Original Research Article

EVALUATION OF ARTIFICIAL INTELLIGENCE AND EFFICACY OF AUDIT PRACTICE IN NIGERIA

ABSTRACT

Artificial Intelligence (AI) has become increasingly popular globally as a crucial tool for auditing financial statements, but in Nigeria, the adoption and use of AI tools by auditors is still in its early stages. Attention has been primarily focused on the Big 4 accounting firms, with little attention given to small-scale audit practitioners in Nigeria. This study seeks to examine the impact of AI on audit practice in Nigeria by employing a survey research design. The population of this study comprises 89 accounting firms operating in the Ikeja Local Government area of Lagos State, with a sample size of 62 firms selected using purposive sampling. Data was collected through a well-structured questionnaire, and the reliability of the research instrument was confirmed with a Cronbach Alpha test result of an average of 70%. Descriptive analysis and regression analysis were used to analyze the data, and the results indicated that data mining, machine learning, and image recognition exhibited a significant positive relationship with audit practice in Nigeria. The study concluded that the use of AI will enable auditors to predict future trends and make more informed decisions that focus on improving audit practice. The study recommended constant training of accountants and audit personnel on the use of data mining techniques to improve audit practice, investment in machine learning tools by audit firms in Nigeria, and increased use of image recognition to assist in object classification.

Keywords: *Audit Practice, Data Mining, Artificial Intelligence, Image Recognition, Machine Learning.*

1. INTRODUCTION

Recently, audit practitioners have undergone significant changes in their professional duties, particularly in evaluating, examining, and verifying the accuracy of financial statements and reports, as well as inspecting and confirming the existence of physical assets and inventory of products. This also involves reviewing their clients' policies and procedures, as well as their compliance with relevant regulatory requirements. Audit practitioners may work independently in accounting firms or as consultants. However, beyond their accounting and investigative skills, they are also expected to possess excellent communication and analytical abilities to present their audit findings and recommendations clearly and explain their implications to management or the board of directors, where necessary (Awotomilusi et al., 2022; Dagunduro et al., 2023).

Over the past few years, there has been a growing trend in the use of AI, particularly machine learning in accounting and auditing. However, while there has been significant progress in AI and ML technologies, they have not yet been able to completely replace the need for human expertise and decision-making (Comerford et al., 2019). Although there is a huge potential for AI and ML technologies, there are still challenges to overcome such as the cost of adoption and the lack of technical knowledge among companies (Akinadewo, 2021). Technology has advanced, and the audit profession's goal has remained unchanged, which is to offer an unbiased evaluation of an organization's financial statement's accuracy and compliance with relevant regulations.

Incorporating Artificial Intelligence tools has become increasingly challenging due to the vast amount of structured and unstructured data. Despite this, in developed countries, AI remains crucial for various finance-related tasks that involve routine-based activities and do not require complex decision-making. There is a forecast that AI will take over up to 40% of current transactional accounting (Noordin et al, 2022; James, 2014). Examples of such tasks include internal performance reporting, purchase-to-pay, and record-to-report, all of which utilize robotic automation. AI has the potential to be a game changer for professional accountants, especially in the knowledge-based economy. While the potential applications of AI are exciting, there are also concerns about its impact, such as the fear that AI will replace human accountants and render many accounting practitioners redundant (Al-shayyed et al., 2021).

Previous research studies (Aduloju et al., 2014; Raphael, 2015) have primarily focused on demonstrating how artificial intelligence impacts the decision-making process in auditing and

accounting. However, existing literature on AI and auditing in Nigeria has mainly concentrated on the Big 4 accounting firms, with little attention paid to small and medium-sized practitioners. Therefore, this study aims to investigate the effect of AI applications on the operations of small and medium-sized accounting firms located in the Ikeja Local Government area of Lagos State in Nigeria. This study is significant because it will examine how AI-based systems can enhance the effectiveness of the auditing process by examining how AI tools interact with the auditing process. Since AI adoption by small and medium-scale audit practitioners in Nigeria is still in its early stages. Determining the benefits of AI implementation can contribute to knowledge in this emerging field and encourage auditors to adopt and implement AI for more efficient and effective service delivery.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

2.1 Conceptual Review

2.1.1 Artificial Intelligence

John McCarthy, a prominent computer scientist, introduced the term "Artificial Intelligence" in 1955-56 during the Dartmouth College Artificial Intelligence Conference. The purpose of this conference was to demonstrate how machines could be developed to imitate the problem-solving abilities of humans, as exemplified by the Logic Theorist program initiated by Allen Newell, Cliff Shaw, and Herbert Simon (Dagunduro, et al., 2023). McCarthy defined AI as the science and engineering of creating intelligent machines (Akinadewo, 2021). AI embraces the use of computer systems to perform tasks that are typically carried out by human intelligence, and it is currently a hot topic. Over sixty years ago, the first AI-based project was an attempt to create software that could translate between Russian and English, as noted (Hwang & Chang, 2021; Ivy et al., 2020).

Cognitive Technology or Cognitive Computing are alternative terms for Artificial Intelligence, which has a broad range of applications that are not all relevant to accounting, according to Kokina and Davenport (2017). Although the technical aspects of AI are not typically part of traditional business disciplines, its significant impact has made it a topic of interest in business education and practices. AI technology is utilized across various business functions, such as production, distribution, procurement, sales and marketing, accounting and finance, audit, research and development, and human resource management. As a fundamental aspect of a

business, accounting, and auditing are exposed to both the advantages and disadvantages of AI technology. Reddy and colleagues (2019) suggest that decision-making tools based on technology are increasingly crucial as business operations become more complex.

2.1.1.1 Data Mining

Data mining involves analyzing large data sets to uncover patterns and relationships that can help businesses solve problems and make informed decisions, as stated by (Falana et al., 2023). Despite researchers proposing frameworks that demonstrate the benefits of continuous auditing and data mining over the past decade, practical difficulties persist (Genter et al., 2018). Expert system software can be developed for any problem requiring a selection from a set of options, especially those based on logical steps, according to Dagunduro et al. (2023). Thus, any field that requires specialized knowledge or expertise has the potential to utilize an expert system. The demand for data mining in auditing has grown significantly due to the increasing complexity and potential for the manipulation of accounting transactions through online systems and technology devices. James (2014) notes that data mining has become increasingly valuable in the auditing profession as it evaluates vast amounts of data in the attest function more manageable.

2.1.1.2 Machine Learning

The study of machine learning is an aspect of computer science that examines the development of algorithms that can use statistical analysis to recognize patterns and relationships within large data sets, intending to make accurate predictions about future events (Dagunduro et al., 2023; Isa et al., 2016). This area has been applied to a wide range of fields, including finance, biology, health, and education. The concept of machine learning has been defined by various researchers, but all describe a computer's ability to learn from historical data and use that knowledge to make predictions about future data. Machine learning involves the construction of mathematical models from sample data and the evaluation of these models' accuracy in predicting future data (Akinadewo, 2021; Cannon & Bedard, 2016). Machine learning has many practical applications, such as in analyzing relevant data to predict outcomes in similar situations.

The use of machine learning, along with other technological advancements such as big data and blockchain, is expected to significantly transform the fields of accounting and auditing by enabling greater automation and more efficient analysis of large volumes of data. In auditing, machine learning is already being used by major accounting services firms to automate manual

tasks, identify potential problems or errors, and flag transactions that differ significantly from the standard (Awotomilusi, 2022; Chen et al., 2018).

2.1.1.3 Image Recognition

Image recognition refers to the process of identifying and categorizing objects within an image. This task is also known as photo recognition or picture recognition. The goal of image recognition is to classify the detected objects into different categories, a long-standing research problem in computer vision (Cho et al., 2020; Kokina & Davenport, 2017; Martin, 2013). Thus, it is also called object recognition. On the other hand, image detection involves identifying various objects within an image, with the focus being on distinguishing one object from another and determining how many distinct entities are present within the picture (Moffit et al., 2018). In Western countries, image detection has been widely used for auditing financial statements and detecting fraud. However, its application in accounting and auditing is relatively new in developing countries such as Nigeria, Ghana, and other African nations.

2.1.2 Efficacy of Audit Practice

To audit an organization means to independently examine its accounting books, which include financial statements like the balance sheet, income statement, statement of changes in equity, cash flow statement, and notes explaining accounting policies (Awotomilusi et al., 2022). The goal of an audit is to provide an opinion on whether the information presented in these financial statements accurately reflects the organization's financial position at a particular date. With the increasing complexity of businesses, the use of technology-based decision aids is becoming more critical in the audit process. AI is automating several auditing processes that previously required manual labor, including data entry (Raji and Buolamwini, 2019).

Compared to human auditors, AI systems have the advantage of being able to analyze 100% of data, create audit tests, and write audit reports. AI technology can also minimize errors by automating data entry processes, detecting fraudulent entries, and reducing the need for human intervention (Blair & Stout, 2017). To fully appreciate the role of AI tools in auditing, it is important to understand the process of auditing, which involves obtaining evidence to form opinions on an entity's financial statements. Since audit procedures depend on the risk factors and internal control system of the client, no two audit processes are identical (Cho et al., 2020). However, AI technology can enhance effectiveness at each step of the audit process, serving as a connector where the output of one step becomes the input of the next. The key steps in auditing

include pre-planning, planning, understanding the entity, risk assessment, documentation, completion, and reporting (James, 2014).

2.1.3 Artificial Intelligence and Efficacy of Audit Practice

The utilization of Artificial Intelligence in the audit process is crucial in predicting potential financial loss or distress (Dagunduro et al., 2023). The audit process aims to identify any errors or misstatements in the financial statements of companies, while AI refers to the integration of advanced technologies to improve business operations' efficiency and effectiveness. Hansen (1992) suggests that machine learning models are highly relevant in making various predictions and decisions during the audit process, which can ultimately reduce financial distress risks in financial statements. On the other hand, Chang and Hwang (2020) emphasize the significance of adopting big data techniques, including binary models, life test methods, and corporate governance models, to overcome financial irregularities and errors in the audit process. They utilized fifty-four financial indicators to predict financial distress in companies, and their results showed that the selected variables performed effectively in the prediction process.

When conducting an audit of a company's financial statements, auditors rely on audit evidence to ensure that the information presented is accurate and complete. The proper governance of AI methodologies is crucial in achieving ethical decision-making, as highlighted by Ivy et al. (2020). By obtaining appropriate audit evidence, auditors can make ethical judgments and decisions regarding the financial statements, which is essential for effective auditing (Akinadewo, 2021; Awotomilusi et al., 2022; Dagunduro et al., 2023; Falana et al., 2023).

2.2 Theoretical Review

This study reviewed two theories; stakeholders' theory and agency theory while the study was underpinned by agency theory**.**

2.2.1 Stakeholder Theory

In 1984, Edward Freeman proposed the Stakeholder Theory, which focuses on values and ethics in organizational management (Freeman, 2016). Unlike the shareholder theory, the stakeholder theory does not contradict or oppose it. Rather, it considers the interests of other stakeholders besides shareholders. The concept takes a broader perspective on economic interests than the shareholder theory. The interests of employees, creditors, vendors, customers, communities, environmental activists, and governments are all expected to be taken into account. While AI can decrease expenses and increase profitability, its impact on the employment of many unemployed

workers must also be considered. When firms prioritize stakeholders, meaning their executives strive to maximize a weighted sum of shareholder value and their contributions to the well-being of customers and employees, the new competitive equilibrium (stakeholder equilibrium) outperforms the capitalist equilibrium.

2.2.2 Agency Theory

The Agency theory is a crucial concept in auditing, which explains the connection between managers and investors. The theory was propounded by Stephen Ross and Barry Mitnick in 1973, independently and roughly concurrently (Mitnick, 2019). In this theory, the manager is the agent who represents the investors as the principal. Ideally, the manager should act in the best interest of the investors, but in some cases, the agent may not act in the best interest of the principal. Therefore, auditing plays a vital role in assuring the investors that the managers are fulfilling their obligation to represent the investors' interests. The auditors are responsible for guiding investors while also overseeing the managers. The audit reports assist investors in making informed decisions about buying, selling, or holding securities. With the growth in the size of companies, the volume of data requiring auditing is also increasing. As a result, auditors must provide timely and reliable information to investors, ensuring that the information meets reliability standards by thoroughly examining the financial reports. (Commerford et al., 2019; Shogren et al., 2017; Blair & Stout, 2017).

2.3 Empirical Review

Several studies have been conducted on the effect of artificial intelligence on accounting and auditing practices. In a study conducted by Dagunduro et al. (2023), the impact of artificial intelligence on the quality of audit practice in Nigeria was investigated. The study used a survey research design that involved 178 practicing accounting firms in Nigeria that were using artificial intelligence applications. A sample size of 125 was determined using the purposive sampling method, and primary data were collected using a well-structured questionnaire. The data were analyzed using descriptive statistics and OLS. The findings showed that expert systems, machine learning, and intelligent agents had a significant positive relationship with audit quality in Nigeria. Similarly, Falana et al. (2023) conducted a study to assess the effect of big data on accounting information quality in selected firms in Nigeria. The study collected data from a primary source through the administration of well-structured questionnaires. The population of the study comprised 157 firms listed on the Nigeria Exchange Group as of 31st December 2021,

and a sample size of 20 firms was selected using the purposive sampling technique. The collected data were analyzed using regression analysis, and the results showed that data volume, data variety, and data velocity had a significant positive effect on the quality of accounting information.

Awotomilusi et al. (2022) found a significant positive relationship between cloud computing and accounting practices in Nigeria. Odoh et al. (2018) discovered that artificial intelligence positively influences the performance of accountants in performing their duties. Vardia et al. (2021) concluded that digitalization has significantly influenced the working methods and process of auditing. Monal et al. (2022) found that the adoption of AI will lead to a new era of creativity and innovation that will lead to the development of the field of accounting and auditing. Other studies also found significant positive impacts of AI on accounting and auditing practices. Almufadda and Almezeini (2020) reviewed the impact of AI applications on the auditing profession and found that the application of AI to audit practice is still limited to the Big 4 accounting firms. Overall, these studies suggest that the use of cloud computing and AI can lead to improvements in accounting and auditing practices. Schulenberg (2007) investigated the use of "Cognitive Auditing," a computerized process that utilizes AI to assist auditors in identifying errors and issues in financial reports. IBM created this system, which incorporates machine learning algorithms to detect anomalies and errors in financial reporting. Gentner et al. (2018) confirmed that AI is utilized in auditing to identify mistakes and anomalies in financial reports quickly and to identify patterns in data and make predictions or decisions. Nwakaego and Ikechukwu (2015) stated that AI is revolutionizing the auditing process and can carry out complex audits much more efficiently and accurately than humans can. It can also analyze large volumes of data quickly and effectively.

Thus, AI can play a vital role in the auditing process and will likely become even more critical in the future. Chassignol et al. (2018) focused on the use of AI to identify and prevent fraud, which can be achieved by identifying patterns in data that suggest fraudulent activity. Greenman (2017) suggested that accountants can use AI technology to focus on more complex tasks while utilizing AI to accomplish business objectives. According to Lin and Hazelbaker (2019), AI can enhance the quality of accounting activities, offer more meaningful information, and increase productivity by performing high-level tasks and creating new jobs. The Association of Chartered Certified Accountants (ACCA) also reported that AI could enable accountants to shift their focus from

traditional activities such as bookkeeping to services such as consultation, advising, and growth planning (Jariwala 2015).

Previous studies (Aduloju, et al., 2014; Gentner et al., 2018; Hassan, 2022; Raphael, 2015; Schulenberg, 2007) have stressed and focused on the demonstration of the impact of artificial intelligence on the auditing and accounting decision-making process. However, it is obvious from existing literature that the majority of the work done on AI and Auditing in Nigeria focused attention on the Big 4 accounting firms with little attention given to small and medium-scale practitioners. The following hypotheses were formulated for the study:

Ho_1: Data mining does not have a significant effect on the efficacy of audit practices in Nigeria.

Ho_2: Machine learning does not have a significant effect on the efficacy of audit practices in Nigeria.

Ho_3: Image recognition does not have a significant effect on the efficacy of audit practices in Nigeria.

3. DATA AND METHODS

A survey research design was used to investigate the impact of Artificial Intelligence on audit practice. The study focused on personnel from accounting firms in the Ikeja Local Government Area of Lagos State, of which there were 89 as of August 2022. The researcher utilized the purposive sampling method to select members of the population who have incorporated AI variables into the auditing process for the sample size. A sample size of 62 firms out of 89, representing approximately 70% of the population, was deemed appropriate for the study to ensure reliable data. Five questionnaires were administered per firm, resulting in a total of 310 questionnaires collected for data analysis. Descriptive analysis using measures of central tendency (such as mean, median) and dispersion (such as standard deviation) was used to analyze the data.

3.1 Reliability Test

The study's reliability was assessed using the Cronbach Alpha test, and the results are shown in Table 1. The Cronbach Alpha scores for audit practice, data mining, machine learning, and image recognition were 0.742, 0.732, 0.702, and 0.713, respectively, indicating that all of the items tested in these areas had a Cronbach Alpha above the specified benchmark of 0.7. The audit practice had seven items, data mining had eight items, machine learning had six items, and image recognition had six items.

Table 1: Cronbach Alpha Test Results

S/N	Variable	No. of Items	Cronbach's Alpha
1	Audit Practice (AP)	7	0.742
2	Data Mining (DM)	8	0.732
3	Machine Learning (ML)	6	0.702
4	Image Recognition (IR)	6	0.713

Source: **Author's Computation (2023)**

4. DATA ANALYSIS AND DISCUSSION OF FINDINGS

4.1. Descriptive Statistics

Table 2 displays the distribution characteristics of the variables in the study. The average distribution of audit practice is 4.008475, with a range from 2.750000 to 5.000000. The standard deviation of 0.613354 indicates that audit practice has a higher deviation rate from its mean value. The skewness of audit practice is negatively skewed with a value of -0.198410, while its kurtosis of 2.130986 indicates a platykurtic distribution.

Data mining has an average value of 4.061017, with a standard deviation of 0.870729, which indicates a higher deviation rate from the mean value. The data for data mining is negatively skewed with a skewness value of -1.159749, and its kurtosis value of 2.852451 indicates a platykurtic distribution. Similarly, machine learning has a mean value of 3.935593, ranging from 1.000000 to 5.000000, with a standard deviation of 1.151421. The data for machine learning is negatively skewed with a value of -1.159749, and its kurtosis value of 3.695964 indicates a leptokurtic distribution. Finally, image recognition has a mean value of 4.115254, with a high standard deviation of 0.849332 relative to the mean value. The data for image recognition is negatively skewed with a value of -1.222217, and its kurtosis value of 5.275598 indicates a leptokurtic distribution.

Table 2: Descriptive Statistics

Variable	AP	DM	ML	IR
Mean	4.008475	4.061017	3.935593	4.115254
Median	4.000000	4.000000	4.000000	4.000000
Maximum	5.000000	5.000000	5.000000	5.000000
Minimum	2.750000	2.000000	1.000000	1.000000
Std. Dev.	0.613354	0.870729	1.151421	0.849332
Skewness	-0.198410	-0.706394	-1.159749	-1.222217
Kurtosis	2.130986	2.852451	3.695964	5.275598
Observations	295	295	295	295

Source: Author's Computation (2023)

4.2. Test of Variables

4.2.1. Normality Test

The researchers used a histogram normality graph to examine the variables used in the study on artificial intelligence and audit practice in Nigeria. Figure 1 shows that the data used in the study are normally distributed because the majority of the respondents' responses fall within the central part of the histogram, which is shaped like a bell curve. Therefore, the conclusion is that the data for the variables are normally distributed.

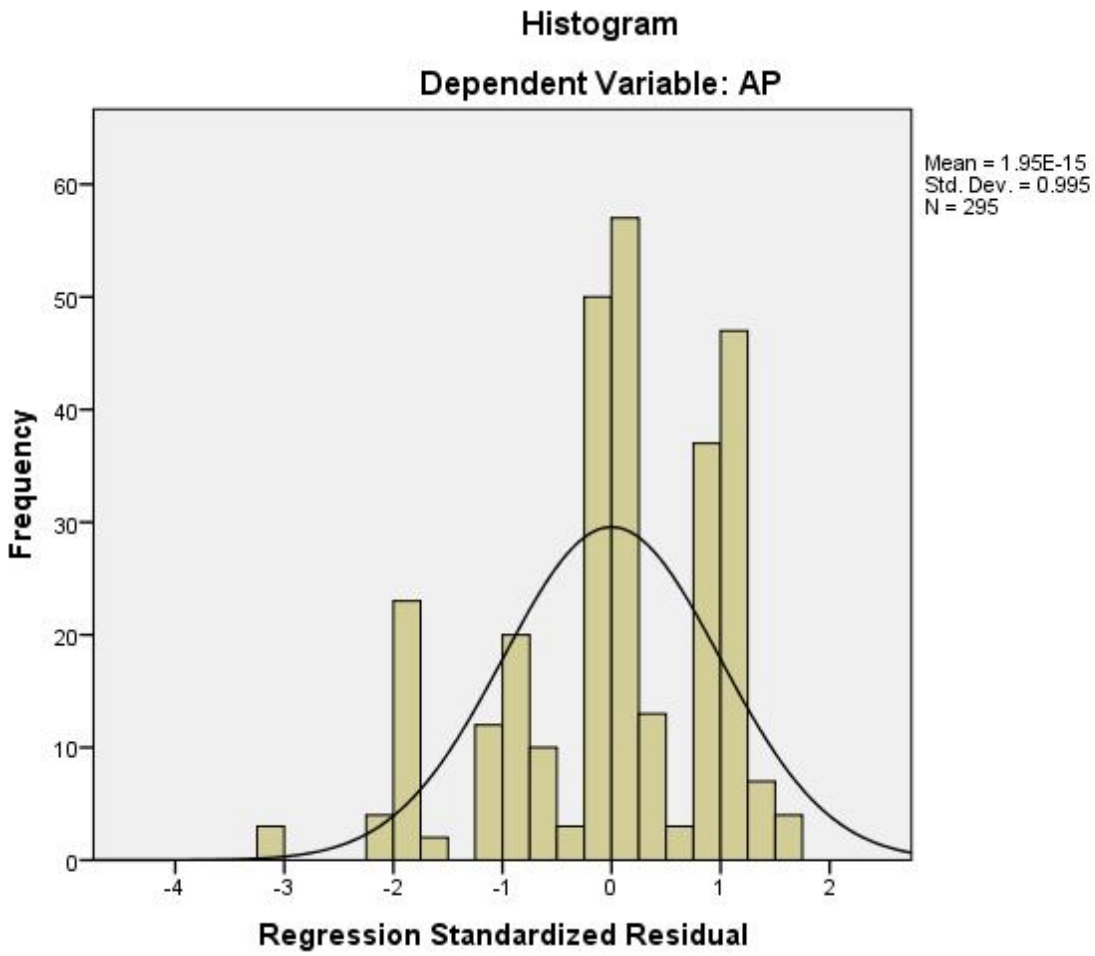

Figure 1: Histogram Normality Test

Source: Author's Computation (2023)

4.2.2. Linearity Test

Table 3 presents the correlation matrix between audit practice and artificial intelligence variables in Nigeria. The correlation coefficient of data mining is 0.552, which indicates that the use of artificial intelligence created through data mining increases audit practice in Nigeria. The correlation coefficient between machine learning and audit practice is also positive and significant, with a value of 0.661, suggesting that an increase in artificial intelligence created through machine learning will lead to an increase in audit practice in Nigeria. Moreover, image recognition has a significant positive correlation of 0.470 with audit practice in Nigeria, indicating that an increase in image recognition of artificial intelligence will increase audit practice in Nigeria by 0.470 units. However, there was no evidence of a multicollinearity

problem among the explanatory variables, as the highest correlation coefficient value of 0.661 does not exceed the benchmarked value of 0.7.

Table 3: Correlation Analysis of Study Variables

	AP	DM	ML	IR
AP	1.0000			
DM	0.552**	1.0000		
	(0.000)			
ML	0.661**	0.357**	1.0000	
	(0.000)	(0.000)		
IR	0.470**	-0.005	0.258**	1.0000
	(0.000)	(.933)	(0.000)	

Source: Author's Computation (2023)

4.2.3. Multicollinearity Test of Variables

Tables 4 and 5 show the results of the multicollinearity tests conducted in the study using the tolerance and variance inflation factor (VIF). In Table 4, the tolerance value for data mining is 0.863, while machine learning has a tolerance value of 0.805 and image recognition has a tolerance value of 0.923. The VIF values for data mining, machine learning, and image recognition are 1.159, 1.242, and 1.084, respectively. These results indicate that there is no multicollinearity problem because all the tolerance values are above the benchmark of 0.1 and the VIF values are less than 10. Table 5 also supports this conclusion, showing that the variables in the model have no multicollinearity issues.

Table 4: Tolerance and VIF Value

Variable	Tolerance	VIF	1/VIF
DM	0.863	1.159	0.863
ML	0.805	1.242	0.805
IR	0.923	1.084	0.923
Mean VIF		1.162	

Source: Author's Computation (2023)

Table 5: Post-Estimation Test Results

Breusch-Godfrey Serial Correlation LM Test		
Null Hypothesis	**Statistics**	**Probability**
There is no Serial Correlation (P>0.05)	185.1799	0.1346
Heteroskedasticity Test: Breusch-Pagan-Godfrey		
Null Hypothesis	**Statistics**	**Probability**
no heteroskedasticity of the residuals (P>0.05)	5.568803	0.1346
Tolerance and VIF Value		
Null Hypothesis	**VIF**	**1/VIF**
Absence of multicollinearity among the variables (1/VIF >0.10)		1.162

Source: **Author's Computation (2023)**

4.3. Artificial Intelligence and Audit Practice in Nigeria

Table 6 shows the results of the OLS analysis on the relationship between artificial intelligence and audit practice in Nigeria. The R2 coefficient value of 0.671972 and an adjusted R2 value of 0.668590 indicate that approximately 67% of the variation in audit practice in Nigeria can be explained by data mining, machine learning, and image recognition. The F-statistics of 198.7064 with a p-value of 0.000000 demonstrates that the model is statistically significant and a good fit. The individual coefficients of the model indicate that data mining has a coefficient of 0.283319, t-statistics of 11.12635, and p-value of 0.0000, implying that a unit increase in the coefficient of data mining will result in a 0.283319 unit increase in the audit practice. Machine learning has a coefficient of 0.209601, t-statistics of 3.026383, and p-value of 0.0027, suggesting that a unit increase in the coefficient of machine learning will lead to a 0.209601 unit increase in audit practice in Nigeria. Image recognition has a coefficient of 0.100757, t-statistics of 3.227322 with a p-value of 0.0013, indicating that a unit increase in the coefficient of image recognition will lead to a 0.100757 unit increase in audit practice in Nigeria.

The results show that data mining, machine learning, and image recognition have significant and positive relationships with audit practice in Nigeria. The findings are consistent with previous studies (Al-Shaer and Zaman, 2018; Chen et al., 2018; Dagunduro, et al., 2023; James, 2014; Odoh et al., 2018; Taghizadeh, et al., 2018; Vardia et al., 2021) among others that suggest that

data mining and machine learning techniques help organizations to sort through large data sets, identify patterns and relationships, predict future trends, and make more informed business decisions, which, in turn, can improve audit practice. The use of machine learning to automate audit tasks, analyze data, identify exceptions and potential problems, and assess risks has improved audit practice in Nigeria as supported by the findings of (Abiola and Solomon, 2020; Almufadda and Almezeini, 2020; Blair and Stout, 2017; Cho et al., 2020; Dagunduro et al., 2023; Matonti, 2018; Monal et al., 2022) among others. Similarly, the study found that there is a significant positive correlation between image recognition and audit practice in Nigeria, which is in agreement with the results of other studies conducted by (Abdul and Eitedal, 2020; Akinadewo, 2021; Eno et al., 2019; Shaher, 2020), and others. These studies suggest that image recognition helps to improve audit practice by classifying detected objects into different categories and determining the category to which an image belongs.

Table 6: OLS Regression on Artificial Intelligence and Audit Practice in Nigeria

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DM	0.283319	0.025464	11.12635	0.0000
ML	0.209601	0.069258	3.026383	0.0027
IR	0.100757	0.031220	3.227322	0.0013
C	0.892487	0.140799	6.338740	0.0000
R-squared	0.671972			
Adjusted R-squared	0.668590			
F-statistic	198.7064			
Prob (F-statistic)	0.000000			

Source: Author's Computation (2023)

4.4. Discussion of Findings

The present study examined the impact of artificial intelligence on audit practice in Nigeria, focusing on auditors within Ikeja local government in Lagos state. The study's results demonstrate that data mining, machine learning, and image recognition play a significant role in enhancing audit practice in Nigeria. The outcomes suggest that leveraging artificial intelligence

empowers auditors to anticipate future trends and make informed decisions that aid in improving audit practices.

5. CONCLUSION AND RECOMMENDATIONS

In this research, the relationship between artificial intelligence and audit practice in Nigeria was investigated using auditors from Ikeja Local Government in Lagos state as a case study. The study employed regression analysis and correlation matrix to analyze the relationship between the dependent variable, audit practice, and the independent variables, which were data mining, machine learning, and image recognition. The results showed that all the explanatory variables in the model had a significant positive relationship with audit practice in Nigeria. Thus, it was concluded that the use of artificial intelligence through data mining, machine learning, and image recognition improves audit practice in Nigeria. Based on the findings, the study made the following recommendations:

i. Accountants and audit personnel should undergo training and re-training on the use of data mining techniques to improve the quality of audit practice.
ii. Audit firms in Nigeria should invest more in machine learning to further improve audit practices in the country.
iii. The use of image recognition, which helps in the classification of detected objects into different categories, should be increased among audit firms in Nigeria.

AUTHOR'S CONTRIBUTION

All authors contributed to the study's conception and design. Material preparation, data collection, and analysis were performed by all authors. All authors read and approved the final manuscript.

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RESEARCH INSTRUMENTS

Dear Respondents,

INVITATION FOR COMPLETION OF QUESTIONNAIRE

This is a doctoral research survey questionnaire. You are cordially invited to participate in a research work titled "Evaluation of Artificial Intelligence and Efficacy of Audit Practice in Nigeria". The information you provide shall be treated with the utmost confidentiality and used solely for academic purposes. Your sincere and honest answers will highly enhance the success of this research work and shall be greatly appreciated.

Thank you.

Section A: Background Information

1. Date of Incorporation of the firm.....
2. Number of Partners.....
3. Number of offices in Nigeria.....
4. Qualification of respondents NCE [] B.Sc./HND [] M.Sc. [] Ph.D. [] Professionally Qualified Accountant []
5. What other services do you offer your clients apart from audit, Tax Management [] Financial consulting [] Recruitment services [] Training and Human Capital Development [] Investigation & Forensic auditing []
6. Affiliation with International firms Yes [ ] No [ ]
7. Years of experience of respondents in audit practice: Less than a year [ ] Between 1 and 5 years [ ], Between 5 and 10 years[ ], Between 10 and 15 years [ ], Over 15 years[ ]

Section B:

Section B consists of a set of questions asked with respect to artificial intelligence and audit practice in Nigeria. Kindly tick your opinion appropriately.

KEY: SA= Strongly Agree, A= Agree, UD= Undecided, D= Disagree, SD= Strongly Disagree

B (i). Ascertain the effects of Data Mining on Audit Practice in Nigeria

S/N		SA	A	U	D	SD
1	The use computer of aided techniques for data sorting can improve audit quality.					
2	Information sorted using can be more reliable than the ones done manually					
3	Do you agree that audit software can discover wrongly updated data?					
4	Do you agree that the use of the computer-aided technique can lead to fraud detection without human intervention?					
5	Do you agree that the use of technology can enhance the quality of audit work?					
6	Do you agree that the use of technology-aided techniques can simplify the audit process?					
7	Does the use of technology in audits reduce audit risk?					
8	Do you agree that it can be implied that an audit done without the use of technology is unreliable?					

B(ii) Determine the effects of Machine Learning on Audit Practice in Nigeria

S/N		SA	A	U	D	SD

1	Do you agree that the use of computer technology for predicting output values from given input data is effective. ?					
2	Does your firm use Automatic helplines or chatbots in which customers or clients don't speak to humans, but instead interact with a machine. ?					
3	Does your firm use algorithms that use machine learning and natural language processing, with the bots learning from records of past conversations to come up with appropriate responses. ?					
4	Does your firm have a pool of training data where your machine or software learn and improve with experience. ?					
5	Does your firm use algorithms for prediction with human intervention?					
6	Does your firm use machine learning to reduce the cost and time of conducting an audit?					

B(iii): Find out how Image Recognition affects Audit Practice in Nigeria

S/N		SA	A	U	D	SD
1	Does your firm use computers with the ability to understand text and spoken words in much the same way human beings can?					
2	Does your firm have a computer that can process human language in the form of text or voice data and understand its full meaning, complete with the speaker or writer's intent and sentiment. ?					
3	Does your firm use a computer system that can reliably convert voice data into text data?					
4	Does your firm u**se** a computer system that can put structured information into human language?					
5	Do you agree that Image recognition techniques imp**rove** the audit process?					
6	Do you agree that the application of image recognition techniques in auditing client financial statements results in cost and time savings?					

B (iv) Audit Practice in Nigeria

S/N		SA	A	U	D	SD
1	The approach of audit used can significantly influence the quality of the audit.		`			
2	The tools and techniques used can influence the quality of an audit					
3	Audit practice in Nigeria can be upgraded with the use of Artificial Intelligence.					
4	Audits are rated on the standard of Information Technology A**dopted.**					
5	The reliability of audit reports is measured by technology not necessarily by human input.					
6	Adoption of Information Technology in audit can improve the audit planning process and aid the timely achievement of the overall audit objectives.					
7	Do you agree that the audit technique used can determine the competency of your audit firm					