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The Impact of Continuous Auditing on the Quality of Auditing and its Reflection on Investors' Decisions

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Abstract

Purpose: The Aim of this study is to measure the impact of artificial intelligence on the quality of audit and its reflection on investors' decisions. Design/methodology/approach: we adopted the descriptive analytical approach the study tool used the questionnaire, which was distributed to a sample of mainly auditors and accountants and 135 responses were obtained, and the statistical program was used to analyze the results and test hypotheses Smart-Pls .Findings: The results of the study showed that there is a positive effect of AI represented by continuous auditing on the Audit quality and decision makers, as well as there is a positive effect of the audit quality on decision makers. Research, Practical & Social implications: with the expansion of the economic requirements of society, in addition to the rapid development of information technology, including the development of AI and the prosperity it brought about in several areas, including computer science, engineering and medicine, which provided a good opportunity for auditors and accountants in employing AI technology in order to raise the audit quality. Originality/value: the technology has become necessary to be applied in the field of audit and accounting, because this will lead to important changes in the audit and accounting industry and its development.

Keywords: artificial intelligence, continuous auditing, audit quality, investors makers.

Introduction

Artificial intelligence is an integration between man and machine. As it simulates human awareness and ways of thinking through a computer, and provides a state of cooperation between humans and computers, artificial intelligence technology has been used in various fields of life such as agriculture, commerce, education, medical diagnosis, treatment, and computers (Jiaxin et al., 2018), and because of the nature of accounting represented by its constant openness to everything new, the profession of accounting and auditing has evolved with modern technological developments, and experts in accounting and auditing expect that artificial intelligence will lead to a quantum leap in the practice of the accounting and auditing profession in the next few years (Li & Zheng, 2018; Alwan et al., 2023). Therefore, the operations of financial companies changed rapidly with the introduction of artificial intelligence, as it performs tasks faster, better, and less costly. It is expected that artificial intelligence will soon perform the basic functions of financial companies (Dilek et al., 2015; Nikkeh et al., 2022). Companies and financial services companies alike are increasingly using artificial intelligence (AI) to collect and transform data from different sources and extract better decision-related information in complex environments to achieve economic benefits (Joseph & Gaba, 2020). Rapid technological progress also increases competitive pressures (Lohapan, 2021), and provides opportunities that encourage companies towards enhancing innovation, which is reflected in their competitiveness in providing quality

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auditing services and gaining profits (Sung & Kim, 2021; Abdulhussein et al., 2023; García-Marín & Serrano-Contreras, 2023)

Auditing is suitable for artificial intelligence applications because it has become difficult to deal with huge amounts of data to gain insight into the financial and non-financial performance of companies, and many auditing tasks are structured and repetitive, and thus can be automated (Kokina & Thomas, 2017), as the application of artificial intelligence effectively solves repetition problems and analyzes data for companies as well as saves time and effort when delving into complex work when implementing auditing procedures (WU, 2018), the application of artificial intelligence in the auditing process is called “smart auditing”, as it performs By creating auditing techniques and methods that improve the quality and efficiency of auditing (Zhou, 2021; Hussein, 2022b; Salman et al., 2023).

(Alyaseri et al., 2023). The artificial intelligence techniques used in the audit profession have a role in increasing the ability to complete complex audit work, improving and developing the quality of professional performance of auditors, improving their efficiency, and completing audit tasks in the least time and at the lowest cost, which contributes to improving the efficiency and quality of audit services and reducing audit risks as well as helping to speed up the collection of information for decision-making. (Qin, 2014; Hussein, 2021), therefore, accountants and auditors are required to acquire knowledge in information technology and control systems used in conducting audits, such as software used as a tool for collecting electronic evidence, planning for the audit process, field work, and preparing reports, which contributes to reducing stress and thus the audit process is more effective and efficient. Artificial intelligence is a recent topic, as some of the research conducted in this field focused on the role of artificial intelligence in the field of accounting in theory, and there are only a few studies that tried to focus on the impact of artificial intelligence techniques on audit quality, while the research seeks the impact of artificial intelligence techniques on audit quality and its reflection on investor decisions. (Pammu & Hasyim, 2023)

Theoretical Framework and Literature Review

The concept of artificial intelligence

Due to the importance of artificial intelligence, it has received great attention among researchers ,now providing an accurate definition of artificial intelligence may be difficult even for experts in the field , due to two reasons ,the first is the continuous development of artificial intelligence ,and the second reason is the multiplicity of fields of artificial intelligence ,so there are many definitions of artificial intelligence according to the orientations of researchers (Chen et.al,2020:4) defined (Marshall,et.al 2021:812) as the use of computer systems in order to simulate human intelligence processes such as learning ,reasoning ,and self-improvement (Indriastuti et al., 2022) .

(Belharet et al,2020:7) views AI as a machine that enters real-world data ,processes it and makes specific decisions in order to achieve a goal .In addition ,artificial intelligence is characterized by the ability of technological devices to perform many tasks similar to those performed by humans ,such as driving cars ,recognizing images ,as well as recognizing voices ,and talking robots.

Artificial intelligence in the field of accounting provides important improvements as it provides accountants with powerful capabilities, automates tasks, provides various solutions, makes continuous improvements, and creates an opportunity to effectively use available resources and information (Kovalenko et al., 2021:378). It also performs accounting activities efficiently and appropriately with the help of electronic services through computerized administrative services and the Internet, and this enables all internal and external parties to work and conduct Transactions, freedom of access and sharing

of information, which leads to effective strategic decision-making (Zhang et al., 2020; Lucena-Zurita et al., 2022)

Artificial intelligence techniques are also used to mitigate fraud, human error, improve the accuracy of accounting functions, create opportunities to enter new markets faster, make significant global contributions, gain insights, and build relationships with existing and potential customers. Automating all types of data, digitizing, processing and sorting with the help of AI will reduce the cost of performing these tasks manually and ensure high productivity (Albawwat & Al Frijat, 2021).

Continuous Auditing

Chan et al., (2018) concluded that continuous auditing is the process of systematic collection of audit evidence, as this technique consists of many elements. The continuous auditing methodology can be classified into two main tracks: the first track is stand-alone systems that continuously monitor the systems of the auditees, extract data from those systems, compare data patterns with standards, trigger alarms / report exceptions, and finally achieve the goal of the audit process. The second track is the subsystems or units that must be included in the controlled systems. One of the main features is In its ability to provide relevant information in a real-time context and to express an opinion on the fairness of the financial statements that have been made. Continuous audit achieves many advantages mentioned (Rikhardsson et al., 2019), as data is audited, objective details are tested, internal control system, and management assurances periodically and in real time. These techniques work on the principle of detecting significant differences, and this would detect all material errors, omissions, fraud, violations of the internal control system, and management abuses. Continuous auditing is carried out with the Enterprise Asset Management System (EAMS) using INGRESS, which is a relational database management system that enables the auditor to access audit-related information stored in the client database to obtain information about exceptions, violations, and applicable standards (Hadi et al., 2023; Abass et al., 2023). Kahyaoglu et al., (2020) To apply continuous audit techniques, there are requirements that must be met, as dedicated web servers must be available and permission must be granted to connect, and data must flow from the company's system to the continuous audit tools within the auditor's system. In addition to the need for a continuous audit agreement, which is a contract that defines the roles between the parties involved in the continuous audit process.

In addition to the need for information exchange between the parties on the basis of a secure infrastructure with a licensed, confidential and integrated system, there is also a need for continuous access to audit reports in a continuous audit environment. There is a need for interconnected reliable systems (Flayyih and Khiari, 2022).

Audit quality

The concept of audit quality is a relative concept, given the lack of determinants to measure it and the difficulty of defining the scope that audit quality should cover, and the multiplicity of parties interested in audit quality, and the divergence of their opinions (Maqramant, 2021; Al-tae & Flayyih, 2022). As the management is keen to conduct the audit process with high quality to give confidence to the financial statements prepared, and the investors want the audit process to be done with high quality to ensure the accuracy and integrity of the financial information contained in the audited lists that they will rely on when making their decisions, and professional companies seek to improve the quality of the audit process to preserve the interests of all the different parties (Jokar & Daneshi, 2020). As a result, there are four main approaches to the concept of audit quality; It can be reviewed as follows:

The first entry: the concept of the quality of the audit process from the perspective of compliance with the auditing standards issued by professional organizations and the rules of professional conduct

The concept of quality from the perspective of professional organizations is represented in the policies and procedures applied by the auditing company to verify that all financial accounting operations have been recorded in accordance with generally accepted accounting rules and principles. Audit quality also plays an important role in improving the quality and credibility of the published financial statements and that they are identical to the data contained in the books. Based on auditing standards, rules of professional conduct, and sufficient and appropriate audit evidence, and that the auditor's report expresses the extent to which the data prepared by the management is free from material errors and distortions (Akçay & Bilen, 2018).

The research conducted by Haeridistia and Fadjarenie concluded that the audits carried out by the auditors are of quality, if they meet the auditing and quality control standards, the quality of the audit helps the management and stakeholders in making correct and accurate decisions, and if the auditor does not act independently in reality, or if the auditor does not collect sufficient audit evidence in accordance with the auditing standards, this may lead to the failure of the auditing process and the issuance of an incorrect report, as failure in the auditing process may lead to economic consequences To auditors, customers and third parties. Successful audits occur when auditors perform audits in accordance with auditing standards and issue audit opinions that comply with the terms of the client's financial statements at a level consistent with audit risk (Fadjarenie & Haeridistia , 2019).

The second entry: the concept of the quality of the audit process from the perspective of the auditor's ability to detect errors and fraud in the financial reports

Xiao (2020) believes that the general objectives of the audit are to obtain reasonable assurance that there are no material misstatements resulting from fraud or error in the financial statements, and to issue audit reports in accordance with auditing standards and to communicate with the company's management regarding the detected misstatements. As for the quality of the audit, it is to discover, modify and report material errors, which enhances the quality of the audited financial statements and thus provides evidence of the mechanism for achieving audit quality. According to this aspect, Lopes believes that audit quality is the auditor's ability to detect fraud and irregularities in the client's accounting system, and to report these irregularities as soon as they are discovered (Lopes, 2018), and that fraud prevention is not the auditor's responsibility, but he must have comprehensive knowledge of the characteristics and methods of committing fraud. The use of the fraud triangle theory, which will help the auditor in the steps of the audit process by obtaining preliminary evidence in detecting fraud, whether that fraud is a result of pressure or the availability of opportunities or justifications for that will help the auditors to focus on the high-risk elements, and therefore the auditor must have experience and knowledge to expect the presence of material misrepresentation in the financial statements through his exercise of professional doubt, which will raise a cautious and critical attitude towards collecting and evaluating the evidence provided by the company's management (Rahim et al., 2019:48-49).

The third entry: the concept of audit quality from the perspective of its relationship to the risk of the audit process

Audit quality can be defined as the high level of assurance that the financial statements may not contain omission errors or material misstatements, which means that the quality of the audit process is achieved when the auditor reduces the risk of discovery to the extent that the level of acceptable audit risk is as low as possible (Mohi, 2016), and the quality of the audit according to this approach means that the auditor reduces the risk of discovery, which leads to a reduction in the final audit risk and that the

auditors will reveal about material errors in the financial statements (Maseer et al., 2022) The client's risk assessment is critical to the success of the audit, and for this reason the standard setters are now asking the auditors to disclose their role in this process as the International Auditing Standard 701 came to introduce a new concept in the audit report, a concept that expands the role of the auditor and requires disclosure of the most important risks facing the client as the auditor must analyze the risks in accordance with International Accounting Standard 315 and assess the quality of the internal control system as the auditor must clarify in Audit report An overview of the scope of the audit and a description of how the risk assessment was performed and materiality determined. In addition, the auditor must identify the most important risks to the overall audit strategy, and show how the audit team's resources and work are allocated (Sierra-García et al., 2019).

The fourth entry: the concept of audit quality from the perspective of its relationship with interested parties in the audit process

The majority of studies attempted to define the concept of quality of the audit process, but they found that it is a complex multi-faceted concept because it is related to all parties involved in the audit process and its beneficiaries, because those participating parties and beneficiaries of the audit process have a different and conflicting understanding of what the quality of the audit process (Sulaiman et al., 2019) , and in this context (Saliha & Flayyihb, 2020) emphasized that audit quality is the performance of the audit process efficiently and effectively in accordance with audit standards with detection of errors and irregularities discovered, and work to meet the desires and needs of users of the financial statements, as (Esplin et al., 2018) sees that audit quality is fulfilling the client's desires within the limits of the profession's controls, and that the client is the one who judges the quality of the audit through the results he obtained and what he expected and the difference between them is known as " Expectations Gap" On the basis of this general concept, they define audit quality as the characteristics of the auditor's professional performance that meets the needs of users of financial statements.

There is a group of studies that have defined the concept of the quality of the audit process from the perspective of the four entrances, as follows

Laqweera (2019) believes that audit quality is "the auditor's ability to detect errors and misrepresentations in the financial statements, adhere to professional standards, ethical rules and behaviors of the profession, and strive for full and independent disclosure at the end of the audit of all errors, material misrepresentations and all deficiencies, which allows meeting the needs of users of these financial statements, and as Sedrati sees audit quality as performing the audit process efficiently and effectively in accordance with audit standards, with detection of errors and irregularities discovered and working to meet the desires and needs of users of financial statements (Sedrati, 2020).

Investor Decisions

The term decision in general is the emotional behavior that aims to choose or use the best means to reach its goal or use it to achieve a goal (Shabaha and Qatoush, 2021: 28), and the term decision in the English language comes from the Latin word "decision" which means (decision, decisiveness). The decision-making process is a process that aims to choose an alternative from among all the available alternatives to be preferred in achieving the goals that the decision-maker wants with the highest efficiency, the least effort and the lowest cost. That is, the decision-making process mainly aims to judge matters in terms of choosing the priority of the goals to be implemented according to the plan drawn for the unit and finding solutions to the problems facing the unit, whether they are financial, administrative or technical (Mishri, 2018: 131). Investors follow different strategies to avoid risks, especially if the amount of invested capital is huge, where investors resort to serial investment or what is known as phased investment to reduce risks and abandon the investment of a huge amount of capital

at one time as well as providing administrative flexibility, with regard to the two-stage investment strategy, a certain percentage of the capital is invested at a specific point in time from the first stage, and the remaining part is invested in another time point from the second stage, in addition to choosing the optimal investment timing for each stage, the optimal ratios must be determined for each stage (Liu & Jiang, 2019).

Research Methodology

We rely on a questionnaire designed for the purpose of testing research hypotheses, and it consisted of three main axes: - The first axis included five dimensions dedicated to measuring artificial intelligence, and each dimension included six questions, and the second axis included six measurement questions in their entirety. Audit quality and the third axis also includes six questions that measure investors' decisions as a whole. A seven-category scale was used to express the axes and dimensions above, with scales ranging from one point with strongly disagreeing content, to seven points with strongly disagreeing content.

Table (1). Distribution of Sample Members by Sex

	Frequency	Percent	Valid Percent	Cumulative Percent
female	55	40.7	40.7	40.7
male	80	59.3	59.3	100.0
Total	135	100.0	100.0	

Source: Prepared by the authors (2023).

It is noted from Table (1) that the research sample of individuals responding to the questionnaire is according to gender, where the male category ranked first with 80 individuals with a percentage of (59.3%), while the female category ranked second as the number of female respondents to the questionnaire was (55) female, with a rate of (59.3%).

Table (2). Distribution of Sample Members by Scientific Specialization

	Frequency	Percent	Valid Percent	Cumulative Percent
accounting	113	83.7	83.7	83.7
audit	9	6.7	6.7	90.4
Economy	1	.7	.7	91.1
Business Administration	3	2.2	2.2	93.3
Banking & Finance	5	3.7	3.7	97.0
Other	4	3.0	3.0	100.0
Total	135	100.0	100.0	

Source: Prepared by the authors (2023).

It is noted from the table (2) the distribution of the sample members according to the scientific specialization, as the accounting category ranked first with the number of its members reaching 113 at a rate of (83.7%), the auditing category ranked second with the number of respondents amounting to (9) at a rate of (6.7%), the category of economics one individual at a rate of (1%), the category of business administration with the number of its members (3) at a rate of (2.2%), the category of financial and banking sciences with a number of (5) and at a rate of (3.7%) and another category (4) and by (3%).

Table (3). Distribution of Sample Members by Academic Qualification

	Frequency	Percent	Valid Percent	Cumulative Percent
diploma	4	3.0	3.0	3.0
Bachelor	51	37.8	37.8	40.7
Higher Diploma	2	1.5	1.5	42.2
Master	64	47.4	47.4	89.6
PhD or equivalent	14	10.4	10.4	100.0
Total	135	100.0	100.0	

Source: Prepared by the authors (2023).

It is noted from Table (3) that the distribution of the respondents according to the educational qualification is that the highest academic qualification is the master's degree, which occupied a rate of 47.4%. As for the holders of a bachelor's degree among the individuals who responded to the questionnaire, they occupied the second rank, as the number of its members reached (51) with a rate of (37.8%). The profession to maintain a high degree of independence, experience and reputation of the auditing profession (Jakovljević, 2022), and (Pickett, 2000: 265) indicated that the use of professional certificates and the continuity of professional development are among the indicators of auditor competency.

Table (4). Distribution of Individuals Questionnaire Sample by Job Title

	Frequency	Percent	Valid Percent	Cumulative Percent
Academic	30	22.2	22.2	22.2
accountant	68	50.4	50.4	72.6
Chartered Accountant	7	5.2	5.2	77.8
Audit	16	11.9	11.9	89.6
Financial Manager	4	3.0	3.0	92.6
Auditor	3	2.2	2.2	94.8
Other	7	5.2	5.2	100.0
Total	135	100.0	100.0	

Source: Prepared by the authors.(2023)

The table (4) shows that the research sample of the individuals responding to the questionnaire according to the (job title) was divided into seven categories, as the accountant ranked first with (68) members and (50.4%), and the academic ranked second with (30) respondents and (22.2%), and the auditors ranked third with (16) respondents and (11.9%), and a certified accountant with (7) members and (5.2%), and others with a number of (7) individuals, at a rate of (5.2%), and a financial manager category with a number of respondents (4) individuals, at a rate of (3%).

Table (5). Distribution of Sample Members Years of Experience

	Frequency	Percent	Valid Percent	Cumulative Percent
1-5 Years	69	51.1	51.1	51.1
5-10 years	27	20.0	20.0	71.1
10-15 years	28	20.7	20.7	91.9
15 years and above	11	8.1	8.1	100.0
Total	135	100.0	100.0	

Source: Prepared by the authors (2023).

The table (5) shows the distribution of the sample members according to the years of experience. The figure shows that the category (1-5 years) got the first rank with the number of (69) respondents, with a rate of (51.1%), followed by the second rank with the category (10-15 years), with the number of (28) and with a rate of (20.7%), and the third rank is the category (5-10 years). Fourth, the number of respondents was (11) individuals, at a rate of (8.1%).

Results and Discussion

Table (6). Results of testing the first sub-hypothesis.

path	Original sample (Bata)	Standard deviation (STDEV)	T statistics	P values
Continuous Audit <-Quality of audit	0.661	0.052	12.760	0.000

Source: Prepared by the authors (2023).

It is noted from the above table that the P-Value amounted to 0.000, which is much less than the predetermined value of the accepted error in social sciences by 0.05, and therefore the third sub-hypothesis

is accepted. The following table presents the value of each of the R-square, which shows the interpretation coefficient of the model, and the value of the F-square, which shows the effect of the independent variable.

Table (7). Explanation and influence coefficients for the first sub-hypothesis

path	R-square	F-square
Continuous Audit <-Quality of audit	0.436	0.774

Source: Prepared by the authors (2023).

By interrupting the R-square value and the F-square value in the table above (6) with the explanations for those values, we find that continuous auditing explains 43.6% of the variation in audit quality, and this explanation is medium because the R-square interpretation coefficient ranges between 0.19-0.67. This result is consistent with (Thunoun, 2016) and (Chan et al., 2018), who concluded that most auditors believe that the computer system in their companies or offices has a major role in the benefits they obtain in the case of practicing continuous auditing instead of traditional auditing. There is also a need to create a new and fundamental perception and thought for those interested in developing the auditing profession and its practitioners on the importance of activating and embracing the continuous reporting environment, in order to ensure the adoption of continuous auditing, and it is based on adding an increasing value to the services provided to the beneficiaries in that environment.

Table (8). Results of testing the second sub-hypothesis

path	Original sample (Bata)	Standard deviation (STDEV)	T statistics	P values
Quality of audit <-Investor Decisions	0.786	0.035	22.275	0.000

Source: Prepared by the authors (2023).

It is noted from the above table that the P-Value amounted to 0.000, which is much less than the predetermined value of the accepted error in social sciences by 0.05, and thus the second main research hypothesis is accepted.

Table (9). Explanation and influence coefficients for the second sub-hypothesis

path	R-square	F-square
Quality of audit <-Investor Decisions	0.617	1.613

Source: Prepared by the authors (2023).

From the interruption of the R-square value and the F-square value in the table above (9) with the explanations for these values, we find that the audit quality explains 61.7% of the variance in the investors' decisions. This explanation is medium because the R-square interpretation coefficient ranges between 0.19-0.67.

Figure (1). The course and results of testing the third main hypothesis.

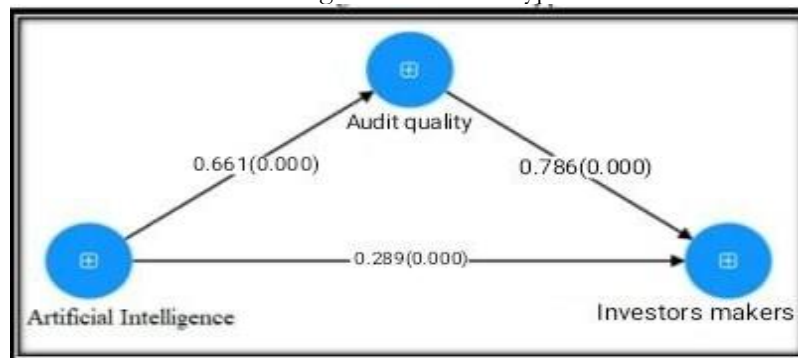


Table (10). Results of testing the third main hypothesis.

path	Original sample (Bata)	Standard deviation ()	T statistics	P values
Artificial Intelligence <----Investor Decisions	0.506	0.092	5.521	0.000
Artificial Intelligence <--Quality of audit <---Investor Decisions	0.289	0.070	4.119	0.000

The above table presents the results of the direct impact of artificial intelligence on investor decisions, as well as the indirect impact or through the mediating variable, audit quality. It is noted from the above table that the P-Value for both effects amounted to 0.000, which is much less than the value of the accepted error in social sciences, which is predetermined by 0.05, and thus the third main research hypothesis is accepted, and this means that the quality of audit has a partial mediation in the impact of artificial intelligence in investor decisions. The following table presents the value of each of the R-square, which shows the interpretation coefficient of the model, and the value of the F-square, which shows the effect of the independent variable.

Table (11). of the coefficients of interpretation and influence of the third main hypothesis

path	R-square	F-square
Artificial Intelligence <---- Investor Decisions	0.709	0.425

By interrupting the R-square value and the F-square value in the table (11) above with the interpretations of those values, we find that artificial intelligence explains 70.9% of the variance in investor decisions, and this explanation is high because the R-square interpretation coefficient is greater than 0.67.

Conclusions

The use of artificial intelligence techniques to analyze big data in the auditing profession is a new stage in the development of the auditing profession, as it has a major role in advancing the auditing profession a step forward. External auditors, through these technologies, can reduce personal judgment when expressing a neutral opinion, as artificial intelligence techniques allow companies to conduct digital transactions in a transparent, safe and auditable manner, which facilitates the completion of the auditing process and reduces manual auditing work. Audit, as the continuous audit technology is a new approach based on providing real-time information to perform the audit process, and this helps the auditor to collect data continuously and analyze it immediately with the help of machine learning technology and some systems are able to improve predictions of risks and improve the accuracy of results, as well as analyze historical data and detect risks and errors and predict the future.

Avenue for Future Research

1. Conducting more research in the Iraqi business environment that would provide additional explanations about the extent of compatibility between artificial intelligence techniques and current auditing standards and its impact on improving the quality of the auditing process.
2. Employing artificial intelligence in data management and its reflection on the decision-making process.
3. Efficiency of the internal auditor in using artificial intelligence techniques to reduce creative accounting practices to produce reliable financial reports .

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