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Employing Artificial Intelligence Techniques in Building the Accuracy and Speed of Financial and Accounting Reports an Applied Study

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Abstract: The research aimed to identify the role of artificial intelligence techniques in achieving the accuracy and speed of financial and accounting reports among a sample of employees in Zain Telecom, and the research problem crystallised in an important question regarding the possibility of employing artificial intelligence techniques in enhancing the accuracy and speed of financial and accounting reports. Based on this, two hypotheses were formulated to measure the nature and type of relationship. The research adopted a descriptive analytical approach in applying its variables and relied on a questionnaire to collect the necessary data from the target sample. Accordingly, (200) questionnaires were distributed, of which (188) were retrieved, (21) were damaged, and (167) were valid for analysis. To analyse the results, statistical packages (SPSS&AMOS, V.28) were adopted to analyse the results and test the hypotheses. The research found that the use of artificial intelligence techniques contributes to enhancing the accuracy and speed of financial and accounting reports, and in light of the results, several recommendations were made, most notably the need to pay attention to artificial intelligence techniques and their role in enhancing the accuracy and speed of financial reports.

Key words: Artificial Intelligence (AI), Financial and Accounting Reports, Zain Communications Company.

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INTRODUCTION

The development in business intelligence and the use of computers to increase interest in the use of advanced technologies in the preparation and construction of the accuracy and speed of financial and accounting reports aims to overcome human deficiencies in performing their duties. This reflects the improvement in the efficiency and effectiveness of financial and accounting

reports. The methods for preparing and building accurate and speedy new financial and accounting reports create the concept of risk, which includes the development and enhancement of strategies. With regard to the ability of the economic unit to achieve its goals, this requires auditors to adopt advanced technology to identify the factors that hinder the unit from achieving its objectives, and to contribute to building institutions, serving employees, and competing in the business market. Information technology helps in decision-making and improving productivity for the organisation, as modern technologies of AI represent one of the most significant means used in businesses to provide their services and produce goods in data processing and economic events. The adoption of automated information has impacted financial and accounting systems and internal control indicators in business establishments, This required the adoption of AI technologies to improve the accuracy and speed of financial and accounting reports..

From this standpoint, the current research came to highlight the importance of employing AI techniques in the scope of financial and accounting reports as a key step towards achieving efficiency and effectiveness in performance, as well as improving the accuracy and speed of completion of financial and accounting reports, as institutions can enhance their competitiveness by meeting unclear market requirements, so companies are called upon to invest in these technologies in order to ensure their continuity and success in the future.

PART ONE: RESEARCH METHODOLOGY

First: Research Problem

Modern technologies represent an important basis in the development of the fields of financial and accounting reporting, as AI is an important basis in the business world, especially with regard to rapid changes and its investment in analysing the increasing complexity in the environment, and therefore it has become necessary to adopt AI techniques in order to adopt creative and innovative solutions to improve the accuracy and speed of accounting and financial reporting. Furthermore, financial companies usually face continuous challenges that overflow and affect their internal environment, particularly concerning the provision of accurate information about their future goals in a timely manner, which requires the employment of AI techniques to enhance the accuracy and speed of financial and accounting reporting, as it represents a challenge and a major shift in how to process data and provide appropriate solutions using machine learning algorithms. These advancements not only streamline operations but also enable organizations to make more informed decisions based on real-time insights. As a result, companies can better navigate the complexities of the financial landscape and improve their overall performance. Through these algorithms, companies can reduce wasted time and resources that limit the enhancement of the accuracy of financial reports. Moreover, AI aids in detecting patterns and trends that can support strategic decision-making and improve companies' performance and effectiveness, **Hence, the research problem can be formulated in a fundamental questi**on: "What is the possibility through which AI techniques can be employed in building the accuracy and speed of financial and accounting reports?", and from this request numerous sub-questions branch:

1. What are the appropriate AI techniques through which the performance of telecommunications companies can be improved and employees better served?.
2. What are the appropriate mechanisms through which the accuracy and speed of financial and accounting reports of the surveyed companies can be improved?.
3. What is the importance of investing in AI techniques among the target sample?, and can they add a personal and institutional character to the sample?.
4. What is the nature and type of relationship between AI techniques and the accuracy and speed of financial and accounting reports?

Second: Importance of Research

The importance of research was launched due to the urgent need of decision-makers to obtain information easily and circulate it freely; in addition, it must be credible and accurate, and one of the most important sources that are obtained for this information for the purpose of decision-making is financial reports. Because AI is one of the most significant products of the Fourth Industrial Revolution due to its versatility in military, economic, industrial, technical, educational, service, and medical applications, there is a drive to employ methods that improve the speed and accuracy of financial and accounting reports. These methods are exemplified by AI techniques, which are predicted to lead to more industrial revolutions that drastically alter human life. Nonetheless, the use of AI in the accounting industry will undoubtedly impact conventional practices and spur innovation.

Third: Objective of Research

The objective of research is to measure impact of AI in building the accuracy and speed of financial and accounting reports. There are other sub-objectives related to the main goal, which are:

1. Identify appropriate AI techniques through which the performance of telecommunications companies can be improved and employees better served.
2. Identify the appropriate mechanisms through which the accuracy and speed of financial and accounting reports of the surveyed companies can be improved.
3. Demonstrating the importance of investing in AI techniques among the target sample, and identifying the importance of personalising and institutionalising the sample.
4. Identify the nature and type of relationship between AI techniques and the accuracy and speed of financial and accounting reports.

Fourth: Research Hypothetical Outline

Recognizing the research problem and highlighting importance that it can add to the sample, and determining the goals through which appropriate solutions can be developed to address the problem at hand, this matter by its nature requires the construction of a hypothetical scheme that puts the nature and type of relationship between these variables, and Figure (1) shows the hypothetical scheme of the research, as follows:

Independent variable: represented in **artificial intelligence techniques**, which were measured through five dimensions "machine learning, deep learning, neural network, expert systems, and the Internet of Things" .

Dependent variable: It ensures the **accuracy and speed of financial and accounting (**ASFAR**) reports**, and was measured as a one-dimensional variable.

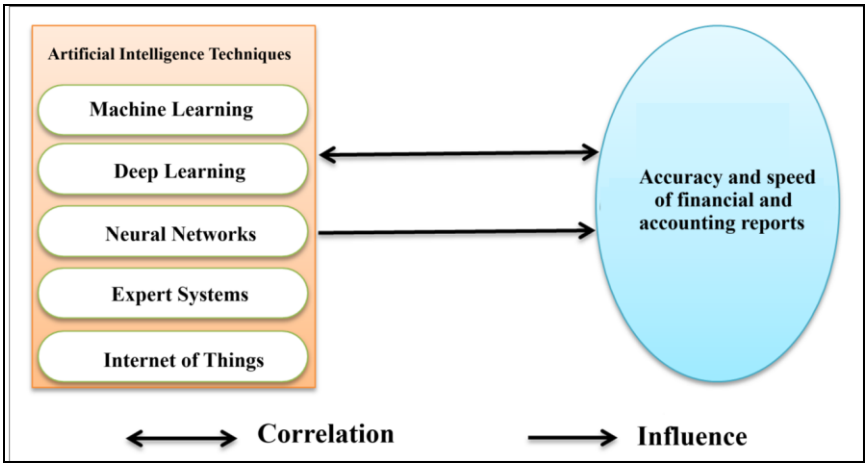


Figure (1) Research hypothesis scheme

Fifth: Research Hypotheses

H1: There is a significant correlation between AI technologies and the ASFAR reports, which branches out as follows:

1. There is a significant correlation between the machine learning dimension and the ASFAR reports.

2. There is a significant correlation between the deep learning dimension and the ASFAR reports.

3. There is a significant correlation between the neural network dimension and the ASFAR reports.

4. There is a significant correlation between the expert systems dimension and the ASFAR reports.

5. There is a significant correlation between the Internet of Things dimension and the ASFAR reports.

H2: Artificial Intelligence (AI) technologies have a significant impact on the ASFAR reports. This hypothesis is divided into the following:

1. Machine learning has a significant impact on the ASFAR reports.

2. Deep learning has a significant impact on the ASFAR reports.

3. Neural networks have a significant impact on the ASFAR reports.

4. Expert systems have a significant impact on the ASFAR reports.

5. The Internet of Things has a significant impact on the ASFAR reports.

Sixth: Research Methodology

In order to arrive at an accurate and comprehensive scientific description of the phenomenon or problem, as well as based on the facts related to it, the research relies on the descriptive analytical approach, which is based on interpreting the current situation of the phenomenon or problem by identifying its conditions and dimensions and describing the relationships between them. The research methodology includes deciding on the research community's framework, the research sample, the type and sources of data collection, the design of the questionnaire list and measurement methods, the evaluation of the scale used, and finally the identification of statistical analysis methods.

Seventh: Research Sample

The research community was represented in Zain Telecom, while the research sample included employees of Zain Telecom, and relied on the survey form to collect the necessary data from the target sample, and accordingly (200) questionnaires were distributed, with (188) questionnaires retrieved, (21) questionnaires damaged, and (167) questionnaires valid for analysis.

PART TWO: RESEARCH THEORETICAL FRAMEWORK

First: The Concept of Artificial Intelligence (AI).

Applications that carry out intricate tasks that previously required human input, like online customer service, are now collectively referred to as (AI). Machine learning and deep learning are two subfields of the term that are frequently used interchangeably (Mellit & Kalogirou, 2008:575). AI is used by developers to solve issues, communicate with clients, find patterns, and complete manual tasks more quickly. Developers need to be familiar with algorithms and have a mathematical background in order to begin utilizing AI (Strohmeier & Piazza, 2015:152).

AI has been defined as the ability of a machine to perform cognitive functions of perception, learning, interaction and reasoning (Rahmanifard & Plaksina, 2019:3). defined it (Ghaffar et al., 2023:3) as an attempt until a machine is able to think like a human by developing complex systems. noted that it is (Omitaomu, 2021:549) a subfield of computer science that involves the creation of intelligent devices and programmes that work and interact like humans. It is the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent objects. AI is the ability of the device to perform activities that can only be expected from the human brain (Choubey & Karmakar, 2021:3666), and it aims to create a smart machine that can interact in the same ways as humans, and therefore AI is seen as a simulation of the human brain (Vasant, 2014:3). AI is the term used to describe machines or systems that can mimic human intelligence in order to carry out tasks and have the capacity to develop themselves in response to data they gather. These systems are able to comprehend human language, learn, plan, and solve problems (Ahmed et al.,2021:5).

Second: The Importance of Artificial Intelligence

AI technology improves the performance and productivity of organisations by automating processes or tasks that once required manpower (Dilek et al., 2015:2). AI can also understand data at a scale that no human can achieve, and this ability can bring significant benefits to businesses (Agwu et al., 2018:301). AI is a branch of computer science that seeks to create intelligent systems with the same traits that characterize intelligent behavior in humans. It operates on the premise of simulating formations that allow for the qualitative description of objects, events, and processes (Choubey & Karmakar, 2021:3666).

Third: Artificial Intelligence Techniques

1- Machine Learning: Since machine learning is so prevalent, it is sometimes mistaken for AI (Weber, 2020:49). It focuses on enhancing data-driven knowledge; eventually, it's about how well the expedient can solve tasks over time, especially with the help of exercise statistics and procedures. It should be mentioned how machine learning operates, which is that if a program or device has previously gained experience in the form of pertinent data, it can learn to perform specific tasks. As a result, the machine gains experience—that is, it learns—with this data and every task it completes (Shi et al., 2020:6).

2- Deep Learning: An advanced type of machine learning, deep learning is a means of producing AI. In contrast to machine learning, human intervention is no longer necessary in this case; the machine makes decisions and executes predictions on its own while receiving information and data solely for learning. A more sophisticated procedure that can manage infrastructures and function in multifaceted systems is called deep learning. Artificial neural networks and vast volumes of data are essential to deep learning (Shi et al., 2020:6).

3- Neural Networks: that a neural network is a device as well as a software system that follows the structure of the human brain (Barja-Martinez et al.,2021:3), the neural network is the "masterpiece of AI" In addition, a neural network usually has a large number of processors that do their job in parallel and are also arranged in a large number of layers The different layers in turn are divided into an input layer and sublayers, called hidden layers The first layer, which also resembles the human optic nerve, has data Primary at their disposal, the next layers have the output of the previous layer and therefore the end result is that the AI undergoes a learning process from one layer to another and the results of the AI system can then be seen based on the output layer (Weber,2020:49).

4- Expert Systems: It is an AI programme adopted in the eighties and reaches a degree of expertise so that it is able to replace human specialisation in a specific area of decision-making (Barja-Martinez et al., 2021:3), and the structure of expert systems consists of the knowledge base, inference engine, interpretation facility, user interface (Raghavendra et al., 2020:44).

5- Internet of Things: The Internet of Things (IoT) is a concept that refers to a network of consistent devices that can interconnect with all other ended the Internet (Mouha,2021:78). This concept encompasses a variety of devices, such as smartphones, home appliances, vehicles, industrial equipment, and others (Ammar et al., 2022:1543). The goal of the Internet of Things is to improve efficiency, facilitate everyday life, and enhance the ability to make data-driven decisions (Ullah et al., 2024:1608).

Fourth: Financial and Accounting Reports

Financial reports are important documents that provide accurate and detailed information about the financial situation of a particular company or institution over a specified period of time (Kogan et al., 2009:273). The report, which is prepared at the end of the year or financial period, contains both financial and non-financial information so that the relevant parties can make informed decisions regarding the institution's status (Cascino et al., 2014:188). In addition to other company-related information that the organization publishes in the Chamber of Industry and Commerce and the stock market to help investors learn about the company and its operations, the annual financial report of the organization includes its final accounts, comparative balance sheet, cash flow statement, and other attached schedules (La et al., 2020:702).

Accounting reports are documents showing the financial and financial performance of a company or organisation over a certain period of time (Hanifah et al., 2020:3). These reports aim to provide accurate and comprehensive information to investors, shareholders, directors, government agencies and other users on the company's financial position and economic performance (Imene&Imhanzenobe,2020:49).

Fifth: The Importance of Financial and Accounting Reports

Financial statements that demonstration a business's financial health over a assumed time old-fashioned are disclosed in financial reports using financial statements. Information is essential for management to make decisions regarding the company's future and informs capital providers, including creditors and investors, about the company's financial stability and profitability (Kogan et al., 2009:273). These financial reports help management continue past successes and know future business outlook. In simple terms, the process of issuing data that reveals the financial status of a company, management, investor and government is known as financial reporting (Jasim & Raewf, 2020:53). The primary function of accounting is to prepare the organization's financial data, which is then condensed into accounting reports that are intended to satisfy the demands of decision-makers, both inside and outside the company (Christensen et al, 2021:1176).

PART THREE: PRACTICAL ASPECT

First: Coding Research Variables and Measuring the Stability of the Measurement Tool

Table (1) shows that the answers extracted from the sample on the dimensions of the research variables have relative stability, which reflects the consistency and credibility of the questionnaire tool in representing the surveyed population. It also shows that the variable of AI techniques achieved a level of stability of (0.886), while the ASFAR reports reached a level of stability of (0.925), which indicates high stability in the answers of the research sample.

Table (1): Stability of the Research Tool

Variables	Dimensions	NO.	Code		Cronbach alpha		Source
Artificial Intelligence Techniques	Machine Learning	6	ATML	AIT	0.902	0.886	Ali,2023
	Deep Learning	6	ALDL		0.915		
	Neural Networks	6	ALNN		0.896		
	Expert Systems	6	ALES		0.907		
	Internet of Things	6	ALIT		0.912		

Accuracy and speed of financial and accounting reports	One-dimensional	9	ASFAR	0.925	Cascino et al.,2014

Second: Testing the Normality of the Research Distribution

Given that the moral level is greater than 0.05, the data taken from the research sample follow the normal distribution, according to Table (2). The null hypothesis is accepted and the alternative hypothesis is rejected as a result of this confirmation that the data follows a normal distribution.

Table (2): Results of the Normal Distribution Test

Standard	**Variables**						
	ATML	**ALDL**	**ALNN**	**ALES**	**ALIT**	**AIT**	**ASFAR**
Mean	3.52	3.64	3.58	3.48	3.64	**3.57**	**3.44**
Std. Deviation	0.94	0.92	0.91	0.93	0.96	**0.77**	**0.95**
Test Statistic	0.114	0.126	0.123	0.197	0.168	**0.096**	**0.157**
Sig.	0.200[c]						

Third: Description and Analysis of the Research Variables

The results of Table (3) showed that the staffs of the telecommunications company show great interest in AI techniques, as their average interest was 3.57 on the Likert scale, and a standard deviation of 0.77, which indicates a decrease in the variation between the opinions of employees towards the services provided by the company, and perhaps the deep learning dimension ALDL is the one that contributed to improving the technologies pursued by the company, as this dimension contributed to achieving an active role in the company by achieving the highest mean of (3.64), with a standard deviation of (0.92), while after the expert systems ALES came in last place, and this greatly affected the company's AI technologies, as it achieved an mean of (3.48) and a standard deviation of (0.93), and this indicates that there is a need to improve this dimension to enhance the use of AI techniques in the company.

On the other hand, the results showed that the general mean of the variable of ASFAR reports amounted to (3.44) and a standard deviation equal to (0.95), and this shows that employees have an interest in the ASFAR reports and their completion by focusing on international standards in improving the capabilities of the company, and perhaps the sixth paragraph ASFAR6 represents the main reason that contributed to improving this variable because of its great role in achieving the highest mean of (3.74). With a standard deviation equal to (1.32), while the first paragraph came in last place, and this discouraged the mechanisms, accuracy and speed of achievement in the company, which achieved an mean of (3.16) and a standard deviation of (1.46).

Table (3): Description and Analysis of the Research Variables

NO.	**Mean**	**S.D**	**NO.**	**Mean**	**S.D**	**NO.**	**Mean**	**S.D**
ATML1	3.64	1.14	**ALNN3**	3.29	1.26	**ALIT5**	3.70	1.18
ATML2	3.46	1.24	**ALNN4**	3.81	1.07	**ALIT6**	3.69	1.18
ATML3	3.43	1.21	**ALNN5**	3.74	1.16	**ALIT**	**3.64**	**0.96**
ATML4	3.51	1.23	**ALNN6**	3.79	1.11	**AIT**	3.57	0.77
ATML5	3.63	1.22	**ALNN**	**3.58**	**0.91**	**ASFAR1**	3.16	1.46
ATML6	3.44	1.24	**ALES1**	3.28	1.27	**ASFAR2**	3.22	1.54
ATML	**3.52**	**0.94**	**ALES2**	3.34	1.28	**ASFAR3**	3.40	1.41
ALDL1	3.68	1.08	**ALES3**	3.22	1.16	**ASFAR4**	3.34	1.50
ALDL2	3.55	1.23	**ALES4**	3.60	1.15	**ASFAR5**	3.41	1.56
ALDL3	3.57	1.13	**ALES5**	3.59	1.27	**ASFAR6**	3.74	1.32
ALDL4	3.61	1.19	**ALES6**	3.84	1.04	**ASFAR7**	3.60	1.28
ALDL5	3.74	1.09	**ALES**	**3.48**	**0.93**	**ASFAR8**	3.52	1.36

ALDL6	3.66	1.12	**ALIT1**	3.55	1.19	**ASFAR9**	3.62	1.36
ALDL	**3.64**	**0.92**	**ALIT2**	3.66	1.19	**ASFAR**	3.44	0.95
ALNN1	3.44	1.24	**ALIT3**	3.56	1.13			
ALNN2	3.41	1.31	**ALIT4**	3.66	1.20			

Fourth: Testing the Research Hypotheses

H1: There is a significant correlation between artificial intelligence techniques and the ASFAR reports.

Table (4) shows that there is a significant correlation between AI techniques and the ASFAR reports, which generated a strong amount of (0.572), which means that there is great interest by employees in the telecommunications company to apply AI techniques, which may reflect their awareness of the importance of these technologies in improving the quality and efficiency of financial and accounting reports, and this relationship can contribute to enhancing the financial and administrative performance of the company.

It is also clear that there is a sub-correlation for the dimensions of AI techniques towards the ASFAR reports, which generated a correlation strength of (0.388) between the Internet of Things (Alit) dimension and the speed of financial and accounting reporting ASFAR to (0.572) between the deep learning ALDL and the speed of financial and accounting reports ASFAR, hence it can be said that the hypothesis H1 is accepted.

Table (4): Correlation Matrix

	1	2	3	4	5	6	7
ATML (1)	---						
ALDL (2)	.704**	---					
ALNN (3)	.809**	.616**	---				
ALES (4)	.561**	.452**	.640**	---			
ALIT (5)	.564**	.306**	.740**	.729**	---		
AIT (6)	.876**	.738**	.916**	.816**	.807**	---	
ASFAR (7)	.436**	.572**	.460**	.521**	.388**	.572**	---
**. Correlation is significant at the 0.01 level (2-tailed).							

H2: There is a significant impact of artificial intelligence techniques on the ASFAR reports.

The results of Table (5) shown in Figure (2) indicate that increasing the interest of the employees of the company surveyed in AI techniques contributes to an improvement of (0.703) in the ASFAR reports, which encourages employees to engage in the service and reduce the standard error rate to (0.078), achieving a high comparative value; hence the H2 hypothesis can be accepted.

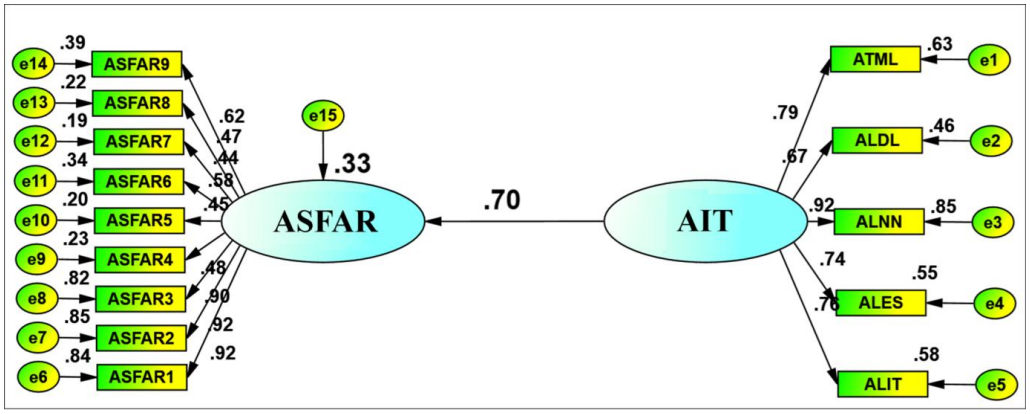


Figure (2) The Measuring Model for the Impact of AI Technologies on the Accuracy and Speed of Financial and Accounting Reports

The results of Table (5) showed that AI techniques in its dimensions contributed to the interpretation of (0.327) of the variation in the ASFAR reports, and this achieved a comparative score of (F) of (80.245).

Table (5) Outputs of the Measuring Model for the Impact of AI Technologies on the Accuracy and Speed of Financial and Accounting Reports

Path			Estimate	S.E	C.V-value	R^2	F	Sig.
AIT	**--->**	**ASFAR**	**0.703**	**0.078**	**9.013**	**0.327**	**80.245**	**0.001**

Part Four: Conclusions and Recommendations

First: Conclusions

1. The existence of a correlation and significant impact between AI techniques and the ASFAR reports, meaning understanding the potential benefits that can be achieved by integrating AI technologies into the company's financial and accounting operations.
2. The company is keen to employ smart technologies that are easy to apply and commensurate with the laws and financial regulations followed, which reduces administrative and accounting waste that can discourage the company's reputation.
3. The company is interested in employing AI in order to ensure efficiency in accounting and financial operations, leading to reducing waste and time spent in preparing financial and accounting reports.
4. The company focuses on using AI techniques to reduce human errors that can occur during data entry, analysis and interpretation, contributing to enhancing and supporting the accuracy of financial and accounting results.
5. The company is keen on the big data processor through the use of AI techniques, providing deeper insights that support its operations in making better financial and accounting decisions.
6. The company is keen to adopt AI technologies to ensure the reduction of human error when preparing financial and accounting reports. This, in turn, has contributed to enhancing the company's ability to increase the accuracy of its data by 33%.
7. The company is working to reduce the effort and time required to prepare financial and accounting reports by 70% in order to complete tasks and plans more effectively and efficiently.

Second: Recommendations

1. The need to focus the company's attention on the adoption of AI techniques and its role in building the accuracy and speed of financial reports, which requires an improvement in the company's ability to support its accounting and financial reports adopted in that.
2. The need for Al-Shakra to pay attention to making a periodic assessment of the effectiveness of the ability of employees to participate in developing the company's capabilities through the adoption of AI in supporting and improving the accuracy and speed of financial reports and adopting the best strategies to achieve this.
3. The need for the company's employees to focus on adopting security and safety standards in the use of AI techniques in order to ensure the protection of Zaban's data.
4. The company should focus on directing its capabilities to use AI to create alternative solutions and ideas to satisfy the needs and desires of customers in the target markets.

5. The company should follow mechanisms and plans to develop the skills of employees by adopting training courses on AI tools and techniques in order to enhance their participation in the company's decision-making.
6. The need for the surveyed company to encourage cooperation between modern technologies and accounting teams to ensure better integration of AI techniques in the accounting and financial
7. The need for the surveyed company to provide specialised training programmes for employees in the financial department to enhance their capabilities in dealing with AI techniques, which leads to raising the protection of sensitive financial and accounting data that is processed based on AI applications.

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