ARTIFICIAL INTELLIGENCE AND AUDIT QUALITY: A COMPARATIVE STUDY OF BIG FOUR AND NON-BIG FOUR AUDIT FIRMS IN SRI LANKA

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Abstract

Investors and other stakeholders are becoming increasingly dissatisfied as audit quality in the modern day continues to fall short of the necessary criteria. Simultaneously, financial reporting and auditing on a global scale have been revolutionized by artificial intelligence (AI). In addition, previous studies have not comprehensively explored the influence of AI on audit quality and whether auditors' perceptions of AI's significance in auditing quality differ between Big Four (B4) and non-Big Four (NB4) audit firms, especially in Sri Lanka. Therefore, the purpose of this study is to find out how Sri Lankan auditors view the use of AI in enhancing audit quality and whether the B4 and NB4 audit firms have different perspectives on how AI usage affects audit quality. A Google Form was used to send a standardized questionnaire to auditors working for both types of audit firms in order to collect data for a later study. An independent samples t-test and descriptive statistics are used in this study to evaluate the objective of research. The findings indicate that auditors in Sri Lanka, from both B4 and NB4 firm, perceive that AI has the potential to significantly enhance audit quality. It affirms that there is no substantial disparity in the perspectives of Sri Lankan auditors from B4 and NB4 firms about the beneficial effect of AI on audit quality. This research enhances the current body of knowledge and educates policymakers.

**Keywords*:* Audit Quality, Auditor Perceptions, Artificial Intelligence (AI) in Auditing

Introduction

Investors and other stakeholders are increasingly expressing global concern and dissatisfaction over the inability of audit quality to meet the necessary standard (Adeoye et al., 2023). The 2007/2008 global financial crisis heightened the need to improve audit quality for reliability and timely reporting. (Arthur et al., 2015; Persakis & Iatridis, 2015).

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According to Castelo-Branco et al. (2019), there is no doubt that errors and unethical behavior by accountants and auditing firms have contributed to the decline of audit quality. Following the involvement of the Big Four accounting firms and auditors like Arthur Andersen, there were financial scandals and the demise of major corporations like Tyco, WorldCom, and Enron. (Adeoye et al., 2023).

Artificial intelligence (AI) has emerged as an increasingly prevalent innovation in the financial reporting and auditing sector on a worldwide basis (Jerneck et al., 2011). The term "artificial intelligence" refers to the integration of computer science and engineering systems with intelligent machines and computers that are capable of demonstrating human characteristics such as reasoning, learning, autonomous behavior, and the capacity to independently analyses large datasets and make informed decisions (Wang, 2019; Zhang & Lu, 2021). AI is a fast technological tool that can acquire, organize, process, and distribute vast quantities of data in just a couple of minutes, resulting in reliable and precise information (Adeoye et al., 2023).

Uglum (2021) suggests that AI will play a crucial role in the future of the audit profession by referencing the rapid advancement and widespread application of AI in data analysis and interpretation. Baldwin et al. (2006) argue that the audit profession is still in the initial stages of adopting AI, but it is crucial for improving the effectiveness and efficiency of the audit function. All areas in audit such as Working paper and document reviews, risk assessments, going concern analyses, and evaluation of fraud and substantial misstatements are could benefit from the use of AI (Mpofu, 2023).

Despite the apparent and persuasive benefits of incorporating AI into the audit profession, there is a covert recognition of potential adverse consequences that may result from using it (Rawashdeh, 2023). Further, there are a few typical roadblocks when it comes to using AI for auditing: Lack of soft skills to effectively use and manage AI; uncertainty around adherence to International Standards on Auditing (ISAs); widespread mistrust of AI's potential in an increasingly unpredictable environment (Raphael, 2017). Additionally, Ucoglu (2020) claim that using AI in the audit process introduces new risks that might harm the quality of the audit. Additionally, it is expected that AI would bring about the potential danger of retaining irrelevant data (Mpofu, 2023). Irrelevant data might have a diluting effect, since AI systems will incorporate and analyses patterns from this data that lack predictive and confirmatory value (Schmidt et al., 2020). The incorporation of extraneous information has the potential to impact

the audit process and therefore affect the quality of the audit.

Several studies (DeAngelo, 1981; Tepalagul & Lin, 2015; Zahmatkesh & Rezazadeh, 2017)have examined audit quality from different perspectives. There is a lack of study on audit quality, and the existing studies have produced conflicting perspectives and inconclusive results(Mpofu, 2023) . This indicates inconsistencies and uncertainty in the literature, highlighting the need for additional research. Further, prior study has not adequately examined auditors' perception of the contribution to utilizing AI in auditing quality, especially in Sri Lanka. Only Noordin et al. (2022)'s research work surveys possible differences in the perceived contribution of AI to audit quality between local and foreign audit firm in the United Arab Emirates. But, given the understanding of the existing literature, a gap needs to be filled in order to compare the viewpoints of big four (B4) audit firms and non-big four (NB4) audit firms in Sri Lanka with regard to the contribution of AI to audit quality. Thus, the main goal of this study is to determine how much AI improves audit quality from the viewpoint of Sri Lankan auditors and whether there are any differences between B4 and NB4 audit firms in Sri Lanka regarding the perceived value of AI use in improving audit quality.

The subsequent sections of the paper are organized as follows. Section 2 provides an overview of the existing literature. Section 3 outlines the methodology for selecting samples and designing the investigation. Section 4 provides an examination of the data, the findings generated, and a thorough explanation of the results. The paper is concluded in Section 5.

Literature Review

A few studies concentrate on the application of AI to auditing. As per Abiodun (2023), the sample was taken through data from recent AI applications in auditing. The study emphasizes how quickly artificial intelligence is being incorporated into audit procedures, greatly enhancing the effectiveness and quality of audits. AI applications in auditing improve audit accuracy and reliability by spotting trends and abnormalities that conventional approaches might overlook. It is recommended to make the most use of AI technologies, auditors must constantly upgrade their knowledge and expertise in this area.

As per Adelakun (2024), the sample was taken from case studies on AI-driven fraud detection techniques. The study emphasizes the usefulness and advantages of AI methods for fraud detection. It shows that, in comparison to conventional auditing techniques, AI may greatly improve the efficiency and accuracy of detecting fraudulent activity. To fully utilize the

promise of AI-driven tools, audit companies should implement them and make sure their auditors receive the necessary training. This will guarantee that auditors can efficiently evaluate and act upon AI-generated insights, in addition to improving audit quality.

Another researcher Noora (2024), has found that new technologies are drastically changing the auditing industry. These include blockchain, AI, and RPA. By taking the place of time-consuming and repetitive procedures, these technologies free up auditors to concentrate more on activities that bring value. The study recommends that training employees to acquire new abilities necessary in the ever-changing auditing scene should be funded by audit companies.

In addition to the above, as per Luthfiani (2024), by enhancing audit processes and decision-making abilities, AI has the potential to revolutionize auditing, according to the study. AI tools assist in increasing accuracy, automating repetitive processes, and freeing up auditors' time for more difficult and valuable work. It is advised that audit companies take on the difficulties involved in implementing AI technology in addition to investing in them. This entails ensuring data security, providing appropriate training for auditors, and developing AI algorithms tailored to meet the needs of the auditing sector.

Other than the above, as per Beatrice (2024), the study highlights accounting fraud detection is greatly improved by AI approaches, especially machine learning (ML), natural language processing (NLP), and data mining. ML algorithms, for example, are able to recognize patterns. It is recommended that AI-driven fraud detection tools should be integrated by audit firms and organizations, and their personnel should receive training on these technologies. This strategy will guarantee ongoing adaptability to changing fraud tactics in addition to increasing the precision and effectiveness of fraud detection.

AI contributes to the auditing in different ways. As per Isotalo (2024), robotic process automation (RPA), blockchain, and AI are drastically changing auditing procedures. These technologies increase the efficiency and accuracy of audits, automate tedious procedures, and free up auditors' time for more valuable work. But the incorporation of these technologies also necessitates the acquisition of new competences and skills by auditors, like technological know-how and analytical prowess. It is advised that auditing companies make ongoing investments in staff education and training to make sure they can use developing technologies efficiently.

Smith et al. (2020) found that AI applications in auditing have demonstrated significant promise based on their study of a sample of 100 multinational companies. According to their research, AI systems are capable of effectively analyzing huge datasets to uncover anomalies and inconsistencies in financial records, which enhances the efficacy and accuracy of audits. In order to improve risk assessment skills and expedite audit procedures, he advises incorporating AI-driven analytics into auditing procedures. This will eventually result in more trustworthy financial reporting.

AI technologies have been found to speed up audit procedures and increase the detection rates of financial inconsistencies, according to a study conducted by Jones and Brown (2019) that evaluated 50 audit companies from a variety of industries. According to their research, auditors may perform more in-depth analyses of transactional data with the help of AI-enhanced technologies, which improves their ability to detect fraud. He goes on to say that audit companies ought to spend money on AI systems in order to use sophisticated data analytics to improve auditing results and risk assessment.

Zhang et al.'s research from 2021, which included a sample of 75 financial firms, demonstrated how AI has revolutionized auditing procedures. According to their research, AI-based algorithms can improve audit efficiency by automating repetitive operations and more accurately spotting intricate patterns in financial data than traditional techniques. To strengthen risk management skills and guarantee regulatory compliance, Zhang et al. (2021) advise using AI technology in audit procedures.

Methodology

In order to determine whether there are any possible differences between Sri Lankan B4 and NB4 audit firms regarding the perceived contribution of AI utilization to audit quality, this study used quantitative methodologies. This study employed a primary data collection method, which involved the dissemination of questionnaires to auditors from audit firms in Sri Lanka, including the B4 and NB4 firms. The study's population comprises respondents belonging to the B4 and NB4 audit firms in Sri Lanka. The respondents are auditing managers, senior auditors, audit trainees, etc. Using the purposive sampling technique allowed the researcher to gather responses, leading to better insights and more precise and valuable research results from the target respondents. The selected individuals were provided with precisely 130 structured questionnaires (google form) via email and WhatsApp. Of these, 107 questionnaires are

returned, with seven of them failing to satisfactorily address all inquiries. For additional investigation, this study gathered reliable data from 100 auditors employed by both kinds of organizations.

The questionnaire created by is the basis for evaluating the perceived contribution of AI use to audit quality Noordin et al. (2022) and is scored using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Table 1: - Items for perceived contribution to audit quality

Item Code	Items for Perceived Contribution to Audit Quality
Q1	My professional skepticism will be strengthened by using AI tools and systems in auditing.
Q2	Routine audit processes and procedures will be automated by using AI systems and tools in auditing, freeing up more time to concentrate on areas requiring considerable judgment.
Q3	My comprehension of the organization and its procedures will grow as a result of using AI tools and systems in auditing.
Q4	By analyzing whole populations, the use of AI tools and systems in auditing will enable reliable risk assessment.
Q5	Continuous risk assessment during the audit process will be made possible by the use of AI systems and technologies.
Q6	By stratifying vast populations, the use of AI systems and tools in auditing will make it easier to concentrate audit testing on the areas with the highest risk.
Q7	I will be able to conduct tests on sizable or intricate datasets where a manual method would not be practical by utilizing AI systems and tools in auditing.
Q8	The independent re-performance of intricate computations and modeling will be made possible by the use of AI systems and tools in auditing.
Q9	Consistency and central oversight in group audits will be enhanced by the use of AI systems and technologies.

| Q10 | Potential fraud will be found through audits using AI techniques and processes. |
| Q11 | Using AI systems and tools in auditing will identify unusual patterns and exceptions that might not be discernible using more traditional audit techniques. |

The instrument's validity and reliability are tested using SPSS software, descriptive statistics are used for perceived contribution questionnaire items, and an independent samples t-test is used to determine whether B4 audit firms and NB4 audit firms in Sri Lanka perceive AI utilization's contribution to audit quality differs significantly.

Results and Discussions

Since Cronbach's Alpha is the most practical test to verify the consistency and reliability of the scale, it was utilized to guarantee the validity and reliability of the survey instruments (Dennik R, 2011). Eleven perceived contribution survey items were examined; the reliability test yielded a value of 0.939, as shown in Table 2, indicating that the Cronbach's alpha is at the extraordinarily excellent level. This demonstrates the validity, reliability, and internal consistency of the survey's items.

Table 2: - Validity and Reliability Test of the Instrument

Cronbach's Alpha	
Perceived Contribution	0.939

Table 3: - Descriptive Statistics

	Perceived Contribution	
	Big Four Audit Firm	**Non - Big Four Audit Firm**
Valid	46	54
Mean	4.561	4.545
Standard Deviation	0.375	0.433

Table 3 presents descriptive statistics to demonstrate the extent to which participants from two distinct categories of audit firms in Sri Lanka (B4 audit firms (n =46) and the NB4 audit firms

(n = 54)) perceive AI's contribution to audit quality. The descriptive statistics result suggests that respondents employed by the B4 audit firms (Mean= 4.561; Standard Deviation (SD) = 0.375) provide the highest ratings for the perceived contribution of AI towards audit quality compared to NB4 audit firms (Mean= 4.545; SD = 0.433). It suggests that the B4 audit firms, Deloitte, PwC, EY, and KPMG, are at the forefront of the enthusiasm for implementing AI in financial data analysis, auditing, and reporting (Tiron-Tudor & Deliu, 2022; Yigitbasioglu et al., 2023).

Table 4: - Descriptive Statistics for questionnaire items of perceived contribution

Items	Big Four Audit Firm		Non - Big Four Audit Firm	
	Mean	Standard Deviation	Mean	Standard Deviation
Q1	4.41	0.498	4.48	0.574
Q2	4.76	0.480	4.65	0.555
Q3	4.46	0.622	4.43	0.690
Q4	4.74	0.491	4.65	0.555
Q5	4.76	0.480	4.74	0.521
Q6	4.04	0.206	4.02	0.363
Q7	4.41	0.498	4.48	0.574
Q8	4.76	0.480	4.65	0.555
Q9	4.70	0.465	4.70	0.461
Q10	4.65	0.482	4.69	0.469
Q11	4.48	0.547	4.52	0.574

The descriptive analysis for each questionnaire item in the perception of the contribution of AI to audit quality between B4 and NB4 audit firms is presented in Table 4. The mean value of the items in Q5 was the highest for both the "B4" audit firm and the "NB4" audit firm categories, with 4.76 (SD = 0.480) and 4.74 (SD = 0.521), respectively. This implies that continuous risk evaluation during the audit process will be made easier by the use of AI systems and tools.

As per the results, in terms of B4 audit firm respondents, Q2, Q5, and Q8 show higher mean values with 4.76 score. It indicates AI contributes to automating regular audit processes and procedures to free up more time for critical judgment areas (Q2), and permit the autonomous re-execution of intricate computations and models (Q8). These findings support the findings of Puthukulam et al. (2021) and Khaled (2022).

In conclusion, the mean value of each item in the questionnaire responded by the two types of audit firms is greater than four, and the standard deviation ranges from 0.206 to 0.69. This suggests that respondents think AI improves audit quality by helping with the entire audit process, including raising professional skepticism, freeing up more time to concentrate on areas requiring significant judgment, improving comprehension of the entity and its operations, enabling thorough risk assessment by analyzing entire populations, spotting possible fraud, and more. Therefore, both kinds of auditing firms concur that the way AI systems are seen to contribute can reveal fraud opportunities and possible risks. As a result, it confirmed that every type of audit business believes AI can help raise audit quality.

Table 5 - Independent samples t-test of the perceived contribution of AI

	t	df	p	Mean Difference	SE Difference	Lower	Upper
Perceived Contribution (Equal variance assumed)	-0.193	98	0.11	0.15	0.08	-0.17	0.14

At p<0.05

To determine whether there are any significant differences in the perception of the use of AI in audit quality between auditors from B4 and NB4 audit firms in Sri Lanka, an independent samples t-test is performed in this study, represented in Table 5. The independent samples t-test results suggest that there are no significant differences (t (98) = -0.193, p = 0.11) between auditors employed by "B4" audit firms (Mean= 4.561; SD = 0.375) and those employed by "NB4" audit firms (Mean= 4.545; SD = 0.433) in Sri Lanka. The degree of variation in the means (mean difference = 0.016, 95% confidence interval: −0.17 to 0.14) failed to demonstrate statistical significance. The hypothesis that there are any significant differences in the perception of the use of AI in audit quality between auditors from B4 and NB4 audit firms in Sri Lanka is thus rejected. It suggests that employees in both B4 and NB4 audit firms are well

educated about the contribution of AI in the audit process, as accounting professional bodies in Sri Lanka and other institutions frequently conduct awareness programs on this subject.

Conclusions and Recommendations

The literature currently in publication presents contradictory and ambiguous results about the effects of AI use on auditing quality, underscoring the need for additional study on the application of AI to enhance auditing quality. Moreover, previous research has not sufficiently investigated the divergence in auditors' assessment of the significance of utilizing AI on auditing quality across B4 and NB4 audit firms, especially in Sri Lanka. Therefore, the goal of this study is to determine whether there are differences in the B4 audit firms' and NB4 audit firms' perceptions of the contribution of AI use to audit quality, as well as to investigate the degree to which AI helps to improve audit quality from the viewpoint of Sri Lankan auditors.

The Study findings that B4 and NB4 audit companies in Sri Lanka acknowledge the important role AI plays in improving audit quality. This broad use in the Sri Lankan setting highlights how AI is becoming increasingly significant in changing and enhancing auditing procedures there. This agreement points to a bright future for AI integration in Sri Lanka's auditing procedures, which will raise audit quality overall.

Further, this study confirms that auditors from B4 and NB4 companies in Sri Lanka do not significantly differ in their assessments of AI's influence on audit quality. This result implies that various categories of audit firms in the nation consistently recognize the advantages of AI. This agreement emphasizes how widely implementing AI technologies could improve audit quality throughout Sri Lanka's auditing sector.

Limitations

Since Sri Lanka is the study's primary focus, its conclusions could not apply to other nations or areas with differing legislative frameworks and levels of technological adoption. Comparative research conducted across many geographical regions may yield more thorough insights. Furthermore, investigating how cultural variations affect how AI is viewed and applied in auditing might provide insightful data with broad relevance.

The ethical and legal ramifications of using AI into audits may not be covered in great detail in this study. More study should concentrate on these areas to ensure that AI technologies are used ethically and in accordance with industry rules. This research paper only considers auditor

perceptional views whereas different accounting professionals such as corporate accountants, and academics views can be gathered in future studies.

Recommendation

Sri Lanka should make educational and training program investments to increase auditors' AI abilities and knowledge, as both B4 and NB4 organizations have a common understanding of AI's role in improving audit quality. This will enhance the overall quality of audits and better equip auditors to employ AI technology.

There is a chance for cooperative projects that unite B4 and NB4 firms because there aren't any appreciable discrepancies in how audit firms see AI. These projects can concentrate on exchanging best practices, creating standards for the application of AI across the sector, and encouraging an innovative culture in auditing.

Sri Lanka should create and put into effect supportive regulatory frameworks that address the ethical and technological aspects of AI use in order to make it easier to integrate AI into audits. To foster confidence among stakeholders, this entails establishing rules for the appropriate application of AI, protecting data privacy and security, and encouraging openness in AI-driven audit procedures.

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