, with $R^2 = 0.442$, indicating that 44.2% of the variance in financial reporting quality can be explained by machine learning. The overall model is statistically significant ($F = 307.745$, $p = 0.000$), confirming that machine learning has a meaningful effect on financial report quality.

The regression coefficient for machine learning ($\beta = 0.629$, $p = 0.000$, Beta = 0.665) suggests a strong and significant positive impact, meaning that as the use of machine learning increases, the credibility of financial reports get improved. The standardized coefficient (Beta = 0.665) indicates that machine learning has a substantial influence on financial reporting quality.

Additionally, the constant term ($\beta = 1.321$, $p = 0.000$) is significant, implying that other factors not included in the model may also contribute to financial report quality. These findings highlight the importance of adopting machine learning in financial reporting processes, as it enhances accuracy, reduces errors, and improves decision-making. Future research could explore additional aspects that affect financial reporting quality and examine the integration of other emerging technologies alongside machine learning. Thus, *H1b* was rejected.

Simple regression test results were used to verify this hypothesis, and they revealed that artificial expert systems account for roughly 46.7% of the enhancement in the quality of financial reports in Jordanian industrial enterprises as shown by this result ($R^2 = 0.467$).

Table 7. Simple regression analysis results for the effect of artificial machine learning in enhancing the quality of financial reports in industrial firms in Jordan

Model		Unstandardized coefficients		Standardized coefficients	t	Sig.
		β	Std. error	Beta		
1	Constant	1.321	0.148		8.901	0.000
	Machine learning	0.629	0.036	0.665	17.543	0.000

Note: $R = 0.665$; $R^2 = 0.442$; $F = 307.745$; $p = 0.000$.

Table 8 below shows the regression analysis that presents the relationship between the use of artificial expert systems and the quality of financial reports in industrial firms in Jordan. The model shows a moderate positive correlation ($R = 0.683$), indicating that as the usage of expert systems increases, the quality of financial reports tends to improve. The coefficient of determination ($R^2 = 0.467$) suggests that 46.7% of the variation in financial report quality can be explained by the use of expert systems, highlighting a moderate explanatory power of the model. The F-statistic ($F = 339.357$) is significant, with a p-value of 0.000, confirming that the statistical significance of the overall regression model and the independent factor (expert systems) have a meaningful contribution to explaining the variation in the dependent factor (financial report quality).

In terms of the coefficients, the constant value ($\beta = 0.821$) indicates that when the use of expert systems is absent (zero), the expected quality of

financial reports is 0.821. The coefficient for expert systems ($\beta = 0.762$) suggests that for every unit increase in the usage of expert systems, the credibility of financial reports improves by 0.762 units. The standardized Beta coefficient (Beta = 0.683) further confirms the strength of this positive relationship, with a relatively strong impact of expert systems on financial report quality. Both the t-statistics for the constant ($t = 4.882$) and expert systems ($t = 18.422$) are significant, and their respective p-values (both 0.000) indicate that both coefficients are statistically significant. Overall, the results demonstrate that the use of artificial expert systems significantly enhances the quality of financial reports in the studied industrial firms. Thus, *H1c* was rejected.

To verify this hypothesis, simple regression test results showed that about 75.1% of the enhancing the quality of financial reports in industrial firms in Jordan is explained by artificial IoT (coefficient of determination $R^2 = 0.751$).

Table 8. Simple regression analysis results for the effect of artificial expert systems in improving the quality of financial reports in industrial firms in Jordan

Model		Unstandardized coefficients		Standardized coefficients	t	Sig.
		β	Std. error	Beta		
1	Constant	0.821	0.168		4.882	0.000
	Expert systems	0.762	0.041	0.683	18.422	0.000

Note: $R = 0.683$; $R^2 = 0.467$; $F = 339.357$; $p = 0.000$.

Table 9 below shows the regression analysis that examines the effect of the IoT on enhancing the quality of financial reports in industrial sectors in Jordan. The model demonstrates a strong positive correlation ($R = 0.867$), indicating that increased IoT usage is associated with improved financial report quality. The coefficient $R^2 = 0.751$ suggests about 75.1% of the variability in financial report quality can be clarified by IoT usage, highlighting a substantial explanatory power of the model. The F-statistic ($F = 1170.863$) is highly significant, with a p-value of 0.000, verifying the statistical significance of the overall regression model and the determinant factor IoT usage meaningfully contribute to explaining the variation in financial report quality.

Regarding the coefficients, the constant value ($\beta = 0.835$) indicates that when IoT usage is absent (zero), the expected quality of financial reports

is 0.835. The IoT ($\beta = 0.785$) suggests that for every unit increase in IoT usage, the quality of financial reports improves by 0.785 units, with other factors remain constant. The standardized Beta coefficient (Beta = 0.867) further verifies the strength of this positive relationship, with a relatively strong impact of IoT on financial report quality. Both the t-statistics for the constant ($t = 9.211$) and IoT ($t = 34.218$) are significant, and their respective p-values (both 0.000) indicate that both coefficients are statistically significant.

Overall, the results demonstrate that IoT usage significantly enhances the quality of financial reports in the studied industrial firms. These results align with previous research indicating a positive relationship between IoT and financial reporting quality. Thus, $H1c$ was rejected.

Table 9. Results of simple regression analysis for the effect of IoT on enhancing the quality of financial reports in industrial companies in Jordan

Model		Unstandardized coefficients		Standardized coefficients	t	Sig.
		β	Std. error	Beta		
1	Constant	0.835	0.091		9.211	0.000
	IoT	0.785	0.023	0.867	34.218	0.000

Note: $R = 0.867$; $R^2 = 0.751$; $F = 1170.863$; $p = 0.000$.

In order to confirm both the direct and indirect effects of *accountants' skills* as a mediator variable in the relationship between *AI* as an independent determinant and improving the *quality of financial reports* as a dependent determinant, path analysis was employed through the program (Amos ver. 26) with the SPSS program in order to test this hypothesis. This was done in accordance with the model of Baron and Kenny (1986). This is made possible by the following circumstances:

- 1) verify that the mediating variable is influenced by the independent variable;
- 2) analyze the association among the determinant factors;
- 3) verifying that, when the independent variable is present, the mediating variable influences the dependent variable, as shown in Figure 1.

Table 10 below presents the results of path analysis, confirming the direct and indirect effects between variables.

This research used a path analysis model to investigate the effect of AI on the quality of financial reports, with accountants' skills as the moderating variable. It aimed to identify, firstly, the direct relationship between AI and financial reporting quality, and secondly, the indirect relationship between the two, mediated by the improvement of accountants' abilities.

The analysis indicated a strong and statistically significant direct association between AI and the qualifications of accountants, with a standardized path coefficient of 0.922 ($p < 0.001$). This finding suggests that the use of AI applications significantly enhanced accountants' performance. These improved skills can involve processing data more efficiently, enhanced analytical skills, and enhanced

decision-making, crucial competencies in our current tech-intensive financial ecosystem.

In addition, the quality of financial reports was substantially affected by accountants' skills, with a standardized coefficient of 0.407 ($p < 0.001$). This indicates the importance of well-established accounting competencies in the context of signaling for the accuracy, reliability, and overall quality of financial reporting.

AI also had a direct positive effect on financial report quality (coefficient = 0.603, $p < 0.001$). This clear effect implies that AI plays a useful firm role not only from its indirect contribution to the quality of financial reporting via improving accountants' capabilities but also has a stand-alone positive effect on the reporting quality through leveraging data analytics, minimizing human errors, and increasing the efficiency of the process.

Further mediation analysis subsequently indicated an indirect effect of AI on financial reporting quality through accountants' skills, which was subsequently quantified at 0.376. This means that part of the AI effect on financial report quality is mediated through enhanced accountants' skill, which suggests the existence of partial mediation. In other words, although AI has a powerful direct effect, its potential to enhance professional skills tremendously boosts its total effect on financial reports.

The robustness of the model is supported by the squared multiple correlations, with R^2 values of 0.713 for accountants' skills and 0.786 for financial reporting quality. These high R^2 values imply that AI explains 71.3% of the variance in accountants' skills and that together, AI and accountants' skills account for 78.6% of the variance

concerning financial reporting quality. Such findings highlight the model's strong explanatory power and the critical role of both direct and mediated pathways.

In conclusion, the findings of this study provide compelling evidence that AI plays a pivotal role in enhancing the quality of financial reports. It does so not only through a direct positive impact but also indirectly by significantly improving

accountants' skills. These insights emphasize the importance of integrating AI technologies into accounting practices to promote skill development and ultimately elevate the standard of financial reporting.

This also indicates the presence of a partial effect of accountants' skills as a mediating variable. Thus, *H2* was rejected:

Figure 1. Direct, indirect, and the effect of accountants'

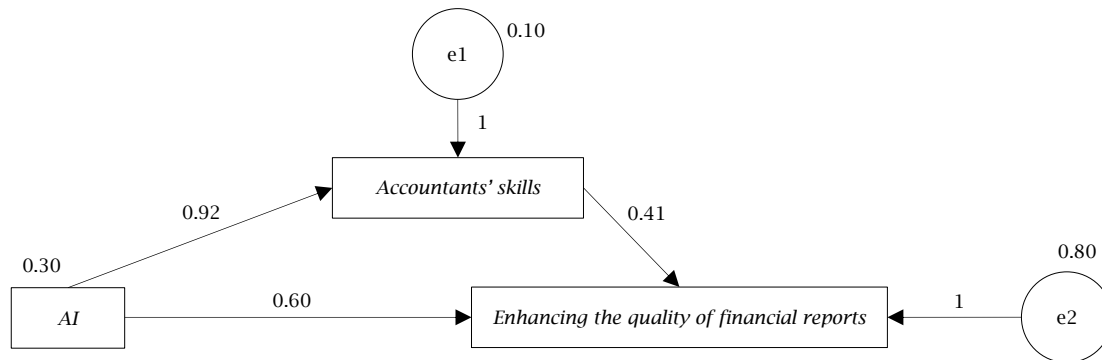


Table 10. Path analysis results to examine the direct and indirect effects of accountants'

Variables	Estimate	S.E.	C.R.	p
Accountants' skills ← AI	0.922	0.030	31.088	< 0.001
Enhancing the quality of financial reports ← Accountants' skills	0.407	0.046	8.929	< 0.001
Enhancing the quality of financial reports ← AI	0.603	0.050	12.113	< 0.001

Table 11. Results of path analysis to verify the direct and indirect effects of accountants'

Variables	Direct effects		Indirect effects	
	AI	Accountants' skills	AI	Accountants' skills
Accountants' skills	0.922	0.000	0.000	0.000
Enhancing the quality of financial reports	0.603	0.407	0.376	0.000

Table 12. Squared multiple correlations

Variables	R ²
Accountants' skills	0.713
Enhancing the quality of financial reports	0.786

The study findings indicate that AI significantly enhances the quality of financial reports in Jordanian industrial companies. Descriptive analysis revealed a high level of agreement among respondents regarding AI's positive role, particularly in improving risk assessment, anomaly detection, real-time reporting, and regulatory compliance. Among AI domains, the IoT had the highest impact, the next is machine learning, while expert systems showed a weaker effect. Regression analysis confirmed that AI explains 79.4% of the variation in financial reporting quality, with IoT demonstrating the greatest impact ($\beta = 0.687$, $p < 0.001$), followed by machine learning ($\beta = 0.233$, $p < 0.001$), while expert systems had an insignificant effect ($\beta = 0.064$, $p = 0.060$). Additionally, path analysis revealed that accountants' skills serve as a partial mediator, with AI directly enhancing financial reporting quality ($\beta = 0.603$, $p < 0.001$) while also indirectly contributing through improved accountant competencies ($\beta = 0.376$). The squared multiple correlations indicated that 71.3% of the variance in accountants' skills is explained by AI, while 78.6% of financial reporting quality improvements can be attributed to AI and accountants' skills combined.

5. CONCLUSION

In the modern era, several studies have been carried out to examine the role of AI and its effect on the quality of financial reports. This study applies AI as an independent variable, the quality of financial reports as a dependent variable, and accountants' skills as a mediator variable to verify the direct and indirect effect in the relationship between AI as an independent variable with a dependent variable. The findings of previous studies varied partially with their diversity and variation, due to inconsistencies in sample sizes and target sectors between papers. This study's findings suggest that greater AI adoption — particularly IoT and machine learning — can significantly improve financial report quality, while the role of expert systems may require further optimization. Moreover, accountants' skills are crucial in maximizing AI's benefits, reinforcing the need for continuous training and technical proficiency. While AI independently improves financial reporting, its effectiveness is strengthened when accountants have the expertise to interpret, oversee, and apply AI-driven insights. Therefore, Jordanian industrial companies should invest in AI technologies, develop accounting training programs, and integrate AI-driven tools into financial reporting processes. Future research should explore additional factors affecting AI adoption, including regulatory challenges, organizational readiness, and emerging AI advancements. Ultimately, the study highlights

AI's dual impact — directly improving financial report quality and indirectly strengthening it through the enhancement of accountants' skills, which confirms the rejection of H2.

The literature review consistently highlights the strategic and active role that AI helps enhance the quality of financial reports, addressing the core challenges facing the accounting profession. According to the study's findings, it is encouraged to strengthen the adoption of AI systems and regulatory technologies within business units, as they are fundamental to improving the effectiveness of accounting operations.

Furthermore, the study recommends that industrial firms allocate their resources toward integration with modern information technologies, as such advancement significantly contributes to the sustainability and quality of financial reporting. Moreover, it is crucial to enhance the skills of human resources by increasing training programs and educational curricula that align with the evolving demands of AI technologies. This proactive approach assures that workers are well-prepared to access the necessities of the digital age.

Managers should be aware of the tangible benefits that AI can bring to financial reporting, including the efficient dissemination of financial information, cost reduction, improved transparency,

minimization of fraud and errors through advanced software, and enhanced data security against cyber threats. The study also highlights the importance of continuous training for accountants to fully leverage the capabilities of AI.

Therefore, it is recommended that Jordanian industrial companies should invest in AI-powered financial systems and prioritize the development of accountants' technical skills to keep pace with technological transformation.

This study is influenced by several limitations that may have affected the generalizability of its findings. One primary limitation was related to data collection, as the sample size may not sufficiently represent the diversity of the large industrial sector in Jordan. Additionally, the study highlighted on specific phases of AI implementation, potentially overlooking other variables that may affect the financial reporting quality. Moreover, the research was limited to the Jordanian industrial sector and did not include other sectors or the international contexts. As such, the study calls for future research to expand the geographical and sectoral coverage. Upcoming studies should investigate the application of AI in financial reporting across various industries and countries to ensure a more comprehensive and holistic understanding of this rapidly evolving field.

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