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The impact of artificial intelligence on financial oversight and auditing

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Abstract
Aim: Determine how artificial intelligence technologies can improve the accuracy and effectiveness of financial control and auditing processes, contributing to enhancing confidence in financial information and reporting. Identify the challenges that may face the application of artificial intelligence technologies in the areas of financial control and auditing, such as security, privacy, and cost. Study the differences in the performance of financial control and auditing using traditional techniques compared to smart technologies, and identify the benefits and drawbacks of each type.
Methodology: An exploratory research methodology is used to analyze the impacts of smart technology on financial oversight and auditing in Iraq. This includes reviewing literature and previous studies, conducting surveys with experts in the field, and analyzing available data. A representative sample of financial institutions and companies in Iraq, consisting of 100 employees, was selected, which are adopting or studying the use of smart technologies in financial control and auditing processes.
Findings: The results highlighted that the use of smart technologies enhances the accuracy of financial control and auditing, and has also shown remarkable effectiveness in increasing the speed of operations and enhancing flexibility to adapt to changes. However, challenges are demonstrated in analyzing big data and reducing human errors.

Keywords: Artificial Intelligence, financial oversight, financial auditing

Introduction
The development in business intelligence and the use of computers has led to increased interest in using modern technologies in various fields, as this leads to overcoming some human shortcomings when doing business, and this is reflected in improving the efficiency and effectiveness of business.
Information technology helps in making decisions and improving productivity in companies, and is considered one of the most important tools used in providing their services and producing their products. The use of data has affected the financial, accounting, and internal control systems in business organizations, which has led to the importance of introducing artificial intelligence techniques in implementing oversight tasks, as it helps in completing audit tasks in less time and at a lower cost.
This helps improve the efficiency and quality of audit results and supports that strategy. In addition, it reduces risks. Therefore, this study raises the issue of the impact of artificial intelligence on financial management and auditing (Hidayat, Defitri, & Hilman, 2024).

Study Importance
The importance of studying the impact of artificial intelligence on financial management and auditing is evident from several aspects.
1. Improving the accuracy and efficiency of supervision and auditing. AI can help companies improve their ability to detect fraud and financial errors more accurately and efficiently than traditional audits.
2. Improve efficiency and cost. The use of smart technology not only reduces the cost and effort required for monitoring and auditing operations, but also increases productivity and reduces the time spent on audit procedures.
3. New issues and consequences. Studying artificial intelligence in this context reveals

technical and ethical issues, its impact on the skills of accountants and auditors, and the degree of readiness to work with advanced technology.
4. Changes in international practices. As technology advances, international financial management and auditing practices are changing, and AI can help scale and integrate these developments across various financial industries.

Study Question

What is the impact of artificial intelligence on financial control and auditing in Iraq in 2024?

Study Objectives

1. Identify how artificial intelligence technologies can improve the accuracy and efficiency of financial management and audit processes and increase confidence in financial information and reporting.
2. Identify the challenges that the application of artificial intelligence technologies may face in the field of financial management and auditing, such as security, privacy, and cost.
3. Discuss the differences in the effectiveness of financial management and auditing using traditional methods versus smart technologies and identify the advantages and disadvantages of each type.
4. Providing practical recommendations on the use of smart technologies to improve financial management and auditing processes, and focusing on appropriate policies and procedures to ensure the safe and effective use of these technologies.

Study limits

- Time limits: This study focuses on the current situation in Iraq in 2024 and focuses on recent developments in artificial intelligence technology and its applications in the field of financial management and auditing.
- Spatial Boundaries: This study focuses on the Iraqi situation and explains how regional factors such as institutions, organizations, and economic culture influence the adoption and use of smart technologies in financial management and auditing processes.
- Objective limitations: The study focuses on the impact of artificial intelligence on financial control and auditing processes only, without delving into other aspects not related to this topic, such as public administration or politics.

Study Concepts

Artificial Intelligence

The term artificial intelligence (AI) describes computer programs that are able to carry out sophisticated operations that were previously limited to human performance, such as problem-solving, thinking, and decision-making (EL-Hadi, 2023) [7].

Financial Oversight

Oversee and manage the company's financial administration, which includes creating monthly financial statements, balance sheets, and cash flow statements. You should also report operational outcomes to the board of directors, shareholders, management, and any regulatory bodies that may be involved in the future (M.V.Sisulu, 2009) [14].

Auditing

An official examination and confirmation of the accuracy of financial reporting is called an audit. Audits can be carried out by the government, in the event that it detects questionable financial behavior, or by the management of the company as part of internal control procedures (Hussain, 2023) [11].

Literature Review

Artificial intelligence (AI) refers to a set of technologies that improve human skills in a range of fields, including voice and picture recognition, machine learning, data mining, natural language processing, and sentiment analysis. These technologies enable systems to discover patterns, forecast outcomes, and improve decision-making effectiveness (EY 2018) [8]. AI's value rests in its capacity to evaluate vast volumes of data rapidly and accurately, resulting in increased performance and strategic planning (Goh *et al*. 2019) [9].

Over the years, auditing techniques have not changed significantly. However, artificial intelligence is changing the rules, particularly in businesses that rely on routine, repetitive work (Chui *et al*. 2016) [4]. Artificial intelligence has enormous potential to improve the auditing process, which often requires reviewing large numbers of predictable and repeating transactions (Baldwin *et al*. 2006) [1]. AI enables accurate and complete auditing of financial reporting data while also allowing auditors to handle and evaluate enormous volumes of data at breakneck speed (Issa *et al*. 2016) [12].

According to Sun and Vasarhelyi (2017) [16], AI applications can increase the accuracy of auditor assessments and the decision-making process. Some suggest that AI-based decisions outperform human decisions (Wu *et al*., 2015) [18]. Traditional audit procedures are ineffective for activities that demand gathering and evaluating huge volumes of transaction data due to limited human skill capabilities (Issa *et al*., 2016) [12]. Artificial intelligence overcomes this gap by delivering powerful analytical capabilities that help to improve audit efficiency and quality.

As a result, it is suggested to be useful in audit processes such as reporting, benchmarking, opinion selection, audit planning, materiality, and risk assessment (Vasargeli and Kogan, 2017) [17]. Other advantages mentioned in this study include the ability to audit all transactions, reducing audit costs and time, facilitating ongoing auditing, and reducing human errors (Issa *et al*. 2016) [12].

The use of technology in auditing is not new. To improve efficiency, audit has effectively integrated various ICT tools such as audit toolkits, logistic models, and control models. Dowling and Leach (2014) [6] point to the use of commonly used computer-aided audit tools and techniques (CAATs), such as custom systems, audit support systems, and intelligent decision-making tools.

The use of CAAT in various applications such as data testing, integration testing tools, parallel modeling, embedded audit modules, and general audit software has been widely documented in the literature (Bierstaker *et al*., 2014) [2].

According to the companies' websites (Omuteso, 2012) [15], accounting firms in the United States and Europe use different methods to develop artificial intelligence skills to gain experience and gain competitive advantage. For example, KPMG and IBM Watson have collaborated to

create: "Supervised learning" allows auditors to introduce logical, rational thinking into the AI process, applying professional judgment and skepticism as the AI grows and learns to perform tasks on a computer. This is a system that teaches you how to do things your own way.

Additionally, KPMG is evaluating AI systems to help identify data in credit files, extract data for use, and recognize patterns and trends (KPMG, 2018) [13]. PricewaterhouseCoopers (PwC) is working on an artificial intelligence tool called GL.AI. By searching data across multiple ledgers, the tool can scan billions of values in seconds and find anomalous transactions within a customer's general ledger. One billion magazines in 4 countries.

Deloitte uses natural language processing techniques to extract information and data from population groups or samples. This information is transferred to a platform to automatically review contract information, cutting document review times in half (Deloitte, 2019) [5].

Likewise, another firm, EY, uses robotic process automation in its assurance engagements to enable auditors to use professional judgment and skepticism to support their claims. EY also uses machine learning to review and revise lease agreements with up to 97% accuracy (EY, 2018) [8]. According to EY Australia, AI is being used to obtain half of the confirmations required for audits, and in the future drones will be used to monitor client inventory during audits (EY 2018) [8].

All four major audit firms that have completed the above implementation process are doing so on a pilot basis. There are many challenges to implementing AI systems, including the high initial and ongoing costs of these systems, lack of familiarity with auditing techniques among CPAs, and over-reliance on AI-based systems. There are legal implications. Conduct an audit (Issa *et al*., 2016) [12].

In addition, customers may prefer to contact auditors rather than contact bots, highlighting the value of relationship building and dialogue in the ongoing process (Chan *et al*., 2012) [3].

Methodology

An exploratory research methodology is used to analyze the impacts of smart technology on financial control and auditing in Iraq. This includes reviewing literature and previous studies, conducting surveys with experts in the field, and analyzing available data.

Study population

The study population includes financial institutions and companies active in the financial sector in Iraq, in addition to regulatory and auditing bodies, and relevant academic institutions.

The study sample

A representative sample of financial institutions and companies in Iraq, consisting of 100 employees, was selected, which are adopting or studying the use of smart technologies in financial control and auditing processes.

Study tool

A questionnaire tool was used to collect data with the study sample.

Analysis of the results

Part 1: Demographic data

Table 1: Gender

Gender	Frequency	Percentage
Male	62	62
Female	38	38
Total	100	100

The data shows that the percentage of duplicates among males reached 62% while females reached 38% of the total sample, which indicates a greater prevalence of males in the studied sample.

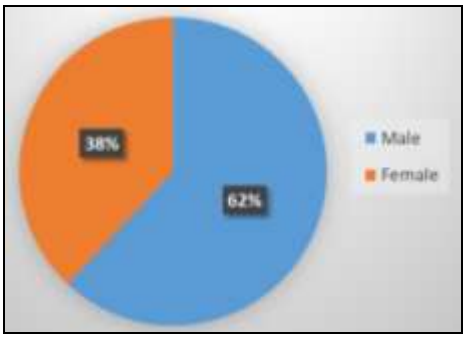

Fig 1: Gender

Table 2: Age

Age	Frequency	Percentage
Less than 25	12	12
25-35	29	29
36-45	35	35
More than 45	24	24
Total	100	100

The data shows that people under the age of 25 represent 12% of the sample, while the age group between 25 and 35 years represents 29%, the group between 36 and 45 years represents 35%, while people over the age of 45 represent 24 % of the total sample.

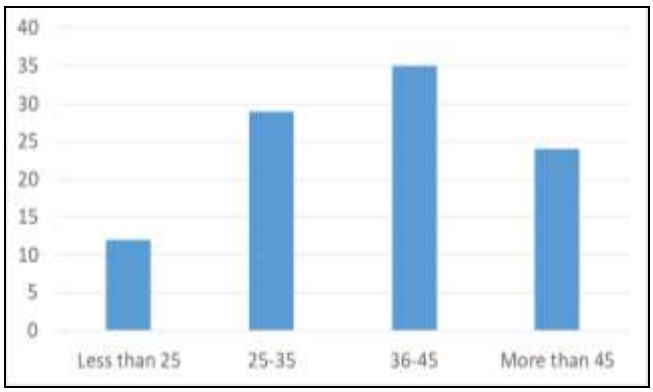

Fig 2: Age

Table 3: Qualification

Qualification	Frequency	Percentage
High school and below	6	6
Diploma	11	11
Bachelor's	57	57
Master's	17	17
Ph.D	15	15
Total	100	100

The data shows that 6% of the sample have educational qualifications at the secondary level or below, while 11% have a diploma. 57% indicate that the majority hold a bachelor's degree, while 17% hold a master's degree. As for 15%, they hold doctorates.

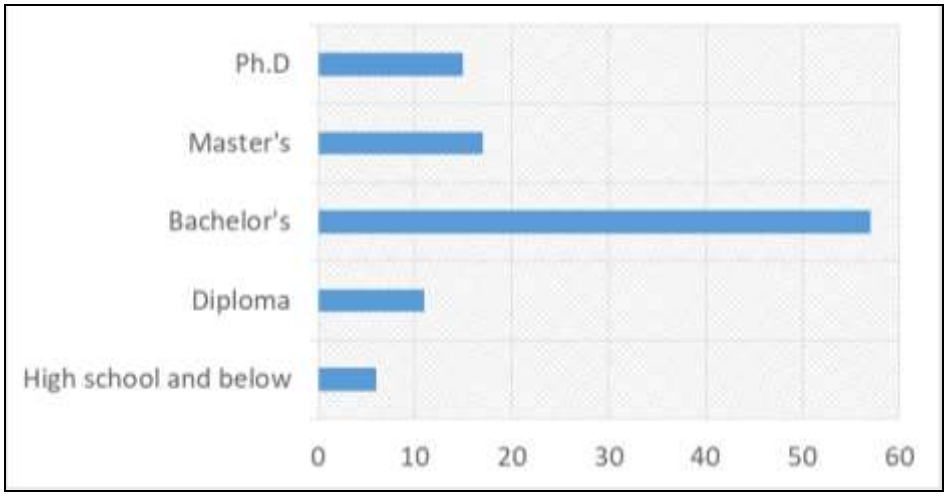

Fig 3: Qualification

Part 2: Topics of the study

Table 4: The first axis: The positive effects of artificial intelligence on financial control and auditing

	Phrase	Mean	Standard Deviation
1	Improving the accuracy of financial control and auditing processes	4.30	0.94
2	Increasing the efficiency and effectiveness of financial control and auditing processes	3.83	1.06
3	Enhancing confidence in financial information and reports	4.27	0.87
4	Analyse financial data more comprehensively and in depth	4.67	0.62
5	Improve detection of financial errors and fraud	4.49	0.83

The results show that AI positively impacts financial management and auditing in several ways. The mean is 4.30, with a standard deviation of 0.94, confirming the correctness of financial management and audit operations. It also helps with the complete and extensive examination of financial data, with an mean of 4.67 and a standard deviation of 0.62. The results also revealed that the mean score varied from 3.83 to 4.27, with standard deviations showing variations in AI's potential influence on various operations, as well as greater operational efficiency and trust in financial information.

Table 5: The second axis: Challenges and risks associated with the application of artificial intelligence

	Phrase	Mean	Standard Deviation
1	Security concerns and protection of sensitive data	3.62	1.25
2	Privacy and user rights	3.61	1.19
3	The investment cost of applying artificial intelligence technologies	3.69	1.11
4	The need for specialized skills and competencies	3.67	1.34
5	Risks associated with bias and transparency in artificial intelligence models	4.10	1.03

The results showed that there are various challenges and risks associated with the application of artificial intelligence technologies. Anxieties about safety and confidentiality have a mean score of 3.62 and a standard deviation of 1.25, shiny the level of difference and difficulty in this measurement. Anxieties also comprise confidentiality and user privileges (mean 3.61, standard deviation 1.19) and asset costs connected to AI skills (mean 3.69, standard deviation 1.11). In addition, the need for professional skills and competencies has a mean of 3.67 and a standard deviation of 1.34. Finally, the average score for risk of bias and transparency in AI models is 4.10, with a standard deviation of 1.03.

Table 6: The third axis: Comparing the performance of financial control and auditing using traditional techniques and smart techniques

	Phrase	Mean	Standard Deviation
1	Accuracy and reliability of results	4.16	0.98
2	Speed and efficiency of operations	4.62	0.78
3	Flexibility to adapt to changes and challenges	4.36	0.99
4	Ability to analyse large amounts of data	3.95	1.19
5	Reducing human errors	3.83	0.89

Comparing financial management and auditing using traditional and intelligent methods can highlight several important points. The arithmetic mean of the accuracy and reliability of the results using smart technology showed a value of 4.16, and the standard deviation that reflects the level of agreement of the results is 0.98. Smart technology outperforms others in terms of speed and efficiency of operation with an average of 4.62 and a standard deviation of 0.78, but it shows that it is more flexible in adapting to variables and challenges with an average of 4.36 and a standard deviation of 0.99. However, complex analysis of large amounts of data was found to be more difficult using smart technology with a mean of 3.95 and standard deviation of 1.19. On the other hand, the reduction in human error decreased slightly with a mean of 3.83 and a standard deviation of 0.89. This shows that smart technology improves overall efficiency and accuracy. However, challenges can arise in some areas, such as complex quantitative analysis and reducing human error.

Table 7: Fourth axis: Recommendations for applying artificial intelligence in financial control and auditing

	Phrase	Mean	Standard Deviation
1	Appropriate organizational policies and procedures	3.75	1.13
2	Developing technical and technological infrastructure	3.50	1.43
3	Training and development of professional competencies	3.97	1.13
4	Adopting governance and internal control practices	4.22	1.06
5	Integration with traditional accounting and auditing practices	3.53	1.21

Recommendations for applying artificial intelligence in financial control and auditing include several important aspects. The arithmetic mean indicates the necessity of developing appropriate organizational policies and procedures with a value of 3.75, with a standard deviation indicating diversity in needs and challenges of 1.13. The technical and technological infrastructure development is also recommended with an average of 3.50, an area that requires allocating additional efforts to regularly improve capabilities, with a standard deviation indicating technical challenges of 1.43. In addition, training and development of professional competencies need to be strengthened with a mean of 3.97 to ensure effective interaction with new technologies, with a standard deviation showing variation in levels of experience and knowledge of 1.13. It encourages the adoption of governance and internal control practices that enhance proper interaction between systems, with a mean of 4.22 and a standard deviation reflecting the stability of these practices of 1.06. As for integration with traditional accounting and auditing practices, it requires additional efforts to achieve a balance between new and traditional systems, with a mean of 3.53 and a standard deviation indicating challenges in integration of 1.21.

Discussion

The results of the current study are consistent with the positive effects of artificial intelligence on financial control and auditing with the study (Goh *et al*., 2019) [9] in improving the accuracy of financial control and auditing processes, analyzing financial data more comprehensively and in depth, and improving the detection of financial errors and fraud.

It also agrees with the studies of (Issa *et al*., 2016) [12] and (Chui *et al*., 2016) [4] in that the most important challenges and risks associated with the application of artificial intelligence are the investment cost of applying artificial intelligence techniques, the need for specialized skills and competencies, and risks associated with bias and transparency in AI models.

The results of the current study are also consistent with the study of (Sun and Vasarhelyi, 2017) [16] in comparing the performance of financial control and auditing using traditional techniques and smart technologies through the accuracy and reliability of results, speed and efficiency of operations, and flexibility in adapting to changes and challenges.

Recommendations

1. Appropriate organizational policies and procedures
2. Developing technical and technological infrastructure
3. Training and development of professional competencies
4. Adopting governance and internal control practices
5. Integration with traditional accounting and auditing practices

Conclusion

Study aimed to determine how artificial intelligence technologies can improve the accuracy and effectiveness of financial control and auditing processes, contributing to enhancing confidence in financial information and reporting. Identify the challenges that may face the application of artificial intelligence technologies in the areas of financial control and auditing, such as security, privacy, and cost. Study the differences in the performance of financial control and auditing using traditional techniques compared to smart technologies, and identify the benefits and drawbacks of each type. The results highlighted that the use of smart technologies enhances the accuracy of financial control and auditing, and has also shown remarkable effectiveness in increasing the speed of operations and enhancing flexibility to adapt to changes. However, challenges are demonstrated in analyzing big data and reducing human errors.

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